Metro

Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza
3rd Floor Board Room

Metro

Agenda - Final

Thursday, May 26, 2016

9:00 AM

One Gateway Plaza, Los Angeles, CA 90012,
3rd Floor, Metro Board Room

Board of Directors

Mark Ridley-Thomas, Chair
John Fasana, 1st Vice Chair
Eric Garcetti, 2nd Vice Chair
Michael Antonovich
Mike Bonin
James Butts
Diane DuBois
Jacquelyn Dupont-Walker*
Don Knabe
Paul Krekorian
Sheila Kuehl
Ara Najarian
Hilda Solis
Carrie Bowen, non-voting member
Phillip A. Washington, Chief Executive Officer

****Via Telephone***
The Westin, Kansas City
1 East Pershing Road, Kansas City, MO 64108

METROPOLITAN TRANSPORTATION AUTHORITY BOARD RULES (ALSO APPLIES TO BOARD COMMITTEES)

PUBLIC INPUT

A member of the public may address the Board on agenda items, before or during the Board or Committee's consideration of the item for one (1) minute per item, or at the discretion of the Chair. A request to address the Board should be submitted in person at the meeting to the Board Secretary. Individuals requesting to speak on more than three (3) agenda items will be allowed to speak up to a maximum of three (3) minutes per meeting. For individuals requiring translation service, time allowed will be doubled.
The public may also address the Board on non-agenda items within the subject matter jurisdiction of the Board during the public comment period, which will be held at the beginning and/or end of each meeting. Each person will be allowed to speak for up to three (3) minutes per meeting and may speak no more than once during the Public Comment period. Speakers will be called according to the order in which the speaker request forms are received. Elected officials, not their staff or deputies, may be called out of order and prior to the Board's consideration of the relevant item.
In accordance with State Law (Brown Act), all matters to be acted on by the MTA Board must be posted at least 72 hours prior to the Board meeting. In case of emergency, or when a subject matter arises subsequent to the posting of the agenda, upon making certain findings, the Board may act on an item that is not on the posted agenda.

CONDUCT IN THE BOARD ROOM - The following rules pertain to conduct at Metropolitan Transportation Authority meetings:

REMOVAL FROM THE BOARD ROOM The Chair shall order removed from the Board Room any person who commits the following acts with respect to any meeting of the MTA Board:

a. Disorderly behavior toward the Board or any member of the staff thereof, tending to interrupt the due and orderly course of said meeting.
b. A breach of the peace, boisterous conduct or violent disturbance, tending to interrupt the due and orderly course of said meeting.
c. Disobedience of any lawful order of the Chair, which shall include an order to be seated or to refrain from addressing the Board; and
d. Any other unlawful interference with the due and orderly course of said meeting.

INFORMATION RELATING TO AGENDAS AND ACTIONS OF THE BOARD

Agendas for the Regular MTA Board meetings are prepared by the Board Secretary and are available prior to the meeting in the MTA Records Management Department and on the Internet. Every meeting of the MTA Board of Directors is recorded on CD's and as MP3's and can be made available for a nominal charge.

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NOTE: ACTION MAY BE TAKEN ON ANY ITEM IDENTIFIED ON THE AGENDA

CALL TO ORDER

ROLL CALL

APPROVE Consent Calendar Items: 2, 9, 12, 18, 20, 21, 22, 23, 26, 30, 31, 32, 33 and 37.

Consent Calendar items are approved by one motion unless held by a Director for discussion and/or separate action.

CONSENT CALENDAR

2. APPROVE **Minutes of the Regular Board Meeting held April 28, 2016.** 2016-0396

Attachments: April 28, 2016 Regular Board Meeting Minutes

FINANCE, BUDGET AND AUDIT COMMITTEE MADE THE FOLLOWING RECOMMENDATION (3-0):

9. ADOPT the **FY17 Proposed Audit Plan**. 2016-0344

Attachments: Attachment A - FY17 Proposed Audit Plan

PLANNING AND PROGRAMMING COMMITTEE RECOMMENDED (5-0):

12. APPROVAL OF: 2016-0329

A. CONSOLIDATING up to $96.0 million in **repurposed Los Angeles County Federal transportation earmarks on State Route 71**, freeing up a corresponding amount of funds for Los Angeles County sponsors;

B. AUTHORIZING the Chief Executive Officer to:

1. NEGOTIATE AND EXECUTE agreements with participating local agencies for the funds shown in Attachment A, so as to ensure that the exchanged funds being made available are properly administered, used in a timely fashion, and are expended within three years of executing the agreements;

2. PROVIDE 97% replacement funding to Los Angeles County project sponsors for repurposed federal earmarks from the local funds currently planned for State Route 71, unless the sponsor

affirmatively opts out of the program by June 30, 2016;

3. Use three percent (3%) of the earmarked amount that LACMTA would retain to administer the exchange program; and

C. CONSOLIDATING up to $2.4 million in potentially repurposed Metro-controlled Federal transportation earmarks to allocate on the Airport Metro Connector Project without freeing up any funds.

Attachments: Attachment A - Federal Earmark Amount Available for Repurposing by Agency
Attachment B - Metro Sponsored Earmarks to be Repurposed or Delivered
Attachment C - Caltrans FHWA Earmark Repurposing Timeline

CONSTRUCTION COMMITTEE MADE THE FOLLOWING RECOMMENDATION (4-0):

18. **APPROVE Motion by Knabe** that the MTA Board directs the CEO to complete the technical year completion date for the Airport Metro Connector Project, by adjusting the Expenditure Plan (including Attachment A to the March 24, 2016 report for Agenda Item 4.1, Groundbreaking Sequence) to correctly show 2021 - 2023 as the "Expected Completion Date 3-year Range, in order for Metro to commit to the calendar year 2023 delivery date. 2016-0456

CONSTRUCTION COMMITTEE MADE THE FOLLOWING RECOMMENDATION (4-0):

20. AUTHORIZE the CEO to execute Contract Modification No. 24 to Contract No. E0119 with the **Connector Partnership Joint Venture (CPJV) Inc. to continue providing Design Support Services during Construction through FY17 for the Regional Connector Transit Corridor Project** (Project), in the amount of $5,565,000 increasing the total contract value from $62,742,374 to $68,307,374. This action does not increase Life of Project Budget. 2016-0334

Attachments: Attachment A - Procurement Summary
Attachment B - Contract Modification Authority(CMA) Summary
Attachment C - DEOD Summary

CONSTRUCTION COMMITTEE MADE THE FOLLOWING RECOMMENDATION (4-0):

21. AUTHORIZE the Chief Executive Officer to execute Amendment No. 1 to the existing Memorandum of Understanding between **Metro and the Los Angeles County Museum of Natural History, including the Page Museum at the La Brea Tar Pits, for the preservation and storage of paleontological and archaeological resources associated with the Westside Purple Line Extension Section 1 Project**. 2016-0326

Attachments: Attachment A - Amendment 1 to MOU between Metro and the Los Angeles Cou
Attachment B - Memorandum of Understanding between Metro and the Los Ang

CONSTRUCTION COMMITTEE MADE THE FOLLOWING RECOMMENDATION (4-0):

22. AUTHORIZE the Chief Executive Officer to execute: 2016-0101

A. Modification No. 3 to Contract No. PS8610-2879, **with Hill International, Inc. for Program Control Management and Support Services**, to exercise the final one-year option thereby extending the period of performance from June 28, 2016 to June 28, 2017, and increase the total contract not-to-exceed amount $6,210,946 from $18,482,598 to $24,693,544; and

B. individual Contract Work Orders (CWOs) and Contract Modifications within the Board approved not-to-exceed contract value.

Attachments: Attachment A - Procurement Summary PCMS
Attachment B - Contract Work Order and Modification Log PCMS
Attachment C - DEOD Summary PCMS

CONSTRUCTION COMMITTEE MADE THE FOLLOWING RECOMMENDATION (4-0):

23. APPROVE: 2016-0365

A. INCREASING the Life of Project budget for Project 809081, Red Line Segment 2 Close-out in the amount of $635,000 increasing the previous authorization amount of $31,847,1000 to $32,482,100;

B. AMENDING the FY16 budget to add $635,000 to Project 809081, Red Line Segment 2 Close-out;

C. INCREASING the Life of Project 809082, **Red Line Segment 3 Close-out** in the amount of $211,670, increasing the previous authorization amount of $4,195,900 to $4,407,570; and

D. AMENDING the FY16 budget to add $211,670 to Project 809082, Red Line Segment 3 Close-out.

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE MADE THE FOLLOWING RECOMMENDATION (4-0):

26. APPROVE **nominees for membership on Metro's San Fernando Valley, San Gabriel Valley, and Westside Central Service Councils**. 2016-0283

Attachments: Attachment A - Listing of Qualifications 5-2016

Attachment B - Nomination Letters 5-2016

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE MADE THE FOLLOWING RECOMMENDATION (4-0):

30. AUTHORIZE the Chief Executive Officer to award a firm fixed price Contract No. OP4978800, a sole source procurement, to **American Power Systems, LLC. (APS), in the amount of $1,003,974, to furnish and install a replacement back-up power system for the Blue Line.** 2016-0357

Attachments: Attachment A - Procurement Summary

Attachment B - DEOD Summary

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE MADE THE FOLLOWING RECOMMENDATION (4-0):

31. AUTHORIZE the Chief Executive Officer to award a firm fixed unit rate Contract No. OP4260900 for **commercial and industrial door repair and preventive maintenance services with Specialty Doors + Automation**, for a not-to-exceed amount of $1,116,405 for the three-year base period, $372,135 for the first option year, and $372,135 for the second option year, for a combined total of $1,860,675, effective July 1, 2016, through June 30, 2021. 2015-1785

Attachments: Attachment A - Procurement Summary
Attachment B - DEOD Summary

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE MADE THE FOLLOWING RECOMMENDATION (4-0):

32. AWARD a cost plus fixed fee contract for **Technical Support Services for the Heavy Rail Vehicle (HRV) Acquisition, Contract No. OP16523-30433487, to LTK Engineering Services**, in the not-to-exceed amount of $13,028,744 for a period of 62 months from issuance of a Notice-to-Proceed (NTP) for the 64 HRV Base Order. 2016-0052

Attachments: ATTACHMENT A - PROCUREMENT SUMMARY
ATTACHMENT B - DEOD SUMMARY
ATTACHMENT C - FUNDING EXPENDITURE PLAN

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE MADE THE FOLLOWING RECOMMENDATION (4-0):

33. **APPROVE Motion by Najarian** that the Board direct the CEO to: 2016-0411

A. create a comprehensive study of all communities/cities impacted by the BNSF locomotive noise factor;

B. direct staff to work with Metrolink staff to prioritize those cities most in need of a quite-zone; and

C. report back to the MTA Board in 90 days on the results of this study.

AD-HOC TRANSIT POLICING OVERSIGHT COMMITTEE MADE THE FOLLOWING RECOMMENDATION (4-0):

37. AUTHORIZE the Chief Executive Officer to execute Modification No. 13 to Memorandum of Understanding (MOU) No. PS2610LASD with the **County of Los Angeles Sheriff's Department (LASD) to provide law enforcement services** for up to six (6) months for the period covering July 1, 2016 through December 31, 2016 in the amount of $56,296,146, thereby increasing the total contract value from $569,570,714 to $625,866,860. 2016-0360

Attachments: Attachment A - Procurement Summary

Attachment B - Contract Modification Change Order Log

Attachment C - DEOD Summary

NON-CONSENT

3. Report by the **Chair.** 2016-0460

Attachments: Chair Report 052616

4. Report by the **Chief Executive Officer.** 2016-0461

PLANNING AND PROGRAMMING COMMITTEE MADE THE FOLLOWING RECOMMENDATION AS AMENDED (5-0):

14. ADOPT the **Active Transportation Strategic Plan**. 2016-0108

Attachments:
Attachment A - Active Transportation Strategic Plan.pdf
Attachment B - Stakeholder Outreach Matrix.pdf
Attachment C - Public Comments & Metro's Response.pdf
Attachment D - Motion #25 Developing an Active Transportation Finance Strate
Attachment E - Preliminary Estimate of Annual Active Transportation Needs in L
Attachment F - Funding Sources.pdf
Presentation.pdf

14.1 **APPROVE Motion by Garcetti, Bonin, Kuehl, Solis, DuBois and Najarian** that the Board adopt the Active Transportation Strategic Plan (Item 14); and, 2016-0442

WE FURTHER MOVE that the Board direct the CEO to:

A. Designate streets within the Active Transportation Strategic Plan's 661 transit station areas as the Countywide First-Last Mile Priority Network;

B. To support regional and local transit ridership and facilitate build-out of the Countywide First-Last Mile Priority Network, including, but not limited to, ADA-compliant curb ramps, crosswalk upgrades, traffic signals, bus stops, carshare, bikeshare, bike parking, context-sensitive bike infrastructure (including Class IV and access points for Class I bike infrastructure), and signage/wayfinding:

1. Provide technical and grant writing support for local jurisdictions wishing to deliver First-Last Mile projects on the Countywide First-Last Mile Priority Network, including providing technical assistance and leadership to jurisdictions to help and encourage the implementation of subregional networks that serve the priority

network;

2. Prioritize funding for the Countywide First-Last Mile Priority Network in MTA grant programs, including, but not limited to, the creation of a dedicated First-Last Mile category in the Call for Projects;

3. Create, and identify funding for, a Countywide First-Last Mile Priority Network Funding Match Program, separate from existing MTA funding and grant programs, for local jurisdictions wishing to deliver First-Last Mile projects on the Countywide First-Last Mile Priority Network;

4. To support the Active Transportation Strategic Plan, dedicate funding for the Countywide First-Last Mile Priority Network in the ongoing Long-Range Transportation Plan update, including a review of First-Last Mile project eligibility for all Prop A, Prop C, and Measure R capital funding categories;

5. Building on MTA's underway effort to conduct First-Last Mile studies for Blue Line stations, conduct First-Last Mile studies and preliminary design for First-Last Mile facilities for all MTA Metro Rail stations (existing, under construction, and planned), all busway stations, the top 100 ridership Los Angeles County bus stops, and all regional rail stations;

6. Incorporate Countywide First-Last Mile Priority Network project delivery into the planning, design, and construction of all MTA transit projects ~~starting with the Purple Line Extension Section 2 project~~. These Countywide First-Last Mile Priority Network elements shall not be value engineered out of any project; and staff to report back at the June Planning and Programming Committee on the Purple Line Extension Section 2 Project.

C. Report on all the above during the October 2016 MTA Board cycle.

AMENDMENT by Solis to include Foothill Gold Line Phase 2B Extension to Claremont.

14.2 **APPROVE Motion by Butts, DuBois, Knabe and Solis** to amend Motion 14.1 under subsection B-6 to specify that, henceforth, Metro would negotiate in a standardized MOU with the respective contributing jurisdiction(s) that up to 100% ~~50%~~ of a local jurisdiction's 3% local contribution can go towards underwriting ATP, First-Last Mile, bike and pedestrian and street safety projects that contribute to the accessibility and success of the stations in the respective jurisdictions. 2016-0451

~~**AMENDMENT by Solis** to include Foothill Gold Line Phase 2B Extension~~

~~to Claremont.~~

15. AUTHORIZE the Chief Executive Officer (CEO) to award a one-year firm fixed price Contract No. AE470670022889 to Cityworks Design in the amount of $2,003,317 for the **Rail to Rail Active Transportation Corridor Environmental Review, Clearance and Design - Segment A Project.** 2016-0116

Attachments: Attachment A - Procurement Summary
Attachment B - DEOD Summary
Attachment C - Rail to Rail/River Active Transportation Corridor Segment Map

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE FORWARDED WITHOUT RECOMMENDATION THE FOLLOWING:

29. AUTHORIZE the Chief Executive Officer to award contract No. PS21904205074 to **Reliable Monitoring Systems (RMS), in the amount of $1,159,860, to provide a Gas Detection System (GDS) for Metro Red Line (MRL) and Metro Gold Line (MGL)**. 2016-0171

Attachments: Attachment A - Procurement Summary
Attachment B - DEOD Summary

PLANNING AND PROGRAMMING COMMITTEE MADE THE FOLLOWING RECOMMENDATION AS AMENDED (5-0):

35. PROGRAM $600,000 in **Measure R 3% Funds in the FY 17 budget for Metrolink Station Location Studies for the El Monte, Northridge and Rio Hondo Stations**. 2016-0392

Attachments: Attachment A_El Monte
Attachment B_Rio Hondo
Attachment C_Northridge

35.1 **AMENDMENT by Solis and Garcetti** that the MTA Board direct the CEO to program an additional $300,000 in Measure R 3% funds in the FY17 budget to include the feasibility of relocating the Montebello/Commerce Metrolink station to the Citadel Outlets as part of the Metrolink Stations Location Feasibility Studies. 2016-0455

CONSTRUCTION COMMITTEE FORWARDED THE FOLLOWING ITEM WITHOUT RECOMMENDATION:

36. AUTHORIZE the Chief Executive Officer (CEO) to: 2016-0250

A. ADOPT a Design Life of Project Budget for $11,078,366 for the **I-210 Barrier Replacement Project to develop a Risk Assessment Study, Environmental Clearance and Final Design documents** for future construction consideration;

B. AMEND FY16 Budget by $553,918 and AMEND FY17 Proposed budget by $9,970,529 to fund aforementioned efforts;

C. AWARD AND EXECUTE a fourteen-month labor hour Task Order No. 12 for Contract No. PS4730-3070. Highway Programs on-call support services, to CH2M Hill Inc. in an amount not-to-exceed $4,799,967 for Architectural and Engineering (A&E) services for the preparation of the Project Report and Environmental Documents (Categorical Exemption) and the Plans, Specifications and Estimates for the Metro Gold Line Interstate 210 Barrier Replacement; and

D. EXECUTE Modification No.1 to Contract No. PS4730-3070 to increase the not-to exceed value by $4,799,967 from $10,000,000 to $14,799,967.

Attachments: ATTACHMENT A-Design Life of Project Cost Estimate
AtTTACHMENT B Procurement Summary
ATTACHMENT C -Task Order Log.pdf
ATTACHMENT D-DEOD Summary

FINANCE, BUDGET AND AUDIT COMMITTEE MADE THE FOLLOWING RECOMMENDATION (3-0):

38. APPROVE: 2016-0372

A. adopting the **FY17 Budget** as presented in the budget document (provided in a separate transmittal and posted on Metro.net) with the amendment of an additional -$5.3 million reduction as a reconciliation item to the proposed budget as shown on Attachment A;

B. the **Reimbursement Resolution declaring Metro's intention to issue debt in FY17 for capital projects** (provided in Attachment B). Actual debt issuance will require separate Board approval;

C. an average 3% merit increase for non-represented employees which will be performance based; and

D. an adjustment to management pay grades and salary bands for the top seven levels H1S through HFF to reflect typical market practice. There is no impact to the budget or to current employees' salaries (see Attachment C).

Attachments: ATTACHMENT A-Amendment Items
Attachement B_Debt Reimbursement Resolution FY17 2016APR29 FINAL
Attachment C - Class and Comp Adj
ATTACHMENT D - Public Outreach
Attachment E - FY17 Public Hearing

39. RECEIVE AND FILE **State and Federal Report.** 2016-0391

Attachments: May 2016 Leg Matrix

40. ADOPT staff recommended positions: 2016-0393

~~A. AB 1640 (Stone) - Retirement: Public Employees WORK WITH AUTHOR~~

B. AB 2542 (Gatto) - Streets And Highways: Reversible Lanes **SUPPORT IF AMENDED**

C. SB 885 (Wolk) - Construction Contracts: Indemnity **OPPOSE**

Attachments: AB 1640 (Stone) - Attachment A
AB 2542 (Gatto) - Attachment B
SB 885 (Wolk) - Attachment C

41. ADOPT the **Universal College Student Transit Pass (U-Pass) Pilot Program**. 2016-0333

Attachments: Attachment A - 49.1 Motion Community College Student Transit Pass Pilot Prog
Attachment B - 49 Community College Student Transit Pass Pilot Program
U-Pass Presentation for Board Meeting 05-26-16

42. RECEIVE AND FILE status report on the **mission and progress of the Office of Extraordinary Innovation.** 2016-0337

Attachments: Attachment A - OEI Presentation

43. RECEIVE AND FILE the **Chief Communications Officer's Quarterly Report.** 2016-0286

Attachments: CCO Report with PBM Public Input Summary FINAL 5-26-16

44. RECEIVE AND FILE **Financial Forecasting Model Information for the Potential Ballot Measure Expenditure Plan**. 2016-0359

Attachments: Attachment A - April 14, 2016 Construction Committee Motion by Directors Knal
Attachment B - LRTP Financial Forecast Update Link
Attachment C - Comparison of LRTP Financial Forecast Model with Exp Plan.Rl

END OF NON-CONSENT ITEMS

45. CLOSED SESSION: 2016-0459

Conference with Legal Counsel - Existing Litigation - G.C. 54956.9(d)(1):

City of Beverly Hills v. LACMTA, LASC Case No. BS144164

Consideration of items not on the posted agenda, including: items to be presented and (if requested) referred to staff; items to be placed on the agenda for action at a future meeting of the Committee or Board; and/or items requiring immediate action because of an emergency situation or where the need to take immediate action came to the attention of the Committee subsequent to the posting of the agenda.

COMMENTS FROM THE PUBLIC ON ITEMS OF PUBLIC INTEREST WITHIN COMMITTEE'S SUBJECT MATTER JURISDICTION

Adjournment

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

Metro

Board Report

File #: 2016-0396, **File Type:** Minutes **Agenda Number:** 2

REGULAR BOARD MEETING
MAY 26, 2016

SUBJECT: REGULAR BOARD MEETING MINUTES HELD APRIL 28, 2016

APPROVE **Minutes of the Regular Board Meeting held April 28, 2016.**

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Metro

Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza
3rd Floor Board Room

Metro
Los Angeles, CA

MINUTES

Thursday, April 28, 2016

9:00 AM

One Gateway Plaza, Los Angeles, CA 90012,
3rd Floor, Metro Board Room

Board of Directors

Directors Present:
John Fasana, 1st Vice Chair
Eric Garcetti, 2nd Vice Chair
Michael Antonovich
Mike Bonin
James Butts
Diane DuBois
Jacquelyn Dupont-Walker
Don Knabe
Sheila Kuehl
Ara Najarian
Hilda Solis
Carrie Bowen, non-voting member
Phillip A. Washington, Chief Executive Officer

CALLED TO ORDER AT: 9:09 A.M.

ROLL CALL

1. APPROVED Consent Calendar Items: 2, 5, ~~6~~, 28, ~~**29~~, 30, 31, 36, 37 and 39.

   Consent Calendar items were approved by one motion except for items 6 and 29 which were held by a Director for discussion and/or separate action.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	Y	Y	A	A	Y	Y	A	Y	Y	Y

2. APPROVED ON CONSENT CALENDAR **Minutes of the Regular Board Meeting held March 24, 2016.** 2016-0278

3. RECEIVED Report by the **Chair.** 2016-0340

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
A	A	P	P	P	A	A	P	P	A	P	P	P

4. RECEIVED Report by the **Chief Executive Officer.** 2016-0342

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
P	A	P	P	P	A	A	P	P	A	P	P	P

5. AUTHORIZED ON CONSENT CALENDAR the Chief Executive Officer to **negotiate and award All Risk Property and Boiler and Machinery Insurance Policies** for all property at the current policy limits at a not to exceed price of $2.4 million for the 12-month period May 10, 2016 through May 10, 2017. 2015-1765

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
							C					

DK = D. Knabe	MCB = M. Bonin	JF = J. Fasana	DD = D. DuBois
PK = P. Krekorian	MA = M. Antonovich	JB = J. Butts	
JDW = J. Dupont-Walker	MRT = M. Ridley-Thomas	HS = H. Solis	
SK = S. Kuehl	EG = E. Garcetti	AN = A. Najarian	

LEGEND: Y = YES, N = NO, C = HARD CONFLICT, S = SOFT CONFLICT ABS = ABSTAIN, A = ABSENT, P = PRESENT

6. AUTHORIZED AS AMENDED the Chief Executive Officer to execute contract modifications under Contract No. OP02461010 with Cubic Transportation Systems, Inc. (Cubic): 2015-1804

   A. Contract Modification No. 140 for the **purchase and installation of 54 TAP Vending Machines (TVMs) at key Metro stations**, in the amount of $5,194,834; and

   B. Contract Modification No. 94.03 for **maintenance support services** of these 54 TVMs in the amount of $838,211 through June 2019; increasing the total contract value by $6,033,045 from $253,351,430 to $259,384,475. No additional funds are being requested for Contract Modifications 140 and 94.03.

AMENDMENT BY **DIRECTORS BUTTS, KNABE, NAJARIAN AND DUPONT-WALKER** that this Board instruct the CEO and Metro staff to return to this Board in six (6) months with a plan designed to select and prioritize the expansion of TVM machines to the sites described above based on a ridership and TAP card usage threshold to warrant selection and placement of TVM machines.

The Plan should then recommend options for funding, especially CMAQ; including a phased implementation, respective roles and responsibilities of Municipal Operators and Metro, and funding for purchase, installation, operation and maintenance, and security for the selected TVM sites.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	C	Y	A	A	Y	Y	Y	Y	Y	Y

7. ADOPTED a resolution, Attachment A, that: 2016-0211

   A. AUTHORIZES the **issuance of bonds by competitive sale to refund the Proposition C Series 2006-A Bonds** (the "2006-A Bonds") in one or more transactions, consistent with the Debt Policy;

   B. APPROVES the forms of Notice of Intention to Sell Bonds, Notice Inviting Bids, Supplemental Trust Agreement, Continuing Disclosure Agreement, Escrow Agreement, and Preliminary Official Statement, all subject to modification as set forth in the resolution; and

   C. AUTHORIZES taking all action necessary to achieve the foregoing, including, without limitation, the further development and execution of bond documentation associated with the issuance of the Bonds.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	Y	Y	A	A	Y	Y	Y	Y	Y	Y

10. AUTHORIZED the Chief Executive Officer (CEO) to award a 30-month firm fixed price Contract No. AE469080015383, to CH2M Hill Inc. in the amount of $30,975,446 for **Architecture and Engineering (A&E) services for Plans, Specifications and Estimate (PS&E) for I-5 North Managed Lanes.** **2015-1729**

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	Y	Y	A	A	C	Y	C	C	Y	Y

12. AUTHORIZED the Chief Executive Officer to award a 36-month cost plus fixed fee Contract No. AE476110012334, to Michael Baker International, Inc. in an amount not to exceed $7,762,669 for **Architectural and Engineering (A&E) services for the preparation of the Project Approval and Environmental Document (PAED) on Westbound SR-91, from Shoemaker Avenue to the I-605/SR-91 Interchange.** **2016-0123**

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
C	A	Y	C	C	C	A	Y	Y	Y	Y	Y	Y

13. APPROVED: **2016-0162**

A. ADOPTING findings of the **Environmental Analysis for the Metro Countywide Bike Share Phase I Pilot in Downtown Los Angeles (DTLA Pilot)** that the project qualifies for a CEQA Categorical Exemption under the Section 15303 (Class 3) New Construction or Conversion of Small Structures exemption (Attachment A);

B. AUTHORIZING staff to file the **Notice of Exemption for the DTLA Pilot**; and

C. ADOPTING findings of the **Title VI and Environmental Justice Analysis for the DTLA Pilot** that no Disparate Impact and no Disproportionate Burden associated with the project (Attachment B).

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	Y	Y	Y	A	Y	Y	Y	Y	Y	Y

14. AUTHORIZED the Chief Executive Officer (CEO) to enter into a **Funding Agreement (FA) for the West Santa Ana Branch Transit Corridor - Sustainable Transit Oriented Communities Predevelopment and Planning Activities (Operation Shovel Ready) with the Gateway Cities Council of Governments (COG), to be led by the Eco-Rapid Transit Joint Powers Authority (JPA)** for near-term project activities in response to the Metro Board February 2016 directive, in an amount not-to-exceed $230,800. 2016-0209

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	Y	Y	Y	A	Y	Y	Y	Y	Y	Y

15. APPROVED: 2016-0231

A. APPROVING the revised Resolution in Attachment A that authorizes the Chief Executive Officer (CEO) or his designee to claim $16,825,598 in fiscal year (FY) 2015-16 **Low Carbon Transit Operations Program (LCTOP) grant funds for one year of Gold Line Foothill Extension Phase 2A operations and one year of Expo Line Phase 2 operations**; and

B. APPROVING the Resolution in Attachment B that certifies that Metro will comply with the LCTOP Certification and Assurances and the Authorized Agent requirements, and authorizes the CEO or his designee to execute all required documents and any amendments with the California Department of Transportation.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	Y	Y	Y	A	Y	Y	Y	Y	Y	Y

16. APPROVED: 2016-0252

A. SUPPORTING the establishment of the proposed **Hollywood Western Business Improvement District ("BID") in the City of Los Angeles** and the resulting assessments on properties within the District boundaries owned by Metro; and

B. AUTHORIZING the Chief Executive Officer or his delegate to sign any necessary petition and cast any subsequent ballots in support of the BID and property assessments.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	Y	Y	Y	A	Y	Y	Y	Y	Y	Y

19. RECEIVED AND FILED report on **Capital Project Construction Management Best Practices Study.** 2016-0279

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	Y	Y	Y	A	Y	Y	A	Y	Y	Y

20. RECEIVED **Oral Report by the Program Management Executive Director.** 2016-0251

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
P	A	P	P	P	P	A	P	P	P	P	P	P

22. APPROVED: 2016-0235

A. ESTABLISHING a total budget of $3.5 million for the **design phase of the Portal Widening and preliminary design of the Turnback Facility at Division 20** to accommodate system capacity need; and

B. AMENDING the FY16 budget to include $0.8M for start of design efforts.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	A	Y	Y	Y	A	Y	Y	Y	Y	Y	Y

24. RECEIVED AND FILED status report on the **February 2016 Public Hearings**; and APPROVED **Motion by Directors Knabe, DuBois and Dupont Walker** that the MTA Board instruct the CEO to complete the actions necessary to implement the Metro staff proposal to transition the southern portion of Line 270 to Norwalk Transit, and the northern portion to Foothill Transit, with the transition point for north and south in El Monte, effective June 27, 2016 2016-0144

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	A	Y	Y	Y	A	Y	Y	Y	Y	Y	Y

28. ADOPTED ON CONSENT CALENDAR: 2016-0153

A. the finding of no Disparate Impact and no Disproportionate Burden resulting from **proposed major service discontinuations and major new service proposals for June 2016 implementation (Attachment A)**;

(Continued on next page)

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B. the finding that improving service on Line 704 to conform to the new loading standards creates a Disparate Impact but no Disproportionate Burden. The Disparate Impact is created because Line 704 serves an area significantly less minority than the county average and there is no alternative that is less discriminatory (**Attachment A**); and

C. the finding of no Disparate Impact and no Disproportionate Burden for proposed exemption of Line 577 from express fare charge (**Attachment B**).

29. APPROVED BY TWO-THIRDS VOTE AS AMENDED finding that a new procurement of 60' advanced transit buses under Public Utilities Code (PUC) §130232 low bid requirement does not constitute a procurement method adequate for LACMTA's needs. The Board, pursuant to Public Contract Code (PCC) §20217, hereby directs the **procurement of up to four hundred (400) new 60' advanced transit buses in a procurement by competitive negotiation.** **2016-0182**

AMENDMENT BY DIRECTORS GARCETTI, SOLIS, FASANA AND DUPONT-WALKER that the Board direct the CEO to:

A. develop an initial outline for a comprehensive plan to further reduce greenhouse gas emissions by gradually transitioning to a zero-emission bus fleet;

B. report which public transit agencies have deployed zero emission vehicle buses in the U.S.

C. identify manufacturers that provide zero emission bus technology for large U.S. transit agencies.

D. report that provides the following information for zero emission buses:

1. Greenhouse gases and air pollutant levels;

2. Noise levels (i.e. decibels) comparison between conventional Clean Natural Gas ("CNG") and zero emission buses;

3. Production challenges and opportunities to partner with other agencies in large procurements to achieve economies scale discounts; comparison of long-term maintenance costs.

(Continued on next page)

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4. Chronological timeline of the advancements and forecasts in zero emission bus technologies;

E. provide a report on all mile-range and run times for all current MTA bus routes.

F. identify possible Federal, State and local funding sources that are eligible for the purchase of zero-emission bus vehicles.

G. for this new bus procurement of advanced transit buses, include the following:

1. Zero emission bus technology cost options for the base order and all other bus purchase options.

2. Increasing and maximizing seating capacity.

H. report back on the above at the October 2016 MTA Board meeting and provide a semi-annual report thereafter on zero emission bus technology.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	Y	Y	A	A	Y	Y	Y	Y	Y	Y

30. AUTHORIZED ON CONSENT CALENDAR the Chief Executive Officer to award a firm fixed-price Contract No. MA4829600, a single source procurement, to Hegenscheidt-MFD Corporation (USA) to **perform a midlife overhaul of the Blue Line Wheel Truing Machine** for $1,385,769. **2016-0003**

31. AWARDED ON CONSENT CALENDAR a three-year, firm fixed price Contract No. PS4443900HONEYWELL, a sole source procurement, to Honeywell International, Inc. (Honeywell) for the **Platform Track Intrusion Detection System (PTIDS) pilot program** for an amount of $1,553,050 inclusive of sales tax. The contract includes both labor and materials, including project management support, installation and demonstration planning, system design and testing, and training of Metro staff on installation. Materials will include the PTIDS system, to be installed at three station platform sides on the Metro Rail system. **2016-0124**

36. ADOPTED ON CONSENT CALENDAR staff recommended position: **2016-0247**

AB 1964 (Bloom) - Alternative Fuel Vehicle HOV Lane Access **WORK WITH AUTHOR**

36.1 **WITHDRAWN:** ADOPT staff recommended position: **2016-0368**

SB 1362 (Mendoza) - Metro Transit Security ~~**WORK WITH AUTHOR**~~ **SUPPORT**

37. ADOPTED ON CONSENT CALENDAR staff recommended positions: **2016-0269**

A. **AB 1595 (Campos)** - Human Trafficking Training Requirements **SUPPORT**
B. **AB 2222 (Holden)** - Transit Passes **SUPPORT** ~~**IF AMENDED**~~
C. **AB 2742 (Nazarian)** - Public Private Partnerships **SUPPORT**
D. **SB 824 (Beall)** - Low Carbon Transit Operations Program **SUPPORT**
E. **SB 951 (McGuire)** - Golden State Patriot Pass Program **SUPPORT**

39. APPROVED ON CONSENT CALENDAR **Motion by Directors Krekorian, Kuehl, Garcetti and Antonovich** that the Board of Directors direct the CEO to implement a Rapid bus running along Nordhoff and Osborne Streets, providing service between the Rapid 794 line and the Nordhoff stop of the Metro Orange Line. Metro bus operations should work with the university to ensure that service is provided late enough into the evening to accommodate all students, faculty and staff who would need to remain on campus until later hours. **2016-0325**

FURTHER MOVE that Metro staff study utilizing all-door boarding along this line, similar to the pilot project that has been very successful along the Rapid 720 line at reducing dwell times and speeding up headways.

40. ADOPTED staff recommended position: **2016-0371**

SB 1018 (Liu) - State Route 710 North Study: Cost Benefit Analysis **OPPOSE**

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	A	N	Y	Y	A	Y	Y	Y	Y	N	Y

41. APPROVED BY TWO-THIRDS VOTE: **2016-0273**

A. HOLDING a public hearing on the proposed Resolution of Necessity.

(Continued on next page)

(Item 41 – continued from previous page)

B. ADOPTING the **Resolution of Necessity** authorizing the commencement of an eminent domain action to acquire **Project Parcel W-3603 (APN: 4319-001-007)**, consisting of the real property and the Improvements Pertaining to the Realty (hereinafter the "Property" as identified in Attachment A).

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	Y	Y	A	A	Y	Y	A	Y	Y	Y

42. APPROVED UNDER RECONSIDERATION BY TWO-THIRDS VOTE: **2016-0280**

A. HOLDING a public hearing on the proposed Amended Resolution of Necessity;

B. ADOPTING an amended **Resolution of Necessity** clarifying the nature of the property rights to be acquired in the pending eminent domain action against **Japanese Village, LLC, et al (hereinafter "Owner"),** in support of the Metro Regional Connector Transit Corridor Project, including a provision for the bifurcation of the existing subsurface tunnel easements, and for the outgrant to the Property Owner of the space between the bifurcated tunnel easements in the context of Metro's long-range plans affecting the Property.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	Y	Y	Y	ABS	A	Y	Y	Y	A	Y	Y

43. **APPROVED Motion by Director Knabe** that the MTA Board instruct the CEO to report back to the Board during the May 2016 Board cycle with: **2016-0339**

A. a quarterly report on the status of the Airport Connector project;

B. information on why the project's delivery date may be later than previously reported to the Board and identifying options for putting the project back on schedule for accelerated delivery; and

C. a recommendation based on staff's analysis.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
Y	A	A	Y	Y	Y	A	Y	Y	Y	Y	Y	Y

44. **APPROVED MOTION by Directors Knabe, Dubois and Butts** that the Board instruct the CEO to report to the Board during the May 2016 Board cycle with copies of the draft "Financial Forecasting Model for the Potential Ballot Measure Expenditure Plan" for review and discussion by the Board at the May 26, 2016 Board meeting. 2016-0341

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
A	A	A	Y	Y	Y	A	Y	Y	Y	Y	Y	A

45. **APPROVED MOTION by Directors Antonovich and Kuehl** that the Metro Board directs the CEO to return to the Board within 120 days with a comprehensive plan that identifies strategies to develop effective partnerships with ridesource companies. This plan will also include an identification of obstacles in partnering with these companies, strategies to overcome these obstacles, and a review of benefit to the public as a result of partnering with these companies. 2016-0375

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
A	A	A	Y	Y	Y	A		Y	Y	Y	Y	A

46. **CLOSED SESSION:** 2016-0343

A. Conference with Legal Counsel - Existing Litigation - G.C. 54956.9(d)(1)

1. Serafin Andres Hernandez v. LACMTA, LASC Case No. BC540487

APPROVED settlement in the amount of $650,000.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
A	A	A	Y	Y	Y	A	Y	Y	Y	Y	Y	A

2. Ixchelle Wagner v. LACMTA, LASC Case No. BC506769

APPROVED settlement in the amount of $350,000.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
A	A	A	Y	Y	Y	A	Y	Y	Y	Y	Y	A

3. City of Beverly Hills v. LACMTA, LASC Case No. BS144164

NO REPORT.

(Continued on next page)

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B. Conference with Real Property Negotiator - G.C. 54956.8

1. Property Description: 5318-5340 Wilshire Blvd., Los Angeles
   Agency Negotiator: Carol A. Chiodo
   Negotiating Party: The Wilshire Group LLC
   Under Negotiation: Price and Terms

   NO REPORT.

2. Property Description: 590 Santa Fe Avenue, Los Angeles
   Agency Negotiator: Carol A. Chiodo
   Negotiating Party: Butterfield Trails Limited Partnership
   Under Negotiation: Price and Terms

   APPROVED settlement in the amount of $42,250,000.

DK	PK	JDW	SK	MB	MA	MRT	EG	JF	JB	HS	AN	DD
A	A	A	Y	Y	Y	A	Y	Y	Y	Y	Y	A

ADJOURNED at 12:41 p.m. in memory of Ernest Waters, Former Director of AFSCME

Prepared by: Deanna Phillips
Board Specialist

Michele Jackson, Board Secretary

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

File #: 2016-0344, **File Type:** Plan **Agenda Number:** 9

REVISED
FINANCE, BUDGET AND AUDIT COMMITTEE
MAY 18, 2016

SUBJECT: FY17 AUDIT PLAN

ACTION: APPROVE ADOPTION OF THE FY17 PROPOSED AUDIT PLAN

RECOMMENDATION

ADOPT the **FY17 Proposed Audit Plan**.

ISSUE

At its January 2008 meeting, the Board adopted modifications to the FY07 Financial Stability Policy. The Financial Stability Policy requires Management Audit Services (Management Audit) to develop a risk assessment and an audit plan each year and present it to the Board. It also requires that the Finance, Budget and Audit Committee, as the audit committee for the agency, provide input and approval of the audit plan.

DISCUSSION

Instrumental to the development of the FY17 Audit Plan was completion of the FY16 agency-wide risk assessment. The agency-wide risk assessment is continually being refined and adjusted based upon events, issues identified during audits and agency priorities. The risk assessment continues to place a strong emphasis on the agency's internal control framework and vulnerability to fraud. We believe this year's risk assessment portrays the agency's risks in light of the changes to our risk environment and the challenges the agency faces in the next few years. The result is the FY17 Proposed Audit Plan (Attachment A).

This is the twelfth year an audit plan has been developed and presented to the Board for input and adoption.

Policy Implications

An audit plan defines the work that will be completed or directed by Management Audit each fiscal year. It indicates both the depth and breadth of audit activities addressing financial, operational and compliance risks for the agency. The audit plan also identifies the extent to which controls are being assessed by routine audit activities, addressed proactively through advisory services, or as a result of concerns from management.

The annual audit plan is driven by two key factors: (1) risk assessment results, and (2) audit resources. The goal in drafting the audit plan is to address the highest risk areas at the agency given the resources available to complete the audits.

In developing the plan, the hours included for each audit are an estimate. There are occasions where some reviews may take longer and therefore absorb more hours than proposed and in other cases, the audit will be completed in fewer hours than estimated. In addition, urgent requests arise that need audit support. When this occurs, the plan must be

reassessed and Management Audit may supplement internal resources with outside consultants as long as there is funding and consultants available for the task. Therefore, not all planned audit work may be completed and the audit plan may be reassessed and adjusted during the year for unanticipated risks and work.

DETERMINATION OF SAFETY IMPACT

Approval of this item will not impact the safety of Metro's patrons or employees.

FINANCIAL IMPACT

Any funding for external consultants needed to complete the annual audit plan will be included in the FY17 budget in Management Audit's cost centers and the appropriate projects throughout the agency.

ALTERNATIVES CONSIDERED

One option would be not to complete an annual audit plan. This is not recommended since the audit plan is a management tool to systematically assign resources to areas that are a concern or high risk to the agency. Communicating the audit plan to the Board is required by audit standards.

NEXT STEPS

Once the Board adopts the annual audit plan, Management Audit will develop the audit schedule for FY17. Management Audit will report to the Board quarterly on its progress in completing the annual audit plan.

ATTACHMENTS

Attachment A - FY17 Annual Business Plan and Proposed Audit Plan

Prepared by: Monica Del Toro, Audit Support
(213) 922-7494

Reviewed by: Diana Estrada, Chief Auditor
(213) 922-2161

Phillip A. Washington
Chief Executive Officer

Revised
Attachment A

MANAGEMENT AUDIT SERVICES

Los Angeles County
Metropolitan Transportation Authority

FISCAL YEAR 2017
ANNUAL BUSINESS PLAN
AND
PROPOSED AUDIT PLAN

Metro

Management Audit Services

Fiscal Year 2017 Annual Business Plan
And Proposed Audit Plan

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Metro

Executive Summary

OVERVIEW

Annually, the Board requires Management Audit Services (Management Audit) to complete an agency-wide risk assessment and submit an audit plan to the Board for its input and approval.

An agency-wide risk assessment is the process of understanding an organization's strategic, operational, compliance and financial objectives to identify and prioritize threats/risks that could inhibit successful completion of these objectives. Risk assessments provide management with meaningful information needed to understand factors that can negatively influence operations and outcomes.

An audit plan is driven by two key factors: 1) risk assessment results, and 2) audit resources. The goal of preparing an audit plan is to address the highest risk areas at the agency given the resources available to complete the audits.

RISK ASSESSMENT

Instrumental to the development of the FY17 Audit Plan was completion of the FY16 agency-wide risk assessment. The agency-wide risk assessment is continually being refined and adjusted based upon events, issues identified during audits and agency priorities. The categorization of risks used corresponds with the current eight CEO initiatives identified in the Budget document:

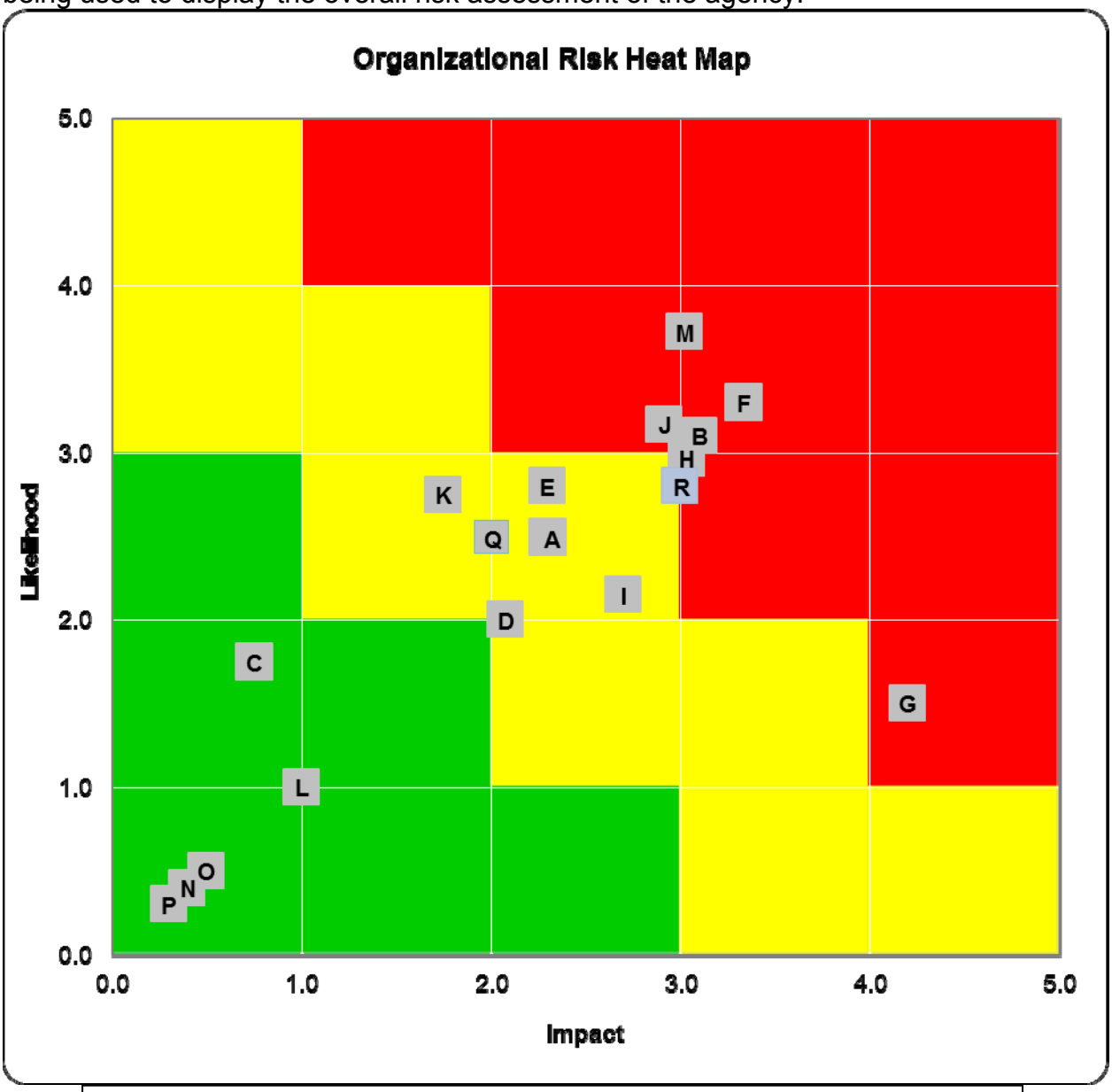
1. Advance safety and security for our customers, the public, and Metro employees
2. Exercise fiscal discipline to ensure financial stability
3. Plan and deliver capital projects on time and on budget while increasing opportunities for small business development and innovation.
4. Improve the customer experience and expand access to transportation options.
5. Increase transit use and ridership.
6. Implement an industry leading state of good repair program.
7. Invest in workforce development.
8. Promote extraordinary innovation.

The risk assessment continues to place a strong emphasis on the agency's internal control framework and vulnerability to fraud. We believe this year's risk assessment portrays the agency's risks in light of the changes to our risk environment and the challenges the agency faces in the next few years.

The risk environment continues to evolve with the focus this year on safety and security, state of good repair, capital projects delivery, strategic financing alternatives, key information systems, and the agency's ability to achieve all of its goals successfully with the available funding and staffing.

The agency-wide risk assessment process began by reviewing and analyzing key documents such as the annual budget, the Basic Financial Statements, status reports on major projects, past audit reports, open and late corrective actions to prior audit findings, and the transportation plans. We then completed an extensive assessment of

the different areas within the agency. We supplemented this assessment by interviewing key personnel to obtain additional information. All of this information was used to identify risks and concerns specific to individual cost centers as well as risks impacting the entire agency. In addition, similar to last year we evaluated risks related to five outside agencies that receive significant funding from MTA: Access Services, Metrolink, Exposition Authority (Expo), Pasadena Foothill Extension Authority (Foothill), and Alameda Corridor East (ACE). Risks were then scored using two factors, magnitude of impact and likelihood of occurrence. As in prior years, a heat map is still being used to display the overall risk assessment of the agency.



A.	Labor/Employee Relations	J.	Information Technology
B.	Security & Law Enforcement	K.	Communication
C.	Congestion Reduction	L.	Extraordinary Innovation
D.	Vendor/Contract Management	M.	Metro Operations
E.	Civil Rights	N.	EXPO Construction Authority
F.	Program Management	O.	Pasadena Gold Line Con. Authority
G.	Planning & Development	P.	Alameda Corridor East
H.	Corporate Safety/Risk Mgmt.	Q.	Metrolink
I.	Finance & Budget	R.	Access Services

High Risk Areas

The top internal risks include safety and security, aging infrastructure, funding constraints, dated information systems and completion of multiple capital projects within the same timeframe with limited resources. Access Services continues to be an external risk.

1) The agency is facing heightened risk due to potential threats of terrorism and other crimes. Systems Security and Law Enforcement is exploring innovative ways to use technology and partner with the Sheriff's department and the community to secure high risk areas. In addition, Metro is planning to increase law enforcement visibility to improve safety and security and decrease fare evasion.

2) Operations' overall risk score is impacted by aging infrastructure coupled with a significant amount of deferred maintenance that is being addressed but is still considered a risk to achieving some of the agency's key goals. Operations and the Transit Asset Management department are now collaborating to formalize a process to assess the condition of their equipment, rolling stock, infrastructure, and facilities in order to comply with FTA's state of good repair regulation and upcoming MAP 21 certification.

3) Completion of multiple capital projects simultaneously with limited resources is still considered to be a risk. Apart from the inherent development/construction risks, there may be inadequate funding to complete all projects as planned within the projected timeframe. In addition, schedule delays, increased costs and the inability to hire qualified technical staff to provide oversight for major construction projects continue to be significant concerns. However, more emphasis has been placed on strategic planning, risk transference and risk sharing, particularly in the area of Third Party Utility relocations.

4) Metro continues to struggle with the projected operating deficit as well as limited resources to fully fund the capital expansion projects already in progress. The agency has recognized the need to be more fiscally flexible and innovative and responded by implementing the Risk Allocation Matrix (RAM) and an Internal Savings Account. In addition, we are assessing possible Public, Private Partnership (P3) opportunities and other strategic alternatives to ensure financial stability and mitigate projected budget shortfalls.

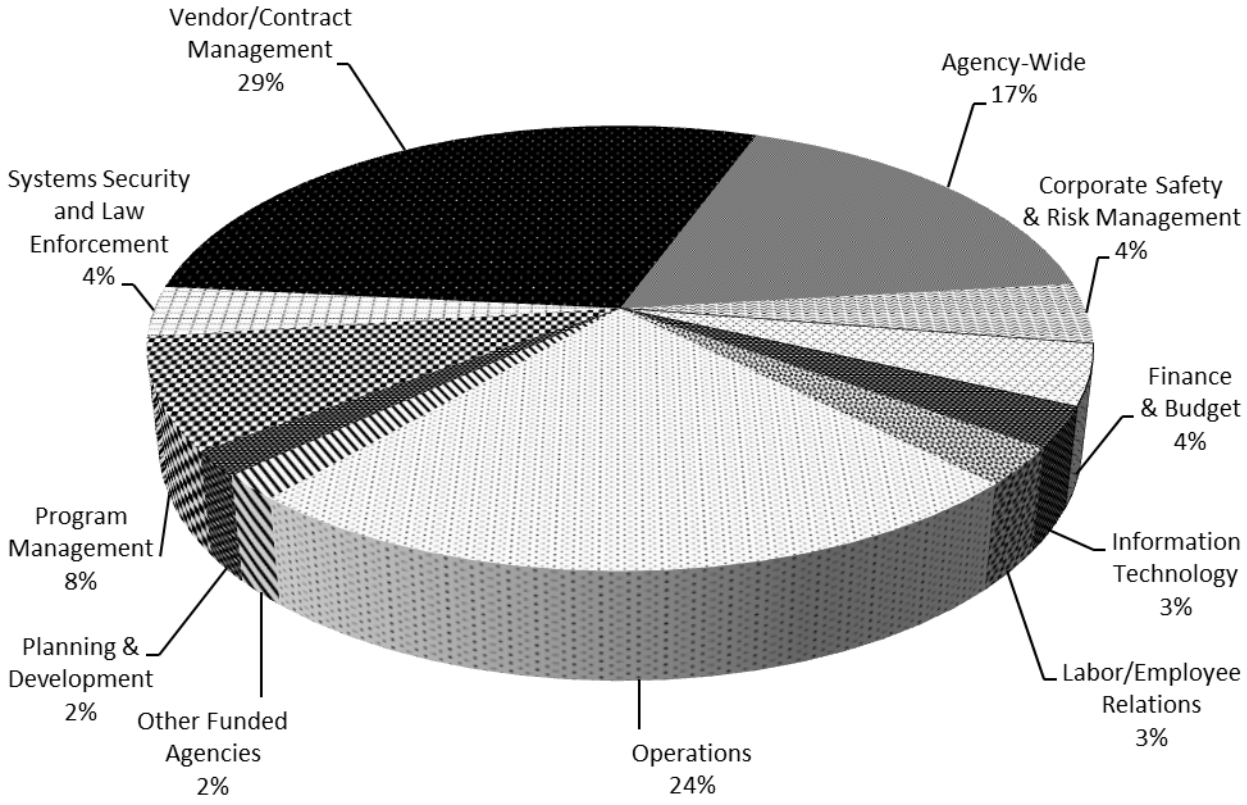
5) Increased reliance on system generated data and the need for comprehensive, integrated information systems continue to impact the overall technology risk scoring. Growing concern over cyber security vulnerabilities require more resources to be expended to preserve system reliability and data integrity. In addition, there is a need for a collaborative business continuity disaster recovery plan to facilitate the ability to resume operations in the aftermath of a catastrophic event.

6) The inability to hire qualified technical and support staff are pervasive concerns that surfaced in most of the risk assessment discussions. Senior Management is addressing these concerns by shifting available resources to key risk areas, partnering with local institutions to provide specialized training, expanding the veteran hiring initiative, implementing a leadership academy and continuing the entry level trainee program.

7) Access Services has traditionally been funded using federal and local funds which have not been growing at the same rate as Americans with Disabilities Act (ADA) paratransit demand. ADA paratransit costs and demands are growing due to demographic shifts of an aging population of baby boomers and cuts in human services transportation funding. Metro is preparing for the increased costs by including funding for Access Services in the proposed ballot measure.

AUDIT PLAN

For purposes of the audit plan, the agency has been organized into 13 departmental functions and 5 other agencies funded by MTA. The audits in the FY17 audit plan are distributed across the organizational structure as follows:



A detailed list of audits is included in Appendix A.

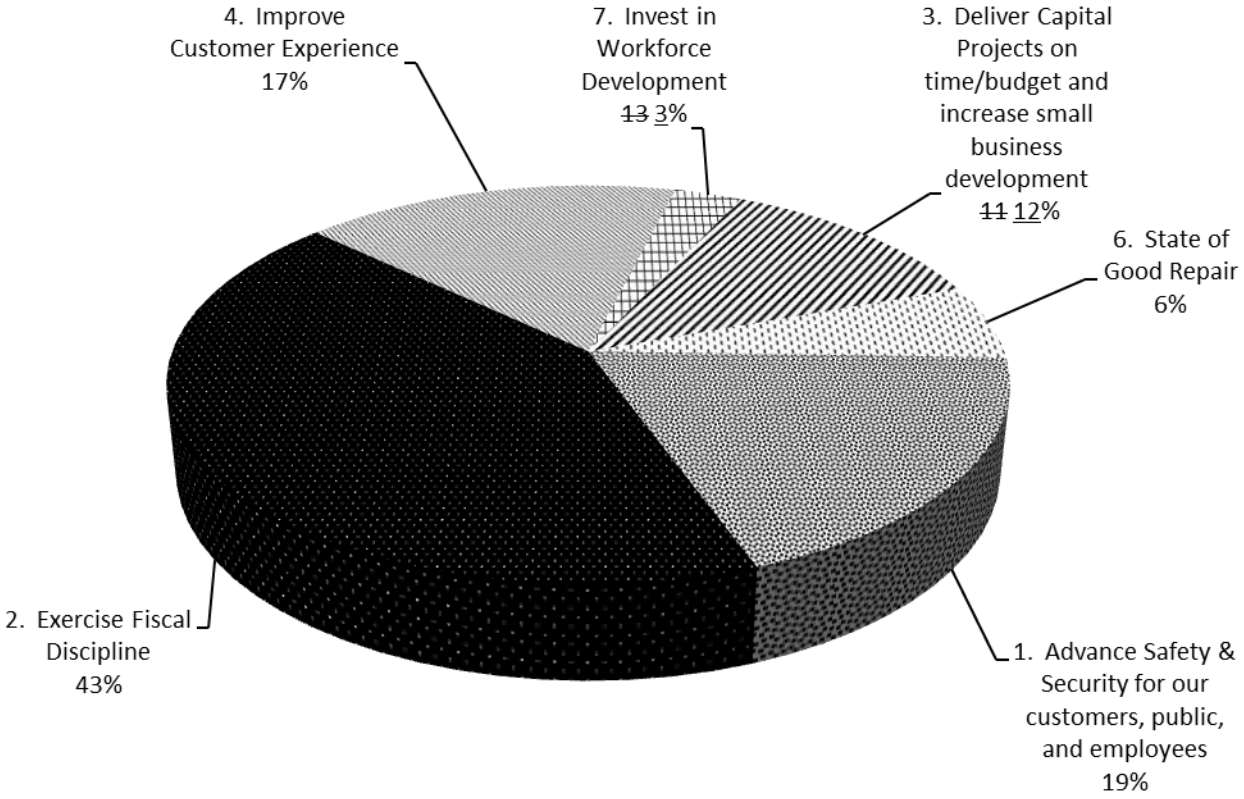
Audit Plan Strategy

The audit plan is based on the information obtained during the agency-wide risk assessment process and includes audits in those areas identified as high risk to the agency.

The projects proposed in the audit plan correlate to the 8 CEO Goals for the agency:

1. Advance safety and security for our customers, the public, and Metro employees
2. Exercise fiscal discipline to ensure financial stability
3. Plan and deliver capital projects on time and on budget while increasing opportunities for small business development and innovation.
4. Improve the customer experience and expand access to transportation options.
5. Increase transit use and ridership.
6. Implement an industry leading state of good repair program.
7. Invest in workforce development.
8. Promote extraordinary innovation.

The following chart summarizes the audits by the primary agency strategic goal.



ALLOCATION OF AUDIT RESOURCES

Our FY17 plan is based on 27,300 direct audit hours to be provided by 13 budgeted audit professionals, 3 entry-level trainees and contracted subject matter experts. The audit hours for the Chief Auditor and her management team are not included in the direct audit hours. The direct audit hours are allocated as follows:

- 18,550 hours (68%) for new audits,
- 2,500 hours (9%)for CEO requested projects, and
- 6,250 hours (23%) for audits which are still in progress.

In developing the plan, the hours included for each audit are an estimate. There are occasions where some audits may take more or fewer hours than estimated. In addition, urgent requests from the CEO or Executive Management may arise that require audit support. When this occurs, Management Audit will reassess the plan and may supplement internal resources with outside consultants, pending available funding. Management Audit may also use external consultants to provide subject matter expertise when necessary.

The FY17 audit plan included in Appendix A attempts to provide a balanced and effective review of the entire agency constrained by Management Audit resource limitations.

This is the CEO's audit plan being presented to the Board for approval. The CEO has the discretion based on agency need or Board direction to reprioritize audit resources. We are dedicated to completing our audit plan while continuing to be flexible and responsive to the agency's needs.

AUDIT PLAN AREAS

Internal Audits

The internal audits were selected based on the results of the FY16 agency-wide risk assessment. Areas identified as critical or high risk during the agency-wide risk assessment were given priority when identifying potential audits for the FY17 audit plan. Since there are more risks than available resources, resources were the key factor in selecting the number of risks and areas to audit. The audits identified for the FY17 proposed audit plan were selected based on one of the following four strategic audit objectives:

1. Support agency-wide goals and objectives
2. Evaluate governance, risk and internal control environment
3. Review efficiency and effectiveness of operations
4. Validate compliance to regulatory requirements

The majority of Management Audit's projects are focused on identifying business process improvements and innovative ways to support the agency's strategic initiatives. This is in addition to our traditional assurance work on "hard controls", such as segregation of duties, safeguarding agency assets, reliability of financial and operational information, and compliance with regulations, contracts, and memorandums of understanding (MOUs). Since the agency is currently undertaking numerous major IT system enhancements and development, audit resources will also provide assurance that the critical system's internal controls are adequate and working effectively.

Contract Pre-Award & Incurred Cost Audits

Incurred Cost Audits review costs associated with MOU's issued under the Call for Projects program or contract incurred costs. Contract Pre-award Audits review costs proposed for contracts and change orders issued by Vendor/Contract Management. We identified the audits in the FY17 proposed plan based on discussions with project managers and contract administration staff, analysis of Call for Project's audit universe and Financial Information Systems' (FIS) data for contract audits. The universe of audits was balanced against the associated budget authorized to complete the work. The grant audit work was completely outsourced in FY16 and will continue to be outsourced in FY17 due to a shortage of permanent staff.

The highest priority for FY17 is contract audits for large construction, corridor, and rolling stock regulatory projects followed by pre-award audits for all other projects. Incurred cost and closeout audits are the lowest priority. Because staffing in Management Audit is limited, external resources will be used if there are available funds to meet critical project deadlines.

External Financial and Compliance Audits

In 2009, Management Audit assumed the responsibility for managing the agency's planned audits by external auditors. The FY17 plan includes hours set aside to ensure that these audits are completed within the scope and schedule of the contracts.

Special Request Audits

The FY17 plan also includes 2,500 hours or approximately 9% of available hours for special projects requested by the CEO. These hours provide some flexibility in the audit plan to respond to emerging issues where the CEO needs audit resources to address an unanticipated issue or heightened concern.

In order to comply with Government Accountability Office's Generally Accepted Government Auditing Standards and the Institute of Internal Auditor's (IIA) International Standards for the Professional Practice of Internal Auditing Standards. The Standards require that internal audit adopt a process to monitor and assess the overall effectiveness of the audit quality process. This self-assessment measures compliance to the Standards and to Management Audit's Charter, mission statement, objectives, audit policy manual, supervision, and staff development. In addition, the internal quality assurance review assesses our effectiveness and promotes continuous improvement within Management Audit. This internal review will also help us prepare for the external quality assurance review scheduled for FY17.

OTHER PLANNED ACTIVITIES

Audit Tracking and Follow-up

In compliance with the Standards, Management Audit tracks and follows up on the implementation of all audit recommendations from both internal and external audit groups including OIG, State of California, FTA, etc. Management Audit also reports all outstanding audit issues to the CEO and Board of Directors on a quarterly basis to ensure that any significant risks to the agency are addressed in a timely manner.

MANAGEMENT AUDIT SERVICES FRAMEWORK

Metro's vision is excellence in service and support. Management Audit is committed to providing essential support to achieve this vision. To do this we have developed our department vision which is to deliver value by driving positive change through partnership and trust. In order to ensure our work is consistently reliable, independent and objective, Management Audit completes work under the framework of our Board approved Audit Charter. The Audit Charter includes Management Audit's mission, the standards we must comply with, and our department's objectives and core function.

Mission

Our mission is to provide highly reliable, independent, objective assurance and consulting services designed to add value and improve operations. The department accomplishes this by bringing a systematic, disciplined approach to evaluating and recommending improvements to the effectiveness of risk management, controls and governance processes.

Standards

The Institute of Internal Auditors (IIA) defines internal auditing as:
"…an independent, objective, assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve effectiveness of risk management, control, and governance processes."

To meet our client's expectations and for us to function with reliability and credibility, Management Audit must ensure our audits are independent, objective and accurate. Therefore, Management Audit follows the ethical and professional standards promulgated by the Government Accountability Office, Generally Accepted Government Auditing Standards (GAGAS) and the Institute of Internal Auditors International Professional Practices Framework. Depending on the type of audit being done, Management Audit also follows the standards promulgated by the American Institute of Certified Public Accountants (AICPA) and by the Information Systems Audit and Control Association (ISACA).

Objectives and Core Functions

As summarized in our Audit Charter, the primary objective of Management Audit is to assist the CEO and his management team with their important business and financial decisions by:

- Monitor and verify key regulatory and legislative compliance;
- Assess internal controls effectiveness and fiscal responsibility;
- Evaluate cost reasonableness of contracts and grants;
- Identify and recommend business process improvements;
- Evaluate and recommend efficiencies and effectiveness of programs and functions;
- Evaluate safety and security of agency systems, programs and initiatives; and
- Track and report on all outstanding external and internal audit findings.

In addition, Management Audit's objective is to foster a system and environment that supports the highest level of integrity and ethical conduct and provides assurance of an acceptable level of risk to management for all key business processes.

APPENDIX A

DETAILED LISTING OF AUDITS

CEO Goal #1 – Advance safety and security for our customers, the public and Metro employees

	Title	Objective	Area
1.	Audit of IT Project Management	Evaluate efficiency and effectiveness of IT project management.	Information Technology
2.	Audit of Rail Communication	Evaluate efficiency and effectiveness of Rail Communication Systems.	Operations
3.	Audit of ~~Transit Terrorism~~ System Security Plan	Evaluate ~~adequacy of Transit Terrorism Homeland Security~~ efficiency and effectiveness on the process for the development and updates for System Security Plan.	Systems Security and Law Enforcement
4.	Audit of SCADA	Evaluate systemwide security of SCADA.	Operations
5.	Audit of Environmental Compliance	Evaluate effectiveness of agency's environmental compliance program.	Program Management

CEO Goal #2 – Exercise fiscal discipline to ensure financial stability

	Title	Objective	Area
1.	Pre-award audits	Pre-award audits for procurements and modifications.	Vendor/Contract Management
2.	Incurred Cost Contract Audits	Verify costs are reasonable, allowable and allocable on cost reimbursable contracts for Contractors.	Vendor/Contract Management
3.	Incurred Cost Grant Audits	Verify costs are reasonable, allowable and allocable on cost reimbursable contracts for Caltrans, Cities & County MOUs.	Planning & Development / Program Management
4.	Financial and Compliance external audits	Complete legally mandated financial and compliance audits.	Agency-Wide
5.	Performance Audit of Cash Counting Process	Evaluate Controls of Cash Counting Process.	Finance & Budget

	Title	Objective	Area
6.	Performance Audit of Farebox Revenue Process	Evaluate Controls of Farebox Revenue collection process.	Finance & Budget
7.	Performance Audit of P-card Purchases	Evaluate compliance to P-card purchase requirements.	Vendor/Contract Management
8.	Performance Audit of IT Asset Management	Evaluate the effectiveness of management over technology assets.	Information Technology
9.	Audit of Consultant Hours	Evaluate efficiency and effectiveness of the use of consultants.	Agency-Wide

Strategic Goal #3 – Plan and deliver capital projects on time and on budget while increasing opportunities for small business development and innovation

	Title	Objective	Area
1.	Buy America Pre-Awards	Buy America pre-award audits	Vendor/Contract Management
2.	Annual Audit of Business Interruption fund	Evaluate Business Interruption Fund program	Vendor/Contract Management
3.	Audit of Regional Connector Project	Evaluate the adequacy and effectiveness of controls over Regional Connector Project.	Program Management
4.	Audit of EIS/EIR process	Evaluate the efficiency and effectiveness Environmental Impact Study / Environmental Impact Report (EIS/EIR) of the project management and oversight	Planning & Development / Program Management

Strategic Goal #4 – Improve the customer experience and expand access to transportation options

	Title	Objective	Area
1.	Audit of IT Controls over Access Services	Evaluate the reliability of Access Services information systems.	Other Funded Agencies
2.	Audit of HASTUS Daily Module	To evaluate the effectiveness of controls over the Hastus Daily Module.	Operations
3.	Audit of M3 System	Evaluate effectiveness of M3 system utilization.	Operations
4.	Audit of Power Maintenance & Usage	Evaluate efficiency and effectiveness of rail operations power maintenance and usage.	Operations
5.	Audit of Division Management Practices	Evaluate efficiency and effectiveness of Division management practices and processes.	Operations

Strategic Goal #6 – Implement an industry-leading state of good repair program

	Title	Objective	Area
1.	Audit of State of Good Repair Plan	Evaluate efficiency and effectiveness of readiness to Comply with State of Good Repair.	Corp. Safety & Risk Mgmt. / Operations

Strategic Goal #7 – Invest in workforce development

	Title	Objective	Area
1.	Audit of Oracle HR	Evaluate accuracy of Oracle HR position reconciliation process.	Labor/Employee Relations

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

File #: 2016-0329, **File Type:** Program **Agenda Number:** 12

PLANNING AND PROGRAMMING COMMITTEE
MAY 18, 2016

SUBJECT: REPURPOSING OLDER FEDERAL EARMARKS IN LOS ANGELES COUNTY

ACTION: APPROVE RECOMMENDATION

RECOMMENDATION

APPROVAL OF:

A. CONSOLIDATING up to $96.0 million in **repurposed Los Angeles County Federal transportation earmarks on State Route 71**, freeing up a corresponding amount of funds for Los Angeles County sponsors;

B. AUTHORIZING the Chief Executive Officer to:

1. NEGOTIATE AND EXECUTE agreements with participating local agencies for the funds shown in Attachment A, so as to ensure that the exchanged funds being made available are properly administered, used in a timely fashion, and are expended within three years of executing the agreements;

2. PROVIDE 97% replacement funding to Los Angeles County project sponsors for repurposed federal earmarks from the local funds currently planned for State Route 71, unless the sponsor affirmatively opts out of the program by June 30, 2016;

3. Use three percent (3%) of the earmarked amount that LACMTA would retain to administer the exchange program; and

C. CONSOLIDATING up to $2.4 million in potentially repurposed Metro-controlled Federal transportation earmarks to allocate on the Airport Metro Connector Project without freeing up any funds.

ISSUE

The Federal Highway Administration (FHWA) and the California Department of Transportation (Caltrans), under the authority of the Consolidated Appropriations Act of 2016 (Act), have initiated the process of repurposing federal transportation earmarks. This Board Report outlines our

recommended approach for maximizing the delivery of transportation projects in Los Angeles County.

DISCUSSION

Background

The Consolidated Appropriations Act of 2016 (Act) allows States and territories to repurpose certain funds originally earmarked for specific projects more than 10 years ago. To qualify under this provision, an earmark must have been designated on or before September 30, 2005 and be less than 10 percent obligated or have received its final voucher and closed with earmarked funds remaining.

Under this Act, local agencies are under no obligation to repurpose their earmarks. Local agencies may wish to deliver the original project or they may wish to repurpose the funds. The repurposed funds may be obligated on a new or existing project in the State and must be within 50 miles of the earmark designation. The project receiving the repurposed earmark funding must be an eligible project under the Surface Transportation Block Grant Program (STPBG).

The FHWA issued guidance on March 8, 2016 for implementation of the earmark repurposing. Caltrans then requested input from the Regional Transportation Planning Agencies to help identify and recommend projects for repurposing. We are working with Caltrans to ensure that transportation funding earmarked for projects in Los Angeles County remain within the county. More information about the earmark repurposing process can be found at this website: <http://www.dot.ca.gov/hq/LocalPrograms/earmark/>.

Local agencies will need to communicate their desire to opt-out of the Exchange Program in writing to Metro by June 30, 2016. The written correspondence must indicate how the local agency intends to repurpose their earmark or if they wish to deliver their original earmark.

Findings

FHWA and Caltrans have provided a list of original earmarked projects which meet the repurposing eligibility requirements established by the Act. Attachment A shows the estimated unobligated funding amounts by agency in Los Angeles County. Caltrans estimates approximately $96 million in earmarks available for repurposing. The ability to repurpose federal transportation earmarks presents an opportunity to assist local agencies with delivering critical transportation projects.

Subsequent to the release of the FHWA Guidelines, we are participating with several regions throughout the state to establish the roles and responsibilities to manage the repurposing effort. The proposed list of repurposed projects is due to Caltrans by August 1, 2016 and must be obligated by July 1, 2019.

Recommended Approach to Maximize Regional Transportation Funds

The repurposing option afforded by the Act presents an opportunity for Metro and local agencies to better utilize regional transportation funds and to expedite project delivery. To maximize the amount of funding retained in Los Angeles County and to accelerate its use, we propose consolidating the

unobligated earmark amount shown in Attachment A on the SR-71 project. Local agencies may opt-out of this policy and retain their earmarks if they do so by June 30, 2016.

Proposed Use of Repurposed Federal Earmarks
We are proposing to consolidate the repurposed federal transportation earmarks in Los Angeles County on the State Route 71 project in exchange for local funds currently planned for the project. This will allow Metro to consolidate and accelerate the use of federal funding on one large project. This project is eligible and ready to utilize the federal funds made available by the repurposing opportunity on an expedited basis.

Federal Transportation Earmark Exchange Program
Metro will reimburse each local agency up to 97 percent of their earmark amount with local funds. This will allow local agencies to utilize more flexible funding and avoid substantial staff resources in attempting to obligate federal funding on alternative projects. The remaining three percent will be used to cover administration costs of this program.

By allowing local agencies to exchange Federal dollars for more flexible, easier to administer local dollars, Metro and local agencies should see faster delivery of projects to the counties transportation system users. However, to ensure this in fact happens, staff is recommending that a “timely use of funds” provision be applied to the local funds made available under the exchange. Under this provision, local agencies participating in the Federal Transportation Earmark Exchange Program will need to identify a project or have an executed funding agreement with Metro in place by July 1, 2019 to receive their reimbursements. We will then allow up to three years from execution of a Memorandum of Understanding to invoice Metro for the cost of the project.

Proposed Use of Metro-Controlled Earmarks
Caltrans has identified an up-to amount of approximately $7.7 million in unobligated earmarks which were designated for various Metro-sponsored projects as shown in Attachment B. We are proposing consolidating $2.4 million in earmarks on the Airport Metro Connector Project. As a regionally significant project at a designated Regional Facility with a current funding need, this project is the most appropriate use of the repurposed earmarks. The remaining $5.3 million will be obligated to deliver the existing projects, as identified under their respective, original earmarks.

DETERMINATION OF SAFETY IMPACT

Approval of the staff recommendation will have no adverse impact on the safety of Metro customers or employees.

FINANCIAL IMPACT

Adoption of the staff recommendation should have a positive financial impact for Los Angeles County and Metro. Repurposing decade-old transportation earmarks will allow local agencies greater flexibility with the local funds as well as lower the administrative burden for expending the federal earmarks. This opportunity allows more projects to be funded with less money spent on funding

administration costs and federal requirements. We anticipate this approach will accelerate the delivery of transportation improvements to the public.

Impact to Budget

Adoption of the staff recommendation has no impact to the FY2016 Budget. The Chief Planning Officer will be responsible for budgeting of the exchanged projects and costs of administering the program in future budget cycles.

ALTERNATIVES CONSIDERED

The Board of Directors could reject the staff recommendation or direct staff to develop a new policy. Rejection of the staff recommendation is not recommended as it would require each local agency to individually review their earmarked project and submit for repurposing to Caltrans and FHWA. Without the exchange program, many local agencies would face substantial administrative burdens and costs to repurpose their federal funds on new projects.

Developing a new policy is not recommended either. Given the relatively short timeline to submit repurposing requests to Caltrans and FHWA, the time to develop a new policy is limited. The staff recommendation provides the most flexibility for local agencies to deliver transportation projects and avoid increased administrative burdens.

NEXT STEPS

Upon approval of this item, we will work closely with the local agencies identified in Attachment A to solicit their feedback and interest in the exchange program. We will then submit the repurposed earmark list to Caltrans and FHWA for review. For those interested, we will develop a Memorandum of Understanding to establish the parameters of the exchange and the process for invoicing.

Key Milestones Include:

Caltrans 2016 Earmark Repurposing Workgroup Kickoff Meeting	April 14, 2016
Metro sends Interest Letter to Affected Local Agencies	May 26, 2016
Local Agencies Deadline to Opt Out	June 30, 2016
Metro Submits Repurposed List to Caltrans	August 1, 2016
Caltrans Submits Repurposed List to FHWA	August 31, 2016
Deadline for Repurposing Earmarks	September 12, 2016

ATTACHMENTS

Attachment A - Federal Earmark Amount Available for Repurposing by Agency
Attachment B - Metro Sponsored Earmarks to be Repurposed or Delivered
Attachment C - Caltrans/FHWA Earmark Repurposing Timeline

Prepared by: Steven Mateer, Transportation Planning Manager IV,
County Planning and Development, (213) 922-2504

Wil Ridder, Executive Officer,
Countywide Planning and Development (213) 922-2887
David Yale, Managing Executive Officer,
Countywide Planning and Development, (213) 922-2469

Reviewed by: Therese W. McMillan, Chief Planning Officer, (213) 922-7077

Phillip A. Washington
Chief Executive Officer

ATTACHMENT A

Federal Earmark Amount Potentially Available for Repurposing by Agency

4/19/2016

	Agency	Total Available
1	City of Los Angeles	$ 24,929,420
2	City of South Gate	$ 9,829,100
3	City of Long Beach	$ 8,947,255
4	City of Compton	$ 8,344,638
5	City of Diamond Bar	$ 6,849,280
6	Los Angeles County	$ 6,040,288
7	I-5 JPA	$ 4,160,614
8	City of Inglewood	$ 3,600,008
9	City of Palmdale	$ 3,444,721
10	City of Downey	$ 2,492,222
11	Culver City	$ 1,972,580
12	City of Lawndale	$ 1,909,603
13	ACE	$ 1,564,503
14	City of Santa Clarita	$ 1,427,919
15	City of Signal Hill	$ 1,305,558
16	City of Whittier	$ 1,002,695
17	City of Huntington Park	$ 863,904
18	City of El Segundo	$ 810,863
19	City of Santa Monica	$ 802,028
20	City of Pasadena	$ 775,532
21	Gateway Cities COG	$ 774,168
22	City of Arcadia	$ 562,980
23	City of El Monte	$ 539,940
24	City of Bellflower	$ 474,765
25	City of Monterey Park	$ 431,952
26	City of Azusa	$ 359,960
27	City of Burbank	$ 359,921
28	City of Carson	$ 308,150
29	City of San Gabriel	$ 287,967
30	City of Glendale	$ 279,330
31	City of South Pasadena	$ 215,977
32	City of Torrance	$ 122,417
33	City of West Covina	$ 119,256
34	City of Malibu	$ 44,470
35	City of Hawaiian Gardens	$ 41,726
36	City of Gardena	$ 36,540
37	City of Lancaster	$ 14,576
38	**Totals**	**$ 96,046,822**

Source: Caltrans Office of Local Programs

*Unobligated balance subject to confirmation by Caltrans and FHWA

ATTACHMENT B

Metro Sponsored Earmarks to be Repurposed or Delivered

5/2/2016

Sponsor	Project Description	Amount Available*	Project Status
LACMTA	710 Freeway Study to comprehensively evaluate the technical feasibility of a tunnel alternative to close the 710 Freeway gap, considering all practicable routes, in addition to any potential route previously considered, and with no funds to be used for preliminary engineering or environmental review except to the extent necessary to determine feasibility.	$2,159,760	Project to be repurposed to AMC
LACMTA	Conduct necessary planning and engineering and implement comprehensive Corridor Management Plan for Arroyo Seco Historic Parkway, Los Angeles	$290,018	Project to be repurposed to AMC
	Total Repurposed to AMC Project	**$2,449,779**	

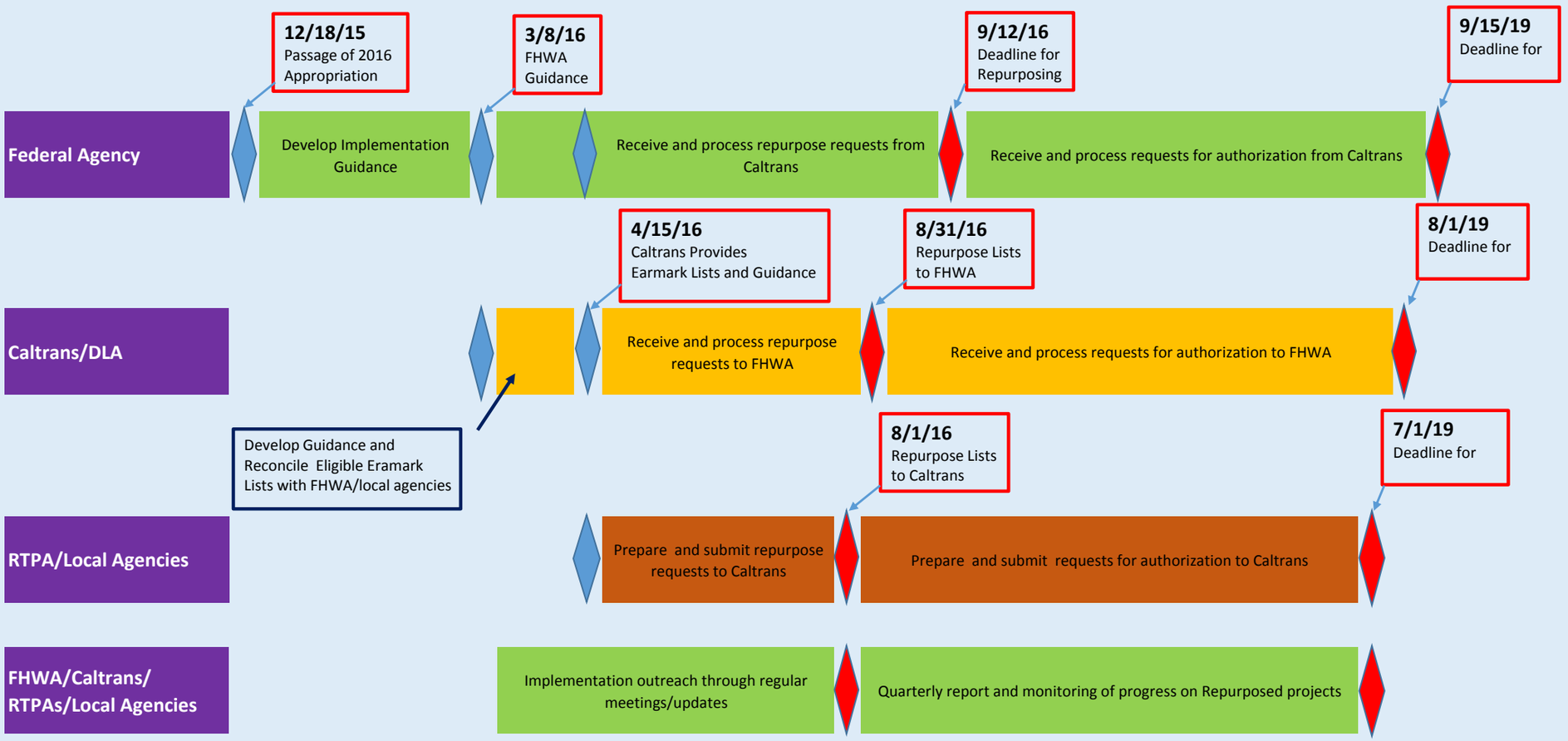
Sponsor	Project Description	Amount Available*	Project Status
LACMTA	Upgrade CA Rt. 2 Southern Freeway terminus and transportation efficiency improvements to Glendale Boulevard in Los Angeles	$3,013,091	Metro will obligate the balance to deliver the SR-2 project
LACMTA	I-405 HOV Lane	$2,235,059	Working to obligate balance on the I-405 HOV Lane Project.
	Total to be Obligated and Delivered	**$5,248,150**	

Source: Caltrans Office of Local Programs

*Unobligated balance subject to confirmation by Caltrans and FHWA

ATTACHMENT C

2016 Earmark Repurpose Timeline (Draft)



Important Reference Documents:

1 FHWA Earmark Repurposing Guidance Memorandum

2 FHWA Earmark Repurposing Guidance Frequently Asked Questions

File #: 2016-0334, **File Type:** Contract **Agenda Number:** 20.

CONSTRUCTION COMMITTEE
MAY 19, 2016

SUBJECT: REGIONAL CONNECTOR TRANSIT CORRIDOR PROJECT

ACTION: AUTHORIZE THE CHIEF EXECUTIVE OFFICER (CEO) TO EXECUTE CONTRACT MODIFICATION

RECOMMENDATION

AUTHORIZE the CEO to execute Contract Modification No. 24 to Contract No. E0119 with the **Connector Partnership Joint Venture (CPJV) Inc. to continue providing Design Support Services during Construction through FY17 for the Regional Connector Transit Corridor Project** (Project), in the amount of $5,565,000 increasing the total contract value from $62,742,374 to $68,307,374. This action does not increase Life of Project Budget.

ISSUE

Metro's Project Management staff requires continuation of services to provide Design Support Services during Construction to review the design-builder's final design and ensure compliance with Metro's technical requirements, and other technical services during construction. Execution of the recommended Contract Modification No. 24 will provide continuity of the design support services during the final design phase and construction of the Project, as well as continued third-party coordination with the City, County, stakeholders and property owners.

The recommended Board action will provide sufficient contract funding for CPJV services through June 30, 2017. Future work will be funded on a year-to-year basis. This approach will result in more accurate budgeting for each year, while providing better control over consultant services.

DISCUSSION

On October 28, 2010, the Board authorized the CEO to negotiate and execute Contract E0119, Advanced Conceptual Engineering (ACE) and Preliminary Engineering (PE) for the Regional Connector Transit Corridor Project, with an initial not-to-exceed amount of $21,500,000, and options for Design Support during Construction and System Activation Support. The executed contract is a cost-plus fixed fee contract with provisions for Board approval of the contract value every fiscal year by Contract Modification. Accordingly, this report requests approval of annual funding for FY17.

The ACE phase (Phase I) encompassed all design activities and products (including all necessary data collection, coordination, and design studies) to fully document environmental impacts, respond to comments from FTA in the Administrative Draft EIS/EIR, and to develop a detailed cost estimate

sufficient for advancement to later stages of project delivery. The PE phase (Phase II) established the design of the basic structural, mechanical, electrical, communication systems, trackwork, automatic train control, traction power, overhead contact system, fare collection, and other systemwide interfaces. At the completion of PE, CPJV prepared contract documents for the design/build contracting delivery method.

The Board approved the project definition for the Regional Connector Transit Corridor Project on April 26, 2012. As a result of CPJV's work on the Project, Metro received a Record of Decision from the Federal Transit Administration (FTA) on June 29, 2012, and the Full Funding Grant Agreement (FFGA) on February 20, 2014.

In 2015, in accordance with CPJV's scope of work for Phase III, the Board authorized the CEO to exercise Contract Modification No. 22 for CPJV to continue to provide design support services during construction of the Regional Connector Transit Corridor.

DETERMINATION OF SAFETY IMPACT

This Board action will not have an impact on established safety standards for Metro's construction projects.

FINANCIAL IMPACT

Funds are requested through the FY17 Proposed budget for this action under Project 860228 - Regional Connector Transit Corridor in Cost Center 8510 (Construction Project Management), in Account 50316 (Professional and Technical Services). Since this is a multi-year project, the Executive Director of Program Management and the Project Manager will be accountable for budgeting costs for future years.

Board approval of the recommendation does not impact the life of project budget for the Regional Connector Transit Corridor Project.

Impact to Budget

The sources of funds are Federal 5309 New Starts and TIFIA Loan Proceeds. These funds are designated for the Regional Connector Transit Corridor Project and do not have an impact to operations. This Project is not eligible for Propositions A and C funding due to the proposed tunneling element of the Project.

ALTERNATIVES CONSIDERED

The Board could decide not to approve the recommended Contract Modification. This is not recommended because there are major elements of design support services work that are required to support this design-build project, and Metro does not currently have sufficient staff with the required expertise to ensure a timely review of the design-build contractor's Final Design and to provide engineering support directly to Metro during construction. Since CPJV developed the

technical requirements for the design-build contract, staff recommends that CPJV continue the design support services that are essential to successfully delivering the project on schedule and within budget.

NEXT STEPS

After Board approval and execution of the contract modification, staff will direct the consultant to continue providing design support services for the Regional Connector Transit Corridor Project through FY17.

ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - Contract Modification Authority (CMA) Summary
Attachment C - DEOD Summary

Prepared by:

Girish Roy, Deputy Executive Officer, (213) 893-7119
Kang Hu, Director, Project Engineering, (213) 893-7116
Joe O' Donnell, Director, Contract Administration, (213) 893-7113

Reviewed by:

Ivan Page, Interim Executive Director, Vendor/Contract Management, (213) 922-6383

Richard Clarke, Executive Director, Program Management
(213) 922-7557

Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY

ADVANCED CONCEPTUAL ENGINEERING AND PRELIMINARY ENGINEERING FOR THE REGIONAL CONNECTOR TRANSIT CORRIDOR PROJECT / CONTRACTE0119 MODIFICATION NO. 24

1.	**Contract Number**: E0119			
2.	**Contractor**: Connector Partnership Joint Venture (CPJV)			
3.	**Mod. Work Description**: Provide FY17 design support services during construction for Contract No. C0980 for the Regional Connector Transit Corridor Project.			
4.	**Contract Work Description**: Advanced Conceptual Engineering, Preliminary Engineering, and Design Support During Construction for the Regional Connector Transit Corridor Project			
5.	**The following data is current as of**: March 30, 2016			
6.	**Contract Completion Status**		**Financial Status**	
	Contract Awarded:	12/2/10	**Contract Award Amount:**	$21,500,000
	Notice to Proceed (NTP):	12/3/10	**Total of Modifications Approved:**	$41,242,374
	Original Complete Date:	3/2018	**Pending Modifications (including this action):**	$5,565,000
	Current Est. Complete Date:	3/2020	**Current Contract Value (with this action):**	$68,307,374
7.	**Contract Administrator**: Joe O'Donnell		**Telephone Number**: 213-922-7231	
8.	**Project Manager**: Girish Roy		**Telephone Number**: 213-893-7119	

A. Procurement Background

This Board Action is to approve Contract Modification No. 24 issued in support of Design Support during Construction for the Regional Connector Transit Corridor Project.

This Contract Modification will be processed in accordance with Metro's Acquisition Policy and the contract type is a cost plus fixed fee.

Contract No. E0119 was awarded through an A&E (qualification-based) procurement process. On October 28, 2010, the Metro Board authorized the Chief Executive Officer to negotiate and award a cost-plus fixed fee contract (No. E0119), for Regional Connector Transit Corridor Advanced Conceptual Engineering/Preliminary Engineering to Connector Partnership Joint Venture, for an amount not to exceed $21.5 million to perform Phase I, Advanced Conceptual Engineering and Phase II,

Preliminary Engineering. On December 2, 2010, Metro awarded a contract for $21,500,000 for a period of 14 months.

Since that time, 23 modifications have been issued to implement additional scope tasks in support of the Regional Connector Transit Corridor Project. Refer to Attachment B – Contract Modification/Change Order Log. Staff anticipates that Connector Partnership Joint Venture services will be required through March 2020.

B. Cost/Price Analysis

The recommended price has been determined to be fair and reasonable based upon fact-finding, clarifications, and cost analysis, taking into consideration an independent cost estimate (ICE), technical evaluation, and negotiations, pending a completed audit of the consultant's provisional indirect rates. The most current fiscal year data was requested from the consultant, and is expected to be provided shortly. Upon receipt of this data, an audit request will be submitted to Metro's Management Audit Support Department, and any audit findings will result in an equitable adjustment to the Contract. An audit of the contractsultant's indirect rates is required each year to establish final indirect rates for each year.

Proposal Amount	Metro ICE	Negotiated Amount
$5,822,295	$5,323,000	$5,565,000

ATTACHMENT B

CONTRACT MODIFICATION/CHANGE LOG

ADVANCED CONCEPTUAL ENGINEERING AND PRELIMINARY ENGINEERING FOR THE REGIONAL CONNECTOR TRANSIT CORRIDOR PROJECT/E0119

Mod. no.	Description	Status (approved or pending)	Date	Amount
1	Risk Management Support	Approved	3/14/11	$203,059
2	Revisions to Technical Scope of Services	Approved	7/29/11	$0
3	Additional Geotechnical Borings	Approved	3/21/11	$256,215
4	Upgrade Division 20 Generator & Tie-In	Approved	12/13/11	$108,937
5	Increased Level of Effort for Design Services	Approved	12/13/11	$444,742
6	Increased Level of Cost Estimating	Approved	12/13/11	$299,241
7	Additional Specification Preparation Efforts	Approved	12/27/11	$219,707
8	Constructability Design Changes	Approved	12/27/11	$139,197
9	Flower Street Landscape Design	Approved	1/4/12	$138,696
10	No Cost Extension	Approved	2/9/12	$0
11	Advanced Preliminary Engineering	Approved	3/1/12	$8,796,669
12	2nd& Broadway Second Entrance Design	Approved	4/25/12	$367,771
13	Advanced Utility Final Design	Approved	6/6/12	$455,474
14	Cost Savings Station Designs	Approved	8/27/12	$470,612
15	No Cost APE Extension	Approved	11/1/12	$0
16	Additional Geotechnical Services	Approved	12/8/12	$53,767
17	Bid Period Services	Approved	12/4/12	$0
18	No Cost APE Extension	Approved	12/1/12	$0
19	Bid Period Services	Approved	1/3/13	$5,828,270
20	Bid Period Services / Design Support Services During Construction (Phase III)	Approved	7/1/13	$7,852,815
21	Design Support Services During Construction (FY15)	Approved	7/1/14	$7,323,608
22	Design Support Services During Construction (FY16)	Approved	7/31/15	$8,283,594
23	No Cost Extension	Approved	6/30/15	$0
24	Design Support Services During Construction (FY15)	Pending		$5,565,000
	Modification Total:			**$46,807,374**
	Original Contract:			**$21,500,000**
	Total:			**$68,307,374**

DEOD SUMMARY

ADVANCED CONCEPTUAL ENGINEERING AND PRELIMINARY ENGINEERING FOR THE REGIONAL CONNECTOR TRANSIT CORRIDOR PROJECT (E0119)

A. Small Business Participation

The Connector Partnership, Joint Venture (CPJV) made a 35.01% Disadvantaged Business Enterprise Anticipated Level of Participation (DALP) commitment. The current DBE participation is 28.29%, a shortfall of 6.72%. The project is 86.39% complete. According to CPJV, they are not meeting their DBE commitment due to Metro generated schedule delays and scope changes, which reduced work for DBE firms. CPJV confirms they are actively seeking additional DBE participation to provide necessary support services. Nine (9) DBE firms were added to CPJV's team. CPJV confirmed they are committed to increase DBE utilization, and will continue to seek opportunities to add DBEs. It is not expected that CPJV will meet their 35.01% DBE commitment.

Small Business Commitment	**DALP 35.01%**	**Small Business Participation**	**DBE 28.29%**

	DBE Subcontractors	Ethnicity	% Committed	Current Participation[1]
1.	Barrio Planners	Hispanic American	4.17%	3.18%
2.	BA, Inc	African American	3.43%	5.18%
3.	Dakota Communications	African American	1.67%	0.80%
4.	D'Leon Engineers	Hispanic American	2.35%	1.50%
5.	E2 Consulting Engineers	Subcontinent Asian American	1.68%	3.16%
6.	Intueor Consulting, Inc.	Asian Pacific American	3.34%	3.03%
7.	LKG-CMC, Inc.	Caucasian Female	1.19%	2.71%
8.	A Cone Zone	Caucasian Female	3.51%	0.26%
9.	Advanced Technologies Lab[2]	Hispanic American	0.00%	0.04%
10.	AP Engineering & Testing[2]	Asian Pacific American	0.00%	0.02%
11.	C&L Drilling	Caucasian Female	1.50%	0.00%
12.	Jet Drilling	Hispanic American	2.71%	0.19%
13.	Martini Drilling[2]	Hispanic American	0.00%	0.03%
14.	Tri-County Drilling[2]	Caucasian Female	0.00%	0.43%
15.	Murakawa Communications	Asian Pacific American	0.63%	0.00%

16.	Ted Tokio Tanaka Architects	Asian Pacific American	5.01%	3.39%
17.	Tierra West Advisors, Inc.	Asian Pacific American	0.76%	0.54%
18.	Wagner Engineering & survey	Caucasian Female	1.79%	1.19%
19.	Raw International, Inc.	African American	1.02%	1.23%
20.	Roy Willis & Associates	African American	0.25%	0.02%
21.	Universal Reprographics, Inc.	Caucasian Female	0.00%	0.76%
22.	Kal Krishnan Consulting Services[2]	Subcontinent Asian American	0.00%	0.02%
23.	Lenax Construction Services[2]	Caucasian Female	0.00%	0.36%
24.	Sapphos Environmental, Inc.[2]	Hispanic American	0.00%	0.12%
25.	Calvin R. Abe, Inc.[2]	African American	0.00%	0.02%
26.	VCA Engineering, Inc.[2]	Caucasian Female	0.00%	0.11%
		Total	**35.01%**	**28.29%**

[1] *Current Participation = Total Actual amount Paid-to-Date to DBE firms ÷Total Actual Amount Paid-to-date to Prime.*

[2] *DBE Subcontractors added after contract award.*

B. Living Wage and Service Contract Worker Retention Policy Applicability

The Living Wage and Service Contract Worker Retention Policy is not applicable to this modification.

C. Prevailing Wage Applicability

Prevailing Wage requirements are applicable to this project. DEOD will monitor contractors' compliance with the State of California Department of Industrial Relations (DIR), California Labor Code, and, if federally funded, the U S Department of Labor (DOL) Davis Bacon and Related Acts (DBRA).Trades that may be covered include: surveying, potholing, field, soils and materials testing, building construction inspection and other support trades.

D. Project Labor Agreement / Construction Careers Policy

Metro's PLA/CCP does not apply to this contract.

Board Report

File #: 2016-0326, **File Type:** Agreement **Agenda Number:** 21.

CONSTRUCTION COMMITTEE
MAY 19, 2016

SUBJECT: WESTSIDE PURPLE LINE EXTENSION SECTION 1 PROJECT

ACTION: AUTHORIZE THE CHIEF EXECUTIVE OFFICER (CEO) TO EXECUTE AN AMENDMENT TO AN EXISTING MEMORANDUM OF UNDERSTANDING

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to execute Amendment No. 1 to the existing Memorandum of Understanding between **Metro and the Los Angeles County Museum of Natural History, including the Page Museum at the La Brea Tar Pits, for the preservation and storage of paleontological and archaeological resources associated with the Westside Purple Line Extension Section 1 Project**.

ISSUE

Metro executed a Memorandum of Understanding (MOU) with the Los Angeles County Museum of Natural History (NHM) for the Westside Purple Line Extension Project (WPLE) in November 2011. The MOU stipulates the roles and responsibilities for encountering, protecting, recovering, preserving, transporting and curating paleontological and archeological resources. The MOU did not include roles and responsibilities for the final permanent storage of paleontological resources that were recovered as part of the WPLE. Amendment 1 of the MOU stipulates the roles and responsibilities for the final permanent storage of paleontological resources.

DISCUSSION

The Wilshire/Fairfax Station for the WPLE is located in the vicinity of the La Brea Tar Pits. The La Brea Tar Pits contain one of the world's largest collections of Ice Age fossils, which are located in soil deposits beneath the ground surface. Metro and the NHM executed a MOU in November 2011 to protect, recover, preserve, transport and curate any paleontological and archeological resources that might be discovered while performing work in the vicinity of the La Brea Tar Pits. This MOU was developed in parallel with the Final Environmental Impact Statement/Environmental Impact Report (Final EIS/EIR) for the project, which was approved by the Metro Board of Directors in April 2012. The MOU did not include roles and responsibilities for the final permanent storage of paleontological resources, i.e. fossils, because the amount and type of storage would not be known until the excavation of the Wilshire/Fairfax Station is performed. While the final quantity of fossils is still not

known at this time, Metro and the NHM agreed that it would be best to define roles and responsibilities for the final permanent storage of these resources prior to beginning the work. Metro and the NHM further agreed that that the roles and responsibilities for final permanent storage would be limited by the project budget and schedule per the Federal Funding Grant Agreement (FFGA). The roles and responsibilities for permanent storage are now included in Amendment 1.

DETERMINATION OF SAFETY IMPACT

This Board action will not have an impact on established safety standards.

FINANCIAL IMPACT

Funding for this action is within the Life-of-Project Budget that was approved by the Board in July 2014, under Project 865518-Westside Purple Line Extension Section 1 Project in Cost Center 8510 (Construction Project Management), and Account Number 53101 (Acquisition of Building and Structure). Since this is a multi-year project, the Executive Director of Program Management and the Westside Purple Line Extension Section 1 Project Manager will be responsible for budgeting in future years.

Impact to Budget

The sources of funds for the recommended action are Federal 5309 New Starts, Transportation Infrastructure Finance and Innovation Act (TIFIA) Loan proceeds and Measure R 35%. These funds are designated for Westside Purple Line Extension Section 1 Project and do not have an impact to Operations. These funds were assumed in the Long Range Transportation Plan (LRTP) for the Westside Purple Line Extension Section 1 Project. This Project is not eligible for Propositions A and C funding due to the proposed tunneling element of the Project. No other funds were considered.

ALTERNATIVES CONSIDERED

The Board may choose not to execute Amendment 1. However, the roles and responsibilities for final permanent storage of any paleontological and archeological resources that may be discovered would be undefined.

NEXT STEPS

After Board approval, Metro and the NHM will perform work for the Westside Purple Line Extension Section 1 Project in accordance with the terms of the MOU and Amendment 1.

ATTACHMENTS

Attachment A - Amendment 1 to the Memorandum of Understanding between Metro and the Los Angeles County Natural History Museum

Attachment B - Memorandum of Understanding between Metro and the Los Angeles County Natural History Museum (Appendix G of FEIS/FEIR: Memorandum of Understanding for Paleontological Resources).

Prepared by:

Scott McConnell, Director, Construction Management (323) 900-2115
James Cohen, Deputy Executive Officer, Program Management (323) 900-2114
Rick Wilson, Deputy Executive Officer, Program Control (213) 312-3108

Reviewed by:

Richard Clarke, Executive Director, Program Management (213) 922-7557

Phillip A. Washington
Chief Executive Officer

AMENDMENT NO. 1

THIS AMENDMENT NUMBER 1 TO THE MEMORANDUM OF UNDERSTANDING ("MOU") is entered into as of this _____day of _____ by and between the Los Angeles County Metropolitan Transportation Authority ("Metro") and the Los Angeles County Museum of Natural History, including the Page Museum at the La Brea Tar Pits ("Museum") (collectively, "the Parties"), for the preservation of paleontological and archaeological resources associated with the Wilshire/Fairfax Station and other portions of the Purple Line Extension Project (Project) alignment within two miles of the Wilshire/Fairfax Station.

BACKGROUND

WHEREAS, Metro has the responsibility under Federal and State law to recover and preserve for future scientific and educational use paleontological, archaeological, and historical resources that may be impacted by the Purple Line Extension Project and associated records; and

WHEREAS, the Parties have previously signed (November 2nd, 2011) a Preliminary MOU governing the recently completed excavation of the Metro Exploratory Shaft near the Page Museum and also setting out the general framework for mutually beneficial Paleontological cooperation;

WHEREAS, the County of Los Angeles and the Los Angeles County Museum of Natural History Foundation (Foundation) entered into a long term operating and funding agreement dated July 12, 1994, as amended, authorizing the Foundation to perform a variety of functions for the museum and accept and expend funds for the museum;

WHEREAS, Metro required the principal paleontologist to prepare and submit a mitigation plan, subject to approval by Metro and Museum, to address monitoring, preservation and, recovery of any paleontological resources which shall be consistent with best practices guidelines for both field and laboratory work on project paleontological resources to meet state and federal laws and guidelines and Museum standards (Attachments 1 and 2).

WHEREAS, Metro has separately negotiated a contract that includes the cost of monitoring by the principal paleontologist and staff and removing fossils from the Fairfax Purple Line Station and transporting them to a site for processing:

WHEREAS, the Museum has made available Museum personnel to provide oversight for the qualified principal paleontologist's preparation of a mitigation plan, subject to approval by the Agency, to address monitoring, preservation and, recovery of paleontological resources. The mitigation plan is consistent with best practices guidelines for both field and laboratory work on project paleontological resources to meet state and federal laws and guidelines and Museum standards (Attachments 1, 2, and 4).

NOW, THEREFORE, in consideration of the terms, conditions, covenants and performances herein contained, and other consideration the receipt and sufficiency of which is hereby

acknowledged, and with the intent to be legally bound hereby, the Parties agree to incorporate the above recitals into this MOU and further contract, promise and agree as follows:

1. **Metro's Duties and Obligations**:

a. Require the selected principal paleontologist to monitor all ground-disturbing activities where sub-surface soils are exposed. The areas to be examined will be determined based on project plans and in consultation with construction staff and the qualified paleontologist during pre-construction meetings and as needed throughout the construction process.

b. Ensure that if subsurface paleontological resources are identified by the principal paleontologist during construction, all construction activities in the area of identified paleontological resources will be temporarily halted so that the resources may be documented and as determined by the Museum recovered. All resources shall be documented on appropriate forms approved by the Museum and these will be placed on file in the Museum.

c. Ensure that any paleontological resources, including asphaltic deposits containing fossils and/or archaeological objects, will be recovered in accordance with best practices outlined by the Museum (Attachment 1).

d. Require that the principal paleontologist has designated and secured space sufficient to store and, if necessary, analyze and process boxed or individual fossil deposits for preparation [but see section 2.b].

e. Require that the principal paleontologist record all data and, if necessary, perform excavation of boxed deposits or individual fossils, prepare fossils and store fossils prior to curation in accordance with best practices outlined by the Museum (Attachment 2, which may be modified from time to time and agreed to by the Parties).

f. Require that the principal paleontologist provide periodic progress reports including copies of all field notes to Metro and Museum in addition to the preparation of a comprehensive final report prepared in accordance with appropriate state and federal standards. The original copies of the field notes will be archived in the Page Museum at the time that the fossils are transferred to its jurisdiction.

g. Provide funding for required fossil recovery, processing, curation and temporary storage and any other fossil-related Museum activities specified in Paragraph 2 based on an annual work plan to be submitted by Museum and agreed upon by Metro. This annual work plan will:

    1. Be based in part on the Museum's experience in processing and storage of its Project 23 materials, taking into account the possible variation in the density of fossils and in the matrix in which the fossils are found. Reflect storage

requirements based on the anticipated quantities of fossils anticipated to be recovered in the year.
2. Be subject to revision based on unanticipated greater or lesser number and size of fossils encountered.
3. This Agreement provides for Metro's total contribution to the cost of permanent storage premises in the event that significant quantities of fossils are recovered.
4. The Museum staff cost element of annual work plan will reflect payment rates agreed on in the first MOU at Metro Form 60s adjusted over time for inflation, promotions, etc.
5. This Agreement shall prevent unreasonable payment if few fossils are found, but assure payment for vital effort.
6. The Museum staff shall submit a proposal for the Annual Work Plan no later than February 28 of each calendar year

h. Provide funding to the Museum or the Foundation for final permanent storage of paleontological resource recovery, except that Metro's funding shall be limited to the approved life of project budget, the project's duration and federal funding guidelines:

    1. The funding and payment schedule will be agreed to by both Parties after the end of excavation for the Wilshire/Fairfax Station.
    2. The Parties also agree that if significant paleontological resources are discovered and recovered, but it becomes difficult to determine the full scope and timing of the permanent storage needs for the resources, and recognizing that the storage needs will run beyond the term and scope of the Project, the Parties may agree on a one-time present value payment by Metro to Museum that will equal a negotiated agreed upon cost that, when payment has been made\.
    3. The one-time payment shall satisfy Metro's obligation to provide permanent long term storage of the paleontological resources.
    4. This approach will permit the Museum to spend the appropriate time necessary to recover, restore, analyze, display or store the resources in accordance with the Museum's policies and practices.

i. Allow the Museum to be involved, in an oversight capacity, for all field and laboratory work to ensure that Museum standards are being maintained.

j. Require that paleontological resources be removed expeditiously to allow Project completion according to schedule, but in compliance with Museum standards as recently demonstrated in the construction of the new LACMA Underground Garage and corresponding Project 23 Paleontological Project.

k. Retain responsibility for compliance with all legal and regulatory provisions related to monitoring, reporting, consultation, and repatriation of Native American remains and related material, including under Native American Graves Protection and Repatriation Act and California law.

l. Assign a Metro Representative to make any further revisions or adjustments to this document necessary in the course of the project, in cooperation with the Museum.

m. Designate the Museum as the sole source for the scientific description of fossils and artifacts recovered from the Purple Line Extension Project in asphaltic deposits associated with the Wilshire/Fairfax Station and other portions of the Purple Line Extension Project alignment within two miles of the Wilshire/Fairfax Station. Publicity concerning the discovery of such fossils and artifacts shall be jointly undertaken by Metro and the Los Angeles County Museum of Natural History.

n. In the event of extraordinary need, Metro Planning shall work cooperatively with Museum to prepare grant applications to secure additional funding and resources.

2. **Museum's Duties and Obligations:**

a. Continue to make available Museum personnel to provide oversight of all field and laboratory work on paleontological resources for the duration of the project to ensure that Museum standards are being maintained, as was successfully done on the recently completed Metro Exploratory Shaft near the Museum.

b. Provide an option, dependent upon the volume and number of fossils recovered, , that the Museum will directly house boxed fossil deposits and internally perform excavation and preparation of those deposits for compensation comparable to that offered to the principal paleontologist for similar services.

c. Provide for the professional care and management of the curated paleontological resources associated with the Wilshire/Fairfax Station and other portions of the Purple Line Extension Project alignment within two miles of the Wilshire/Fairfax Station.

d. Ensure that personnel assigned responsibilities related to the Purple Line Extension Project are qualified museum professionals whose expertise is appropriate to the nature and content of the paleontological resources recovered.

e. Provide and maintain a repository facility having requisite equipment, space and adequate safeguards for the physical security and controlled environment for the paleontological resources (but see 1.h).

f. Perform those conservation treatments necessary to ensure the physical stability and integrity of the paleontological resources prepared by the principal paleontologist.

g. Curate the paleontological resources to ensure adequate scientific documentation of the circumstances of their recovery.

i. Make reference to Metro's participation when the Collection or portions thereof are exhibited, photographed or otherwise reproduced and studied in accordance with the terms and conditions of Museum policy with the statement: "In Cooperation with the

Federal Transit Administration and Los Angeles County Metropolitan Transportation Authority". The Museum agrees to provide the Agency with copies of any resulting publications.

3. **Paleontological Advisory Board**

The Parties agree to mutually appoint a three person Paleontological Advisory Board comprised of appropriately qualified paleontologists to help guide this effort as previously agreed by the Parties in their Paleontological MOUs for this site in 1983 and November 2, 2011.

IN WITNESS WHEREOF, the Parties hereto have executed this Amendment No. 1.

_____ _____

Dr. Jane Pisano — Date
President and Director
Los Angeles County Museum of Natural History

Approved as to form:

_____ _____

MARY C. WICKHAM — Date
County Counsel

By: _____
Deputy

_____ _____

Phillip A. Washington — Date
Chief Executive Officer
Los Angeles County Metropolitan Transportation Authority

ATTACHMENTS

Attachment 1. Paleontological Methods for Mitigation of Fossils in the Vicinity of Hancock Park

Attachment 2. Techniques for Excavation, Preparation and Curation of Fossils from the Project 23 Salvage at Rancho La Brea

Attachment 3. Wilshire/Fairfax Station Construction Methodology

Attachment 4. Paleontological Resources Monitoring and Mitigation Plan

ATTACHMENT 1

Attachment 1—Paleontological Methods for Mitigation of Fossils in the Vicinity of Hancock Park

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ATTACHMENT 1

Paleontological Methods for Mitigation of Fossils in the Vicinity of Hancock Park

Paleontological methods for mitigation of fossils in the vicinity of Hancock Park.

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Images courtesy of ArchaeoPaleo Resource Management, Inc.

2011

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Introduction

Rancho La Brea is the world's richest Ice Age fossil locality, yielding well over 3 million fossils and representing more than 600 species of animals and plants that lived in the Los Angeles Basin between 11,000 and 50,000 years ago. The asphaltic fossil deposits generally occur in randomly distributed inverted cone-shaped masses between 10 to 35 feet in depth. The sizes of the accumulations vary considerably from less than 5 cubic feet to more than 20 cubic feet. Flat tabular deposits such as that recovered during the construction of the Page Museum are rare. Ideally, the fossil accumulations should be carefully excavated as they are discovered. The fall back position is to remove the deposit intact, preserving it for excavation at a later date. This methodology, developed during the mitigation of the LACMA underground parking structure, preserves stratigraphic integrity, permits less hurried excavation under more optimum conditions, maximizes fossil and information retrieval, and enhances opportunities for major discoveries and new scientific contributions. All data pertaining to the location and condition of newly discovered fossil deposits must be recorded and photographed as outlined later in this document.

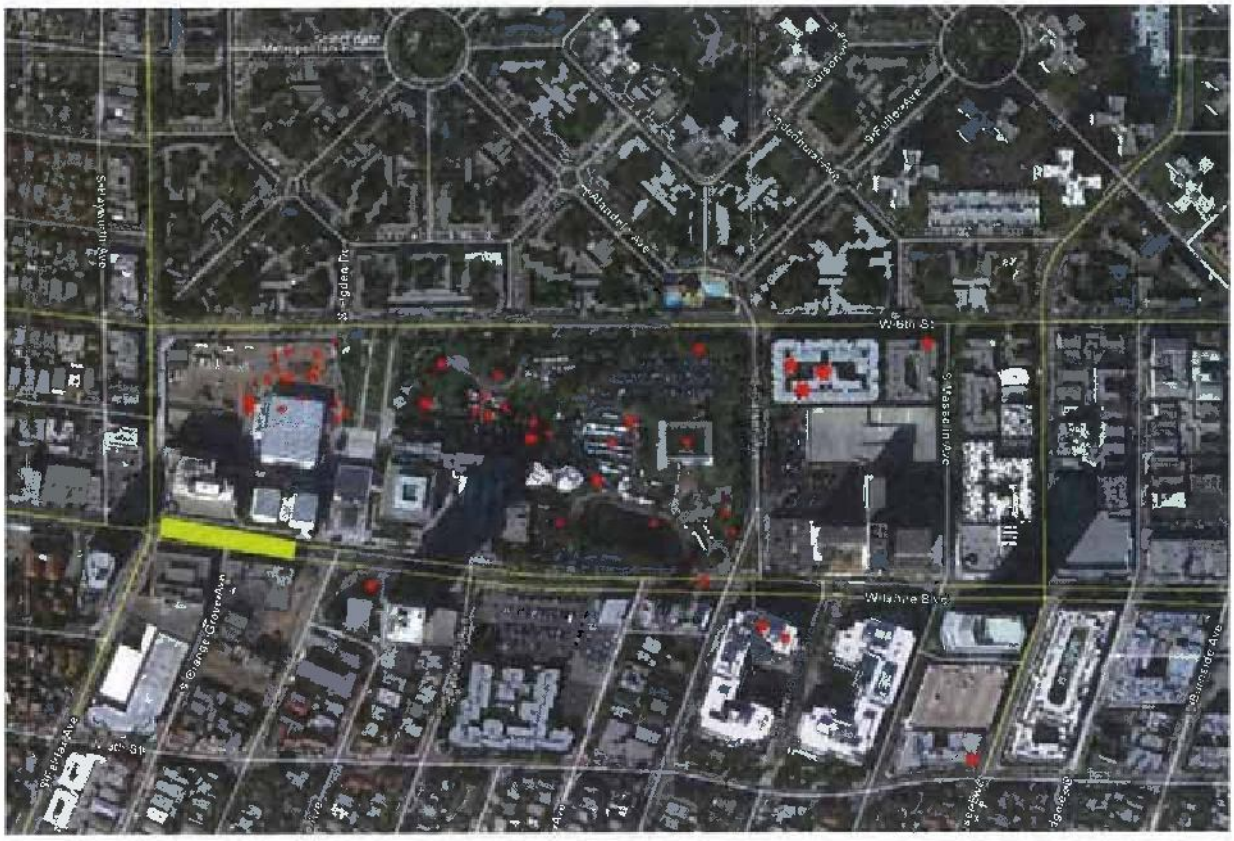

Fig 1: Map of Hancock Park and vicinity with known asphalt preserved fossil localities (red stars) and the approximate location of the proposed MTA subway station (yellow rectangle)

Fig 2: Monitoring

All excavation activity must be carefully monitored. In areas of asphaltic sediment or other areas where fossils have been discovered, sediment should be removed in 4-6" levels while paleontologists monitor closely. The monitors are empowered to halt the process as soon as fossils are located.

Fig 3: Fossils are discovered

After a fossil deposit has been located the surrounding area must be roped off so that paleontologists can determine the extent of the deposit or if it is an isolated fossil. In the case of an accumulation deposit this may range from 5 feet to 20 or more feet across. Construction work in the immediate vicinity of the fossil deposit must be halted temporarily but may proceed normally elsewhere in the construction site. Asphalt saturated conical shaped deposits and isolated fossil mitigation are described separately below.

Taking Field notes

Whether an accumulation of fossils are discovered or an isolated fossil is found, detailed field notes must be taken. The precise locality of each fossil deposit must be recorded with a resource-grade GPS device, its extent clearly described, mapped, and photographed on site using conventional field data collection methods, and its context including represented lithologies and depositional environments must be described. Types of geologic information to be collected should include: the nature of bounding contacts (erosional, sharp, gradational), thickness, geometry, grain size, shape, and sorting, color (fresh and weathered, use a color chart), sedimentary structures (physical and biogenic), cement type, pedogenic features (rooting, nodules, slickensides, etc.), halos, mineral crusts, microstructures around bio-clasts, and other fossils. Types of taphonomic information to be collected should include: taxonomic

representation, skeletal articulation and association, scale and geometry of assemblage, density, and orientation of bones. Bone modification information to be collected should include: weathering, polishing, abrasion, scratch/tooth marks, root traces, borings, fragmentation/breakage, and distortion. Each isolated fossil and each individual fossil deposit must be given an individual field number. This number should be written in permanent ink on individual fossils and clearly marked in permanent marker or paint on the box containing a deposit.

Asphalt saturated conical shaped deposits

Fig 4: Pedestal a deposit

Once the extent of the fossil accumulation has been determined, the sediment surrounding the fossiliferous deposit is carefully removed, isolating the accumulation on a pedestal. It may be necessary for monitors to wear a SCBA, as in this image, because of the high concentrations of hydrogen sulfide.

Fig 5: View of east end of LACMA construction site

It is possible that there will be a number of fossil deposits within the construction site. Work may continue at non-fossiliferous locations while the deposits are being salvaged.

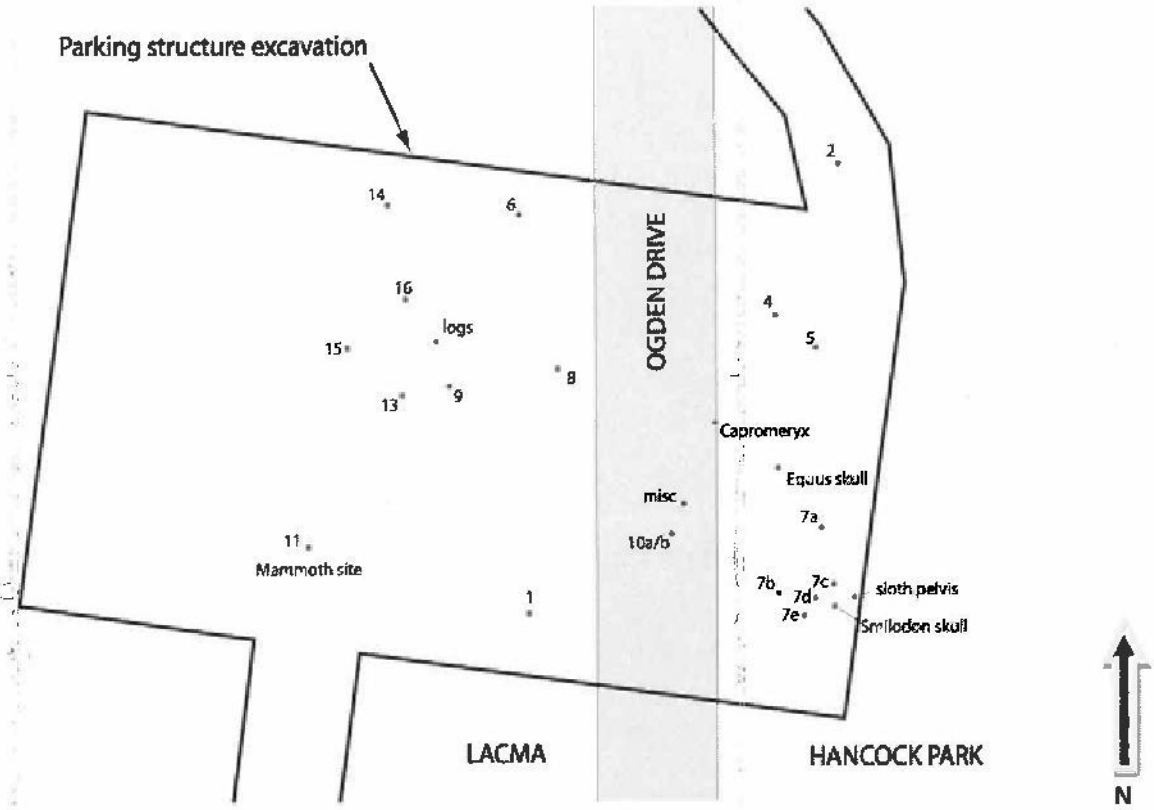

Fig 6: Map of fossil localities from LACMA parking garage

These were mostly asphaltic fossiliferous masses but included some occurrences of isolated bones, trees, and other fossils.

Fig 7: Fossil accumulation pedestals before tree box

After the deposit has been isolated it will be surrounded by metal bands to conserve its integrity before the box is built and a brightly colored strong plastic or a tarp to keep the deposit dirt separated from the 'fill' dirt.

Fig 8: Building a tree box around a fossil deposit

A custom sized box is then built around each deposit by a 'tree boxing' company. Valley Crest was used on the LACMA project. Any space between the plastic-wrapped deposit and the edge of the box must be filled with polyurethane foam, distinctly different sediment or gravel to preserve the integrity of the deposit and to prevent its deformation during subsequent transportation and storage. It is important that the 'fill' sediment be easily recognizable from the matrix during later excavation of the deposit.

Fig 9: Secure the tree box with metal bands

After the sides of the box are nailed into place, metal bands are added to secure and strengthen the sides of the box.

Fig 16: Tunnel under the tree box

After the sides of the box are secured and banded, the sediment beneath the box is removed by tunneling so that the box floor can be constructed. The field number and locality data must be clearly written on the outside of the box in permanent marker or paint. The orientation of the box and the depth below datum of the top and bottom of the deposit must also be clearly and permanently marked on the box, as well as added to the field notes for that deposit.

Figs 11, 12 & 13: Relocating the tree boxes by crane and truck

A crane is used to lift the completed boxes, load them onto a flat bed truck, and to relocate them to the place where their excavation will take place.

Isolated fossils

In addition to conical and flat tabular asphaltic accumulations, construction activities may encounter isolated fossils in non-asphaltic or asphaltic sediments such as the trees, mammoth skeleton, and bison and horse skulls that were discovered during the recent construction of the LACMA's underground parking structure. Similar procedures pertain. The area must be roped off in order for the monitors to determine the extent of the fossil occurrence, which may then be removed using conventional paleontological field techniques. Large or fragile bones must be pedestaled (with sediments immediately surrounding the fossil) and covered in a plaster and burlap jacket. The type of plaster used determines the time it takes to dry. Once the plaster is dry, it is flipped over and the other side is covered with plaster and burlap and left to dry completely. In the meantime paleontologists need to determine the extent of other isolated fossils in the area looking in particular for other elements of the skeleton of the jacketed specimen or sediments in which microfossils such as rodent, bird and reptile remains may occur.

It is crucial; that all isolated fossil occurrences be given a field number, their location recorded with a resource-grade GPS device, and these data entered into the field notes together with a map and description of the fossil, its orientation and its locality including description of the lithology in which the fossil was preserved. Standard guides such as Munsell Soil Color Charts should be used. The field number should be clearly and permanently affixed to the fossil and written on its container or jacket as appropriate. Maps must have a legend and scale to the show the orientation and depths of each fossil as well as a datum point. In addition to the field number, plaster jackets should also be marked "field side up" on the appropriate surface.

Fig 14: Excavating isolated fossils

Paleontologists need to excavate around large bones with hand tools before covering them with a protective plaster jacket for later removal and transport.

Fig 15: Mammoth discovered

This image show the mammoth locality in the context of the construction site during the LACMA underground parking garage.

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ATTACHMENT 2

Attachment 2—Techniques for Excavation, Preparation and Curation of Fossils from the Project 23 Salvage at Rancho La Brea

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ATTACHMENT 2

Techniques for Excavation, Preparation and Curation of Fossils from the Project 23 Salvage at Rancho La Brea

Techniques for excavation, preparation and curation of fossils from the Project 23 salvage at Rancho La Brea.

A MANUAL FOR THE RESEARCH AND COLLECTIONS STAFF OF THE GEORGE C. PAGE MUSEUM

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2011

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Introduction

This document was compiled mid project to record and codify best practices for excavation, preparation and curation of specimens from Project 23 and other Rancho La Brea localities that are housed in the George C. Page Museum. Some of the techniques are similar to Pit 91 excavations that were reported by Shaw (1982) and others that are unique to Project 23 because of the nature of the salvage. This provides guidelines for possible future salvage efforts. Documents discussing the nature of the mitigation are available elsewhere.

Excavation Techniques for Project 23

Excavation of Project 23 deposits began in August, 2008. The measuring techniques used to determine and record data for *in situ* specimens follow those of Shaw (1982) for Pit 91 with some modifications described here (for instance, the imperial measurement system was used prior to Project 23). New excavation procedures have also been devised as a result of the removal of the deposits from their original location due to construction.

In Project 23, a custom-sized wooden box was built around each isolated plastic-wrapped deposit by a 'tree boxing' company (Valley Crest was used for this particular project). Any space between the deposit and the edge of the box was filled with either polyurethane foam or sediment to preserve the integrity of the deposit and to prevent its deformation during subsequent transportation and storage.

Because the deposits are no longer *in situ*, all excavation grids are oriented with respect to the deposits' original north orientation. Where feasible, box walls may be removed in part or in their entirety to allow excavation from the side of the deposit rather than from the top. Each "tree box" from Project 23 is treated differently depending on the type of deposit, size of the box and integrity of the sediments in the box. Refer to paleo mitigation protocol and ArchaeoPaleo report documents for descriptions on how the 'tree boxes' were constructed.

Preparing a tree box for excavation

First read all the field notes pertinent to that particular deposit. In a field notebook or deposit logbook document the nature of the "box" size, construction, fill, plastic, etc. If the box is taller than 5 feet, erect scaffolding for excavators to safely access the box. Depending on the size of

the tree box it may be necessary to construct a safety railing extending upward from the sides of the box. After the top of the box is safe to access, remove the metal bands that are strapped across the top of box. Use specific snips if recommended by the tree boxing company. Remove supportive fill dirt, foam and plastic to reveal deposit surface, taking care to maintain an appropriate area for excavators to work safely.

Depending on box stability and size, board walls or portions of board walls may be removed to enable excavation from the side of the deposit. Smaller boxes containing deposits with cohesive sediments may allow the removal of all sidewalls. For larger boxes, removal of one wall or a small "window" cut into a sidewall may be feasible.

Before any asphaltic sediment is removed, set up a gas monitor close to where work will be conducted. The Solaris Multigas Detector is an economical, 4-gas instrument providing simultaneous detection of CO, O2, H2S and combustible gas and costs ~$600 from Safety Tek Industries.

Grid layout

Determine the deposit's north side from field data and data written on the box.

Establish a datum point near the top of the box and record it based on field data. The datum point should not be removed during excavation.

Lay out grids into 1m x 1m squares with origin in the SE corner of the box using an alphanumeric system (N/S = A-Z; W/E = 1, 2, 3). Gridlines can be marked with string, spray paint or chalk and need to be refurbished and maintained periodically. A map of the box showing the grid lines and a north arrow should be drawn for reference.

Excavation and Documentation

After grids are established, clean surface to remove fill dirt, to determine sediment type and to locate fossils if exposed. Note nature and location of fossils (bones, shells, plant remains, etc.)

Excavate grids in 25 cm spits (i.e. Level 1=0cm-25cm, L2=25cm-50cm, etc). If multiple grids are worked on at the same time, ensure that this doesn't compromise the mapping of each spit wall and floor. If a deposit has been exposed from the side, the spits in any one grid may be excavated sequentially from the top to the base of the deposit.

Depending on degree of consolidation, use small hand tools (hammers, chisels, and screwdrivers as required) on non-fossiliferous areas. Pneumatic or electric hammers can be used on areas with hard matrix where there are no fossils. Use dental picks and small screwdrivers to expose and extract fossils. Hard asphaltic matrix can be softened with clamp lamps or loosened with a small amount of solvent. Measure exposed fossils *in situ* (see below) within each grid and record their data in field notes before extracting them.

Note: Clamp lamps should be placed at least 8" away from the specimens and always monitored. Never leave lamps unattended. If the sediments start to smoke immediately turn off the lamp. 150 watt incandescent unfrosted bulbs should be used.

Save all of the surrounding sediments but separate them based on sediment type into 5 gallon metal buckets with lids. The pre-designated sediment types are A= asphaltic sand, B=brown silts and C=clay. Mark each bucket with box #, grid and level data as well as the sediment type (A, B or C). Note the number of buckets of each sediment type from each grid on an inventory list kept by the lead excavator. This is important because it determines how each bucket is processed later (see matrix processing section).

Keep daily documentation in field notes of who is excavating, a list of the grid or grids being excavated and describe the type of matrix being removed, what is being found within each grid, and any challenges encountered with the excavation. Geologic and paleobiological data should be recorded in field notes for later use to constrain and further refine taphonomic, paleoenvironmental, and paleobiological interpretations. A description of each lithology (soil type) should include color (fresh and weathered), lithologic composition, grain size, sorting and shape, sedimentary structures, induration, type of cement, fossil content, and pedogenic features (rooting, nodules, slickensides, etc.). As excavation proceeds note unit thickness, nature of the bounding contacts (erosional, sharp, gradational), and inferred depositional setting. Note nature and location of fossils (bones, shells, plant remains, etc.). Any visible modifications to the bones (weathering, polish, abrasion, scratch/tooth marks, root traces, borings, pitwear, breakage, distortion) and gross orientation should be recorded. Features of the matrix surrounding the bones, such as alteration halos, mineral crusts, micro-structures, fine root traces (small burrows or borings), and localized invertebrate bioturbation should be noted. The degree and nature of articulated, semi-articulated, associated, and dissociated skeletal elements should be described. Notes should also be taken on the general geometry of the fossil deposit (vertical pipe, tabular, etc.) drawings and/or photographs should be taken when appropriate.

Measurement system

The most common types of macrofossils recovered from asphaltic deposits are isolated bones. The following measurement system has been devised for capturing data for individual bones.

See the Special Cases section for the treatment of associated skeletons, dermal ossicles, plant masses, etc.

In situ measurements are taken from specific anatomical points on each bone (see Table 1 and 2 Appendix A) to define its spatial orientation with reference to its depth below an established datum point (BD), its distance north (N) of the southern grid line and its distance west (W) of the east grid line using the metric system (see Fig 1. of Shaw (1982) but note this uses the imperial measurement system). Recording this data at the time of excavation will facilitate studies of stream current energy and direction, deposition, and taphonomy.

All identifiable bones from 1 cm to 2 cm in size should be measured *in situ* as a 1-point measurement before being excavated. Each Standard Measurement (BD, N, W) is taken to the center point of the longest dimension (Fig. 3)

Bones larger than 2cm in minimum length or diameter should be measured as either a 2-point or a 3-point measurement. The 3-point measurement is used on all bones in which three predetermined identifiable anatomical points are visible. The 2-point measurement is used if the bone lacks three distinct reference points and records the orientation of the long axis of the specimen (proximal-distal, anterior-posterior, medial-lateral, etc.). Detailed instructions for measuring out specimens are provided by Shaw (1982), which also lists the elements that generally fall into each of these categories.

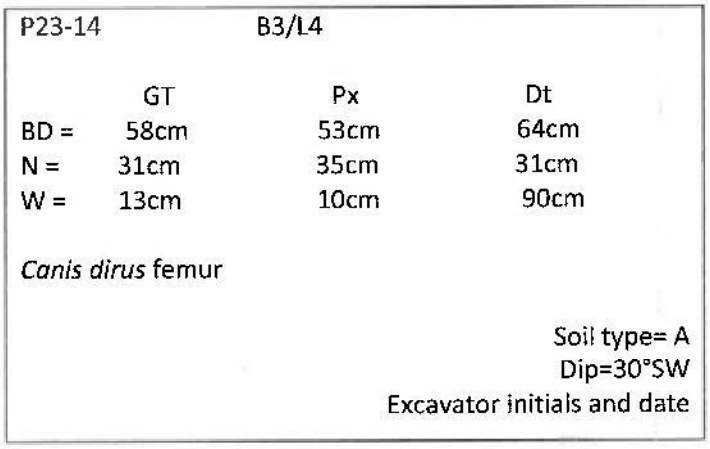
All the data pertinent to the specimen should be recorded in the field notebook and should also accompany the specimen until its preparation and curation have been completed. One method of doing this is to duplicate the field notebook entries onto a 3" x 5" card using carbon paper (Fig 1, 2 and 3 below). This card then accompanies the specimen throughout its preparation, curation, and final cataloging. Only when the data have been recorded in the catalog are they separated.

In addition to measurements on individual bones, the dip of all limb bones and skulls should be recorded with a Brunton compass. Recording these data at the time of excavation will assist with interpretation of stream current energy and direction, and taphonomy which may include possible vertical movement in a vent, trampling, etc.

The soil type surrounding each measured bone should also be noted on the 3" x 5" card by a letter using a pre-designated lettering system. The pre-designated sediment types are A= asphaltic sand, B=brown silts and C=clay.

After a bone has been measured *in situ*, it is placed in an appropriate sized clear plastic bag. The 3" x 5" data card is placed in its own small clear plastic bag for safety and then placed in the bag with the bone.

Fig 1: Example of excavation data for a 3-point measurement in a field notebook and transcribed onto a 3" x 5" card template.

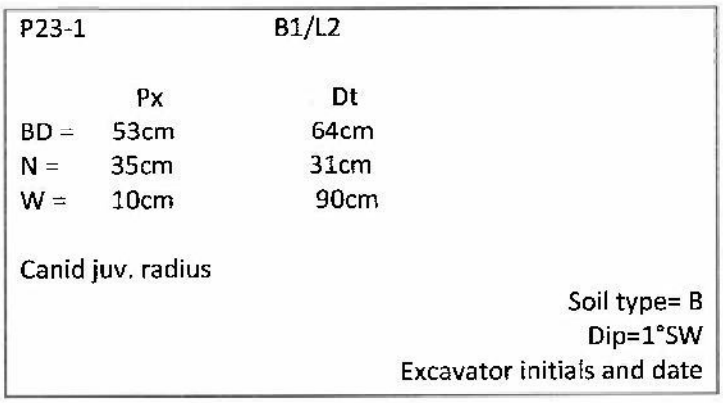


P23-14 = Project 23-Box 14
B3/L4 = grid B3/level 75cm-100cm

GT = Greater Trochanter is 58cm below datum, 31cm from the south grid axis and 13cm for the east axis
Px = Proximal end is 53cm below datum, 35cm from the south grid axis and 10cm from the east axis
Dt = Distal end is 64cm below datum, 31cm from the south axis and 90cm from the east axis

Soil type A= asphaltic sand

Fig 2: Excavation data for a 2-point measurement in a field notebook and transcribed onto a 3" x 5" card template.

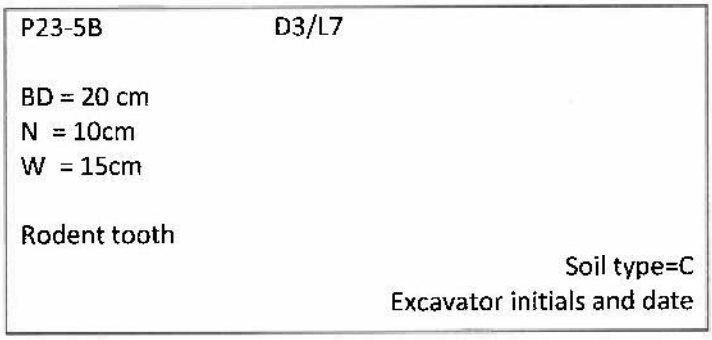


P23-1 = Project 23-Box 1
B1/L2 = grid B1/level 25cm-50cm

Px = Proximal end is 53cm below datum, 35cm from the south grid axis and 10cm from the east axis
Dt = Distal end is 64cm below datum, 31cm from the south axis and 90cm from the east axis

Soil type B= brown silt

Fig 3: Excavation data for a 1-point measurement in a field notebook and transcribed onto a 3" x 5" card template.



P23-5B = Project 23-Box 5B
D3/L7 = grid D3/level 150cm-175cm

20cm below datum
10cm from south gridline
15cm from east gridline

Soil type=clay

Specimens smaller than 1 cm, fragments, or unidentifiable smaller bones are placed into "bulk matrix bags" together with field data cards (P23-deposit # and grid/level information, excavator initials and date). Because they are known to contain fossils, the bulk matrix bags will be processed before the rest of the matrix samples. Keep associated fragments together in capsules or envelopes within the bag. Be sure to always place delicate bones into snap cap vials first and then into a clear plastic bag with their data. If a fossil is not in place, identify it and label it "not *in situ*"

Special cases

Each special case requires consultation by lab and collections staff to assess the best way of documenting each potentially unique occurrence.

- An articulated or associated skeleton should be extensively photographed. If, after consultation with Lab and collection staff this is removed as a small block, be sure to place a white pin in the top surface along the northern middle portion of the block so that it can be oriented later. Draw and annotate a diagram of the block and the elements that are visible on each surface before it is removed. Measure out the block as a 2-point measurement. Elements within the block that can be identified and measured without compromising the specimens should be also noted and can be measured using the 1 or 2-point measurement system but should not be removed from the block. Labeled copies of all photographs should be placed in the bag with the specimen. This is additional to downloading the photographs to the archive computer (see photography section). Articulated or semi-articulated specimens should be extracted in articulation and the sediments around the specimens stabilized to conserve the maximum amount of information derivable from the specimen.

- Bone masses with poorly preserved specimens (fragmented and/or less asphalt-impregnated) are more difficult to measure out individually. Measure out the extent of the mass with the 2-point system rather than the constituent bones. Place a white pin in the top surface along the northern middle portion of the block so that it can be oriented later. Photograph in situ specimens, print and label images and place them in the bag with the specimens.

- As instructed by Lab and collections staff, and depending on their nature and frequency, dermal ossicles and pockets of plant, shell or insect material should either be measured out as a small block with a 2-point measurement (same as above) or placed in pre-labeled bags with locality information for a specific 10cm square within the 1m x 1m grid.

Geologic Samples

Collect 15 cm by 15 cm soil samples of each sediment type from each grid and level for geologic analysis of composition, weathering, and grain size at a later date. Document each sample in your notebook and measure each one *in situ* as a block using the 2-point measurement system used for fossils and described above. Each sample should have a white pin placed on the upper surface in the northern middle portion of the sample so that later the sample can be oriented. Transcribe all data onto a 3" x 5" card and place in a clear plastic bag with the soil sample. A list of soil samples taken should be kept by the lead excavator for each grid and deposit.

When spits are completed, photograph and map each exposed wall and the floor.

Floor and Wall mapping

When mapping a wall or floor (Fig. 4, 5 and 6)

- Draw maps on graph paper with a scale of 3 squares = 10 cm.
- Keep the origin point (0, 0) in the southeast corner.
- Mark north arrow.
- Draw in empty spaces and the edge of the box when present.
- Mark asphalt and sediment contacts.
- Use standardized symbols for lithologies and other known sedimentary features. Also
- Indicate where fossils, cobbles, bone, shells and plants masses are located (Fig 4).

Figure 4: Standard symbols used in mapping each grid's floor and wall

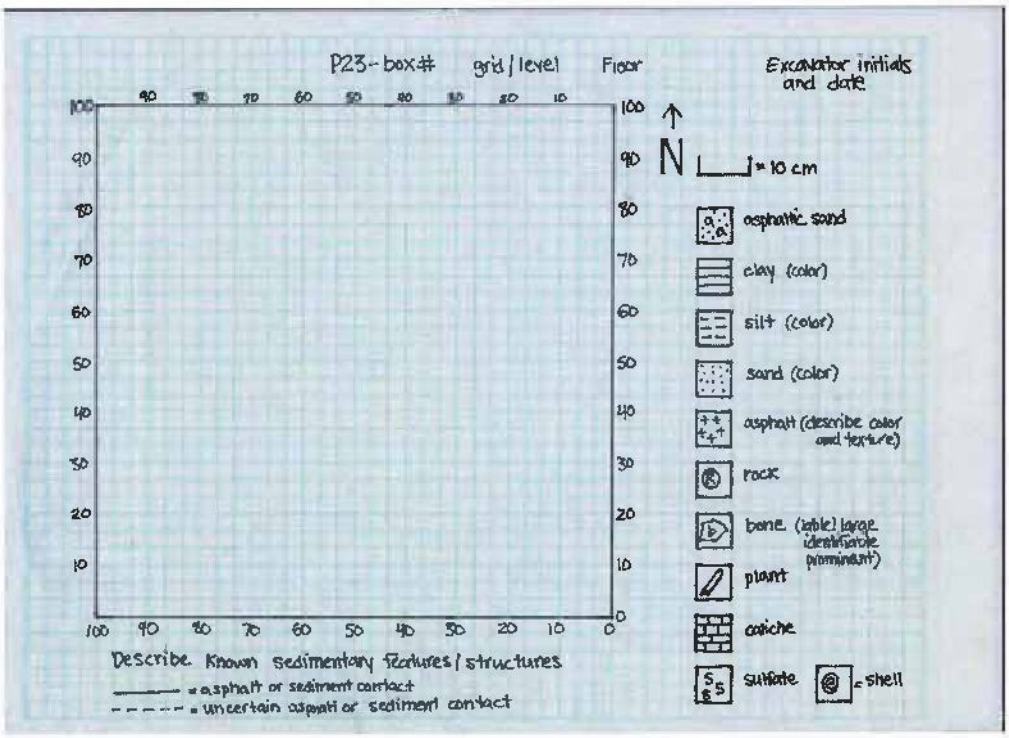


Figure 5: Sample drawing of the floor of grid C3/L3 of box 14

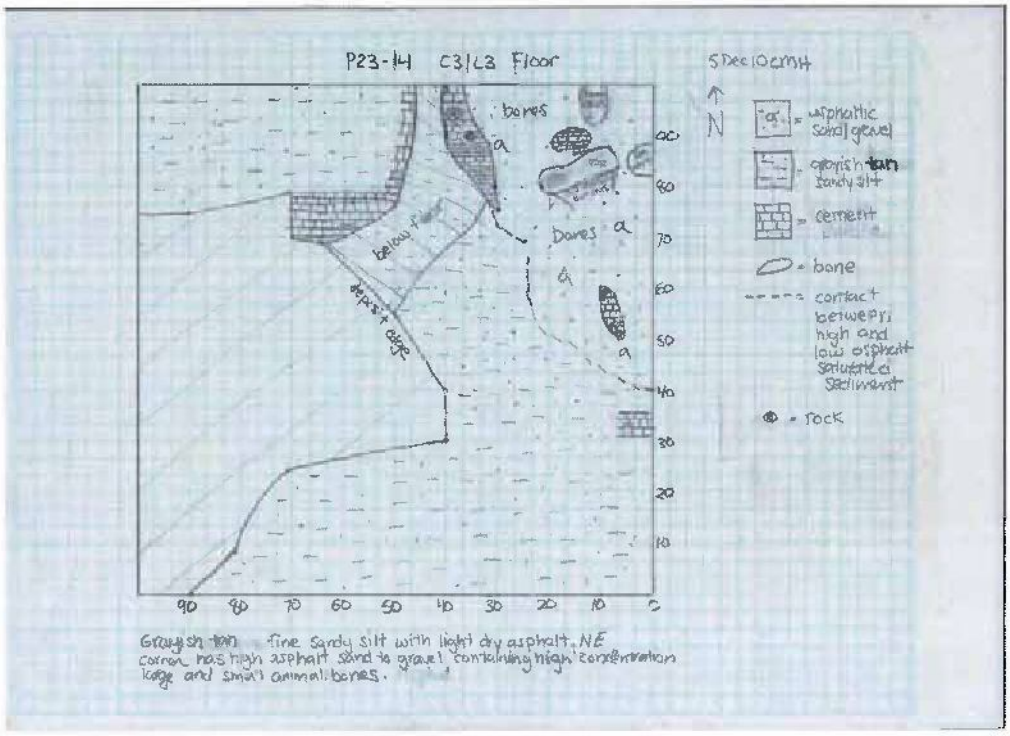
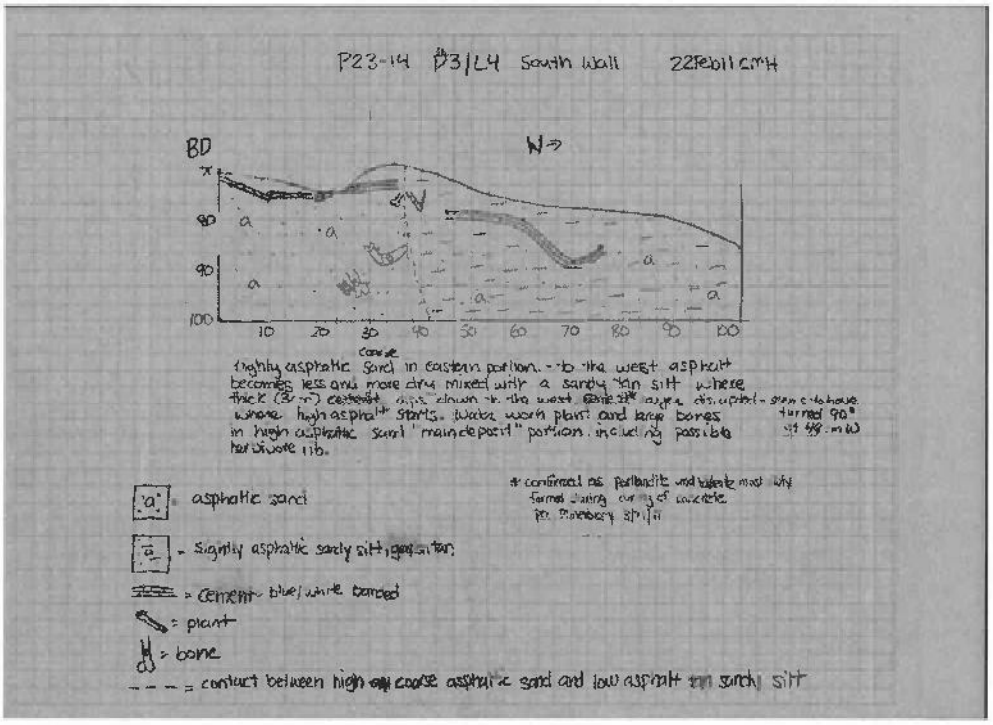


Figure 6: sample drawing of the south wall of grid D3/L4 of box 14



Photography

Photo documentation and the labeling of downloaded images are very important. In the field photo logbook provided, record all the images that you take. This is shared by everyone and has columns for name of photographer, date, box #, grid and level, orientation of image, file number and special notes. Take a photograph whenever it might be useful for lab staff and researchers to see how a specimen was oriented in the ground, broken in a certain way or for any other unusual circumstance. Always photograph the floor and each wall of a grid before starting a new one.

When photographing a specimen:

Write the project name, box #, grid and level #'s, orientation, description of what you are photographing, the date and excavator initials on a 3"x 5" card with a black sharpie and place next to the object you are photographing.

For example:

P23-14 C3/L3	
Skull , ventral view	↑
	N
Excavator initials and date	

Print the photo as soon as possible and place it in the bag with the specimen. This may not be necessary for all the images of *in situ* specimens, so make a judgment call here.

When photographing a floor or wall:

- Write the project name, box #, grid and level #'s, orientation, the date and excavator initials on a 3"x 5" card with a black sharpie.

For example:

P23-14 C3/L3	
South Wall	↑
Excavator initials and date	N

- Place meter sticks in north and west orientation.
- Take a picture of each exposed wall and floor with the card and meter sticks in frame so as not to cover up any significant features and so the information on the card can be used to tag the photograph in the database.

Download all photographic images to the archive computer and place in the folder "to be sorted" under My Pictures\Project23 under the project 23 login. Rename your files appropriately so that they can be retrieved, tagged in Adobe Bridge and added to the EMu database. This is where the photo logbook will be useful. Each image should be named with the following conventions in order to be searchable in the database:

1. If it is a photo of a grid and a level then name it P23-1 B1 L2 where P23-1 refers to the Box number, B1 refers to the grid and L2 refers to the level. Notice a space between P23-1 and B1 and also between B1 and L2. This is on purpose and helps the database find the files. If there is no level just enter the information that you have.
2. If it is just an image of several grids just name it with the box number e.g. P23-14.

3. If it is a photo of a possible associated skeleton or a specimen in the ground include some more information such as what it might be e.g. P23-1 B1 L2 bird skeleton

Data entry of field notes

Write field notes in pre-bound notebooks. For each day compile a daily journal that includes notes on the weather, who was working, general work done that day, grids being worked on, etc. as well as geological information on open grids and specimen measurements. On a weekly basis all excavation notes, photographs and grid drawings will be captured electronically.

- Type journal entries into word documents with each day saved as a new file. The naming convention of the file should be "project yearmonthday initials" (e.g. P23 20090201 ABF). Within the word doc file at the top of the page type the initials of the excavator and the date. This serves as a search tool for the database. Save these to the flash drive that is provided. The Collections Manager will import these data into the database.

- Type specimen measurement data into a pre-prepared Excel spreadsheet and save to the flash drive provided. The Collections Manager will import these data into the database.

- The floor and wall drawings and photographs for each grid must be scanned and downloaded onto the archive computer at the Page Museum.

Matrix processing

There are two different ways that matrix from the excavation is processed. All asphaltic matrix from or adjacent to asphaltic bone concentrations needs to be processed with solvent in a vapor degreaser in order to release small bones and other plant, insect, invertebrate and vertebrate remains from the asphalt. After degreasing, the matrix is dried and dry screened to remove the clay-to-silt fraction. The remaining concentrate is sorted for microfossils under a microscope.

Samples of other (apparently non-fossiliferous) non-asphaltic sediments are screen-washed in water on 20 mesh screens and the concentrates are sorted for microfossils under a microscope. If there is no evidence of microfossils in the sample, the remaining material from that facies of that grid may be discarded (except for the 15 cm archival cube that was collected during excavation of the grid).

Laboratory Protocols

All material sent to the Lab for cleaning is triaged to resolve appropriate methodology, account for the skill level of available lab workers, and for research and collection priorities. An n-propyl bromide solvent is used to remove asphalt from the bones. Trade names for this solvent include Lenium, GenTech and EcoMax. Elmers white glue is used to repair broken bones and Acryloid (Paraloid) B-72 (Ethyl methacrylate copolymer) is occasionally used to consolidate dry bones.

Prioritize new specimens

1. For cleaning method
    - Sort and store by locality, grid, depth.
    - Sub-sort by best cleaning method: ultrasonic, soaking, or hand prep.
2. For significance
    - Rareness of taxon
    - Incomplete section of previously excavated specimen
    - New element of known individual skeleton from that locality
    - Unrecognizable to element or taxon.

Ultrasonic cleaning

Ultrasonic cleaning can be used for the following types of specimens:

- Complete or sturdy bones measured in individually (examples include *Smilodon* or *Canis dirus* carpals, tarsals, phalanges)
- Complete or mostly intact avian bones. The feasibility of processing other fragile bones, including broken small bones, should be assessed by the person who will be re-assembling them.
- Shells, insects, and concentrations of mollusks or insects from within known locality with measurements.

Steps to be followed

1. Place each specimen or sample in a baby food-sized jar with all contents of envelope.
2. With pencil, number the envelope and the top of the jar (on masking tape).
3. Prepare six jars as above.
4. Fill with solvent to an equal level in all jars.
5. Place in ultrasonic tank and fill with water up to the level of solvent in jars.
6. Buzz for fifteen minutes.
7. Strain contents of jar through 20 mesh screen on top of pitcher.
8. Rinse with clean solvent.
9. Check specimen or sample for matrix, detail with brush or skewer as needed.
10. Place each specimen or sample on separate paper tray, with flipped out matrix, data, and masking tape number from jar top.
11. Let dry over night, polish, and sort matrix.
12. Solvent that was strained into pitcher can be reused for setting up next batch of six jars if not too dirty.

Pre-soaking

- Large bone masses: If there is no single identifiable bone, put it in a large jar or a bucket with more solvent than volume of mass. Mass may require a second rinse if solvent becomes too thick with asphalt.
- Unusually hard matrix: Put all of the specimen and loose matrix in jar with data taped to lid.
- Broken *in situ* specimens: If matrix is in internal structure of bone, soak and rinse.

Hand preparation

- Individual specimens with positional data include vertebrae, ribs, long bones, etc. that are relatively complete.

Steps to be followed

1. Rubber stamp, date, and write the signature of preparator on back of data card.
2. Empty all contents of plastic bag or envelope into stainless steel pan.
3. Wet specimen with solvent from squirt bottle.
4. Scrub with tooth brush, dipped in small jar of solvent (n-propyl bromide)
5. DISOLVE MATRIX, DO NOT PUSH OFF WITH BRUSH OR OTHER TOOL.
6. Wood skewers or sticks can be used to loosen or nudge matrix off (If the stick breaks, the matrix is not soft enough yet)
7. When specimens appear clean, rinse thoroughly with solvent and immediately hold in front of vent for quick dry. Matrix still adhering to specimen will be black or darker than bone.
8. DENTAL TOOLS ARE TO BE USED FOR THE REMOVAL OF VISIBLE ROCKS ONLY!
9. When the entire matrix has been removed, place specimen, data card and jarred contents of metal pan matrix on paper tray lined with paper towels to dry.
10. DO NOT GLUE UNTIL ALL MATRIX IS SORTED.

- Multiple pieces of one specimen.

1. Should be prepared by one person but treated as separate projects.
2. Finished elements held until all parts are done.
3. If glued, the part that goes with which data should be recorded in pencil on back of data card.

- Possibly associated elements of one individual

1. Treat as above but can be cleaned by multiple preparators.
2. Label for possible association with a known skeleton or a single other element. [more specific].

- Skulls

1. External surfaces should be freed of larger associated specimens and gross matrix clumps using toothbrushes and solvent.
2. DO NOT POKE IN EARS, NOSE OR BRAIN CASE.
3. At the end of session, immerse in solvent in sealable bucket with copy of data on lid.
4. Soak for two or three days.
5. Hold skull over bucket and flush with clean solvent to remove loose matrix.
6. Working in metal tray, nudge with skewers to loosen softened matrix and rinse off.
7. Add removed matrix back into bucket.
8. Replace skull in bucket at end of session.
9. If the tympanic bulla is intact, nudge and rinse ear region over metal pan and process matrix separately for ear ossicles.
10. When brain case and nasal region are mostly free of matrix, skull will not need to continue to soak and can dry between sessions.
11. Strain contents of bucket.

Polishing

- When specimen has dried overnight, go over small sections of solid bone with a dampened **soft cloth**, then go over the same space with a dry cloth. Exposed cancellous tissue should be <u>blotted</u> with a damp rag. Not rubbed!
- If there are small spaces that cannot be reached with a rag use a pipe cleaner or Q-tip. Dip it in solvent and blot off some liquid before applying. IF THE SPECIMEN GETS DARKER OR BEGINS TO LEAK ASPHALT, IT IS TOO WET. Put aside for a day and begin again.

Processing Matrix from Individual specimens

- Processing sediment that has been soaked in solvent. (most common situation)

1. Pour contents through 20 mesh screen sitting on funnel into carboy.
2. Rinse with clean solvent.
3. With one motion, flip contents onto paper toweling on a paper tray.
4. Make sure everything is out of jar and out of screen.
5. Place tray near vent to dry.
6. When completely dry, sift and put in appropriate sized jar for later sorting.
7. If matrix appears clumpy after sifting, re-soak in solvent.
8. If matrix appears dirty with clay or silt after sifting, soak in hot water with a small amount (1 tsp) of detergent)

- Processing soaked in water sediment.
  1. Pour contents of jar through 20 mesh screen in a basin in the sink.
  2. Agitate the screen in clean warm water.
  3. Flip contents onto newspaper and leave screen on top to thoroughly dry.

Microfossil sorting

When the matrix from an individual specimen is clean and dry it is ready for microfossil sorting.

Take the entire project (specimen, data and matrix) to a sorting station.

Do not pour out more matrix than you have time to sort. Only 1½ to 2 Tbs. may take several hours.

1. Sifting
   - Always sift matrix before sorting even if it was sifted before putting in a jar.
   - Sift through a designated 20 mesh screen with 2 inch sides.
   - Shake back and forth, (not up and down) over a paper towel.

- Empty contents of screen onto a clean piece of white sorting paper and shape matrix into a pile.
- Discard the fine soil that went through the sifter.

2. Sorting
   - Examine matrix, several grains at a time, by moving it across the paper with a fine paintbrush.
   - Create a "discard pile" for sediment and oxidized asphalt.
   - Move bone, plant, shell and insect fossils into distinct piles on one side of the paper.
   - Create a "questions" pile for indeterminate fossils.
   - When the entire matrix has been categorized, review fossils and "discard pile".
   - Have a staff person double check sorting.
   - It may be necessary to examine some specimens under the microscope.
3. Temporary packaging of categories
   a. <u>If all of the matrix of a individual project is sorted</u>
      - Review bone and separate into three categories:
      - 1. Broken pieces of the main bone (put aside for possible gluing);
      - 2. Identifiable bones (put into individual capsules or plastic containers);
      - 3. Unidentifiable bone fragments (put into one capsule or larger container).
      - Review plant material (separate seeds and put into capsule) and put into glass vial.
      - Review insect and put into one capsule.
      - Review shell and put into one capsule.

   b. <u>If only a portion of the matrix is sorted</u>
      - Place complete identifiable bones in capsules.
      - Place all bone fragments, plant, insect and shell into their own labeled containers.

When a large project is complete, all of the bone fragments must be reviewed and sorted to the above categories. It will be necessary to look at the small bone fragments under the microscope to determine the final number of Identifiable bones.

Gluing

DO NOT GLUE UNTIL ALL MATRIX REMOVAL, POLISHING AND MATRIX SORTING IS DONE.

Use white glue for reconstructing most bones because it is reversible with warm water.

If a specimen is shattered, first reconstruct it holding the pieces together with masking tape. Do not glue until all of the fragments have been tested in available holes. Determine where all the major fragments go first and then glue from one direction. Have small strips of masking tape cut before the glue is applied. Apply glue with stick or dental pick in small amounts to the broken edges. Tape glued pieces in place and/or balance in sandbox for drying. Allow large pieces to dry overnight.

Envelopes for finished projects

A copy of the original data must be made for every identifiable bone and one copy each for vial containing plant, insect, shell and unidentifiable bone. A rubber stamp template for "Found in assoc. w/" data is stamped on the face of a #5 ½ coin envelope. An exact copy of the original is then filled in. Note: Do not change the tentative field identification that is part of the original data even if it is wrong. The back of the envelope is stamped with a template for the scientific identification. If an "assoc. w/ bone "or the plant fragment is too large to fit inside an envelope, it should be put in a small plastic bag with an envelope. The envelopes are stapled shut and the entire project is put in one large plastic bag.

The finished bag should include the main bone, fragments of the main bone that could not be glued on, the original data and all the "associated with" specimens.

Pre-Curation

After the specimens have been cleaned, the microfossils sorted and put into individual capsules and individual envelopes have been made for each specimen with all of the provenance data written on each envelope (see laboratory procedures) they are sent to the curation station. Identification of all of the fossils takes place near the comparative collection in the lab in order to facilitate identification. The principal measured out specimen with its original 3"x 5" field data card is identified first. The card is stamped on the back with a custom stamp with Scientific Name, Element, Identifier, and Notes. The specimen is identified as much as possible but identifications necessarily range from class identification such as Aves to genus and species. The identifier also describes the element according to an established list of bone terminology. Then each of the microfossils associated with that main bone are also identified in the same manner. After all of the microfossils that accompany that main specimen are identified, they are placed in a clear plastic bag with a twist tie and sent to the cataloging station. Below are detailed step-by-step instructions on how to identify specimens.

For each specimen follow the steps below in the order given.

1. Choose a specimen from the 'to be identified' box. If several envelopes are fastened together you must keep them together and complete the work on all of them.
2. Check the bone to see if it is clean and that all broken pieces have been glued if possible. If the bone is not clean then do not proceed with that one and send it back to the lab
3. Identify the bone using the reference collection and write the identification on the back of the envelope or card in pencil. Only use paperclips to join envelopes together.
4. Check to see if the main identified bone is in the original envelope or with the original 3" x 5" card.
5. Send identified specimen to be cataloged

- Always put the comparative bone back in the box it came from!
- if you find a 'found in association with' envelope which is not still with its original envelope, find the original envelope and fasten them together
- put all tools away and empty bags and containers

Associated groups

If there is more than one specimen in an envelope the principal bone for which the measurements were recorded should remain in the origir al envelope. The other specimens should be treated as follows;

- all plants in one envelope
- all insects in one envelope
- all shells in one envelope
- each identifiable bone in a separate envelope, along with any of its broken pieces
- all unidentifiable bone in one envelope
- all difficult to identify bones in one envelope

Use envelopes stamped "Found in Association with" and make a complete copy of the information from the original envelope on each one.

Identifiable and Unidentifiable Specimens

Identifiable bone characteristics:

- presence of an articular surface
- cross-sectional shape
- foramina
- distinctive curves
- relative size combined with other features

Bones are rated in three different grades of how easy they are to identify

- identifiable
- difficult to identify
- unidentifiable

Double check all identifications

Identification of Specimens

The back of each envelope is marked with a custom stamp (stamp in bold below). Identifications are printed in pencil. An example below

- **Scientific name:** *Smilodon* (use both genus and species if more than one species)
- **Element:** prox. rt. tibia
- **Special Notes:** Pathology
- **Identifier:** ABF

1. Avoid using terms such as "frag" or "portion". Use prox. or dist. if appropriate.
2. You must not abbreviate scientific names but you may use abbreviations for the elements as long as they are the ones listed in this manual.
3. When identifying skulls and mandibles always list the teeth that are present and if they are erupting, fully erupted or worn.
4. The format of the identification is very important. Do not invert the word sequence e.g. prox. rt. rib is correct but rib, rt. prox. is not.
5. For incomplete bones name both the bone e.g. XIII thoracic vert and either the represented part e.g. centrum or the missing portion, e.g., w/o right transverse process. Make sure that the identity of the bone and its qualifier are both listed.
6. Be specific about the identity of any represented epiphysis, e.g., proximal or distal epiphysis of a limb bone, or head epiph of lt femur or ant cent epiph of thoracic vert.

7. Ordinal numbers of ribs, vertebrae, metapodials and digits are written in Roman numerals e.g. rt. II rib or XII thoracic vert

8. Number of phalanges and teeth are written in Arabic numerals e.g. 2nd phalanx or rt. M1. Note that abbreviations for upper molars are written in upper case letters (I, C, P, M) whereas those for lower teeth are written in lower case (i, c, p, m). For clarity of handwritten entries, put a line below the number for upper teeth (e.g. P4/) and a line above the number for lower teeth (e.g. m/1).

9. The side, either left or right comes before a number e.g. rt. II metatarsal

10. There are two special cases:

    - Phalanges that can be precisely named include sloth phalanges, carnivore 'thumb' phalanges and bird carpal phalanges e.g. rt. 1st carpal phalanx, digit I

    - Teeth which can be specifically named e.g. lt. p2

11. Skull fragments: if the facial or cranial region of the skull is mostly intact this can be recorded as 'ant' or 'post' skull. However if there are only a few fragments the individual bones are named e.g. basisphenoid, occipital and rt. temporal or indicate if some parts are missing, e.g. post. skull w/o rt. occipital.

12. Juvenile specimens: it is important to note if an epiphysis is missing as the order of ephiphyseal fusion is used to detect the age of an animal. Also mark "juv." in the special notes section of the identification.

Abbreviations chart for elements

Left: lt.	Posterior: post.	With: w/
Right: rt.	Ventral: vent.	Without: w/o
Proximal: prox.	Dorsal: dors.	Juvenile: juv.
Distal: dist.	Medial: med.	Pathological: path.
Anterior: ant.	Lateral: lat.	Unidentifiable: unid.

Difficult to identify: diff.

Zygomatic: zygo.

Epiphysis: epiph.

Diaphysis: diaph.

Tuberosity: tub.

Trochanter: troch.

Articular: artic.

Vertebra: vert.

Transverse: trans.

Process: proc.

Centrum: cent.

Prezygapophysis: prezyg.

Postzygapophysis: postzyg.

Incisor: I (upper) or i (lower)

Canine: C (upper) or c (lower)

Premolar: P (upper) or p (lower)

Molar: M (upper) or m (lower)

Deciduous: D

Dental formulae for Rancho La Brea fauna

Dental formulae are a short hand way of indicating the number and kind of teeth that are present. The upper jaw is indicated first and the teeth are in order: incisor, canine, premolar, molar.

Ruminant artiodactyls

0,0,3,3 / 3,1,3,3

(Antilocapra, Bison, Capromeryx, Odocoileus)

Camelids

Camelops: 1,1,2,3 / 3,1,1,3

Hemiauchenia: 1,1,2,3 / 3,1,1-3,3

Peccaries

Platygonus: 3,1,4,3 / 3,1,4,3

Horses

Equus: 3,1,3,3 / 3,1,3,3

Tapirs

Tapirus: 3,1,4,3 / 3,1,4,3

Dogs and bears

3,1,4,2 / 3,1,4,3

(Arctodus, Canis dirus, Canis latrans, Urocyon, Ursus)

Cats

3,1,3,1 / 3,1,2,1

(Felis atrox: Felis concolor: Lynx)

Sabertoothed cats

Smilodon: 3,1,2,1 / 3,1,1,1

Skunks, weasels, & badgers

3,1,3,1 / 3,1,3,2

- Tympanic bulla
- Vomer

Auditory ossicles

- Malleus
- Incus
- Stapes

Mandible

- Angular process
- Coronoid
- Articular condyle
- Symphysis

Hyoid

- Basihyal
- Epihyal
- Thyrohyal
- Ceratohyal
- Stylohyal

Teeth

- Permanent upper and lower. Upper denoted by upper case abbreviation and lower by lower case abbreviation.
    - Incisor – I (upper) or i (lower)
    - Canine – C (upper) or c (lower
    - Premolar – P (upper) or p (lower)
    - Molar – M (upper) or m (lower)
- Deciduous upper and lower. Upper denoted by upper case abbreviation and lower by lower case abbreviation.
    - Incisor – DI (upper) or di (lower)
    - Canine – DC (upper or dc (lower)
    - Premolar –DP (upper) or dp (lower)

Vertebra (e)

- Atlas
- Axis
- Caudal
- Centrum
- Cervical
- Lumbar
- Neural spine
- Odontoid process
- Postzygapophysis
- Prezygapohysis
- Sacral
- Sacrum
- Thoracic
- Transverse process
- Wing

Ribs

- Capitulum
- Shaft
- Tuberculum

Sternum

- Manubrium
- Sternebra
- Xiphisrernum

Scapula

- Acromium process
- Coracoid process
- Glenoid fossa
- Metacromion
- Spine
- Vertebral border

Humerus

- Deltoid tuberosity
- Entepicondylar foramen
- Greater tuberosity
- Head
- Lateral condyle
- Lateral epicondyle
- Lesser tuberosity
- Medial condyle
- Medial epicondyle

Radius

- Styloid process
- Radial tuberosity

Ulna

- Coronoid process
- Olecranon
- Semilunar notch
- Styloid process
- Radial notch

Carpals

- Cuneiform
- Trapezium
- Lunar
- Magnum
- Trapezoid
- Central
- Pisiform
- Unciform
- Radial sesamoid
- Scapholunar
- Scaphoid

Metacarpal

- Plantar tubercle

Sesamoids

- Proximal sesamoid
- Distal sesamoid

Phalanges

- 1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th}
- Carpal
- Tarsal

Inominate

- Acetabulum
- Iliac crest
- Ilium

- Ischial tuberosity
- Ischium
- Pubic symphysis
- Pubis

Fabella

- Lateral
- Medial

Femur

- Greater trochanter
- Head
- Lateral condyle
- Lateral epicondyle
- Lesser trochanter
- Medial condyle
- Medial epicondyle
- Neck
- Patellar track
- Third trochanter

Patella

Tibia

- Lateral condyle
- Medial condyle
- Medial malleolus
- Tibial tuberosity

Fibula

- Head
- Lateral malleolus
- Distal fibula (herbivore)

Tarsals

- Astragalus
- Calcaneum
- Cuboid
- Ectocuneiform
- Entocuneiform
- Mesocuneiform
- Navicular
- Sustentaculum
- Naviculocuboid

- Mesoectocuneiform

Metatarsal

- Plantar tubercle

Non-articulating bones

- Baculum (male)
- Dermal ossicle (sloth)
- Sclerotic ossicles (birds and lizards)
- Falciform (sloth)
- Tracheal ring (birds)
- Dermal scale (lizard)

Variations for juveniles

- Diaphysis – shaft of juvenile long bone
- Epiphysis – the unfused articular surfaces of juvenile bone

Numbers

- Ribs – roman numerals
- Metapodials – roman numerals
- Digits – roman numerals
- Phalanges – Arabic numerals—1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th}, terminal

Curation

In order to curate specimens into the collections of the George C. Page Museum, all of the above-mentioned steps for excavation, preparation, and identification must be followed. The field number, orientation measurements, and pertinent field notes and photographs are all integral parts of the specimen information and must be readily available. Each specimen will receive an individual catalog number that is first recorded in an archival catalog book and then entered into the electronic database EMu, which is stored on the Natural History Museum's server. Once cataloged, each specimen is stored taxonomically in the collections. Specimens are housed in metal or wooden drawers within standard metal Lane cabinets. On average each drawer holds about seventy five specimens and each cabinet contains nine drawers.

Based on a typical deposit for Project 23, a 1m X 1m x 25cm grid yields approximately 1000 macro-vertebrate specimens per one (1) cubic meter. Additionally each cubic meter can have up to 2000 micro-vertebrate fossils. A typical conical shaped deposit can be up to 30 cubic meters.

Appendix A

Table 1. Anatomical codes used for orienting specimens in the 2- and 3-point measurement system.

A -- Anterior	Px -- Proximal
P -- Posterior	Dt -- Distal
M -- Medial	Lt -- Left
L -- Lateral	Rt -- Right
D -- Dorsal	R -- Root
V -- Ventral	C -- Crown

Table 2. Anatomical codes of osteologic points used for orienting specimens in the 3-point measurement system.

MAMMALS

Skull:
- AP - Anterior Premaxillae
- OC - Occipital Condyles
- POP- Postorbital Process (Rt or Lt)

Vertebra:
- AC - Anterior Centrum
- ANS- Anterior Neural Spine
- NS - Neural Spine
- PC - Posterior Centrum
- TP - Transverse Process (Rt and Lt)

Scapula:
- AP - Acromion Process
- CP - Coracoid Process
- D - Dorsal
- PA - Posterior Angle
- V - Ventral

Radius:
- Dt - Distal
- Px - Proximal
- RT - Radial Tuberosity

Innominate:
- IC - Iliac Crest
- IS - Ischial Tuberosity
- PU - Anterior Pubic Symphysis

Tibia:
- Dt - Distal
- Px - Proximal
- TT - Tibial Tuberosity

Calcaneus:
- Dt - Distal
- Px - Proximal
- S - Sustentaculum

Mandible:
- A - Anterior
- CP - Coronoid Process
- P - Posterior

Rib:
- Dt - Distal
- GC - Greatest Curve
- Px - Proximal
- Tub- Tuberculum

Humerus:
- Dt - Distal
- LEP- Lateral Epicondyle
- MEP- Medial Epicondyle
- Px - Proximal

Ulna:
- CP - Coronoid Process
- Dt - Distal
- Px - Proximal

Femur:
- Dt - Distal
- FC - Fovea Capitis
- Px - Proximal

Fibula:
- Dt - Distal
- LM - Lateral Malleolus
- Px - Proximal

Metapodial:
- Dt - Distal
- PT - Plantar Tubercle
- Px - Proximal

BIRDS

Skull:
- Same as Mammals

Vertebra:
- NS - Neural Spine
- TP - Transverse Process (Rt and Lt)

Mandible:
- Same as Mammals

Sternum:
- A - Anterior
- CA - Carinal Apex
- P - Posterior

ATTACHMENT 3

Attachment 3—Wilshire/Fairfax Station Construction. Paleontological Resources Extraction

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WESTSIDE SUBWAY EXTENSION PROJECT

Wilshire/Fairfax Station Construction. Paleontological Resources Extraction.

Metro

December 2011

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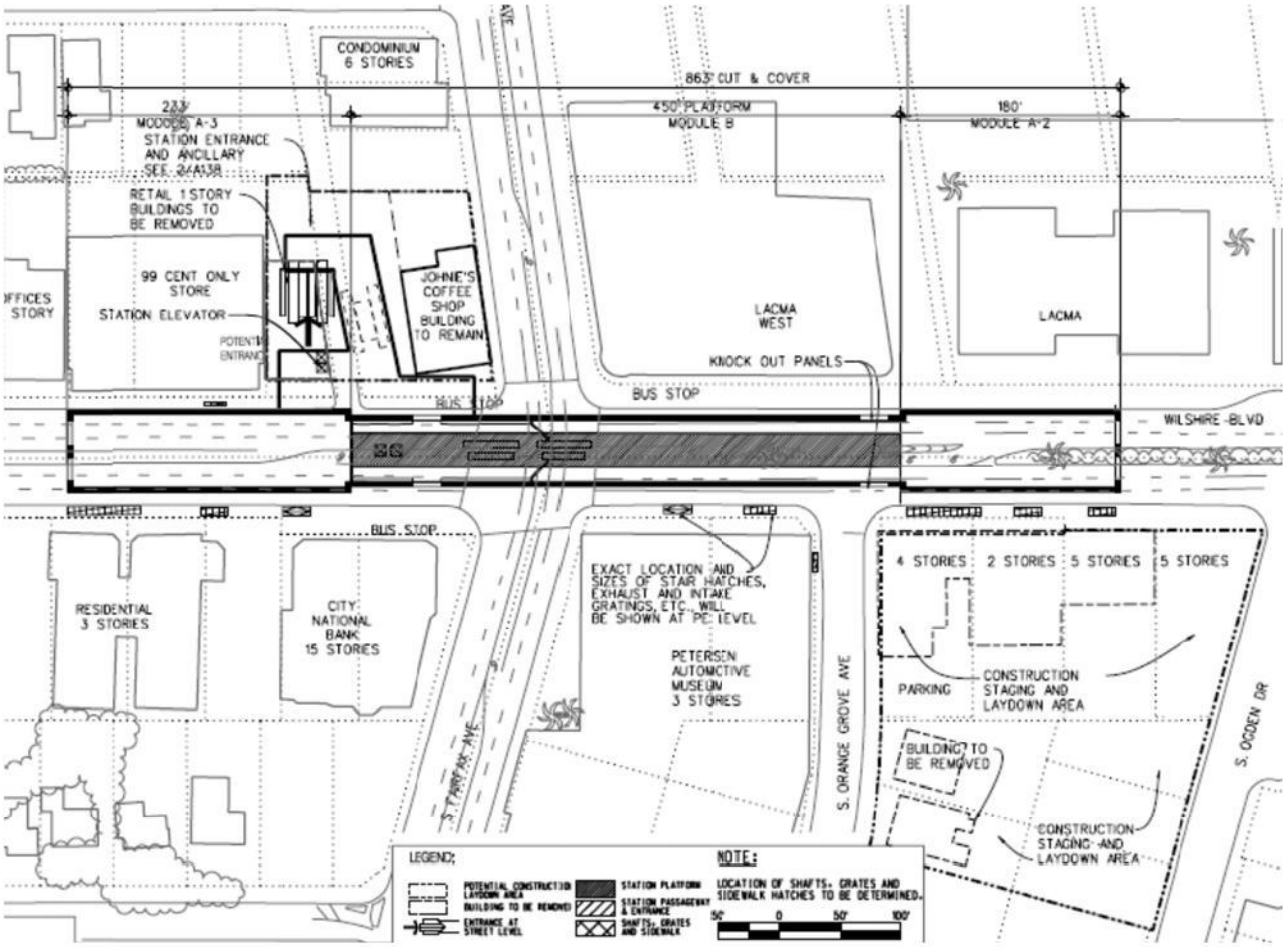
Appendix

1.0 BACKGROUND

The Wilshire/Fairfax station box excavation will be approximately 860-ft long, 70-ft wide, and 60 to 70-ft below street level. The station extends beneath the intersection of Wilshire Boulevard and Fairfax Avenue - see Figure 1-1. The station entrance is planned to be located near the northwest corner of Wilshire and Fairfax between the 99 Cent Only Store and Johnie's Coffee Shop. Two alternative entrances under consideration; the south side of Wilshire between South Orange Grove Avenue and South Ogden Drive and; within the LACMA building at the north east corner of Fairfax Avenue and Wilshire Boulevard (May Company). A construction staging and materials laydown area is planned for the south side of Wilshire between South Orange Grove Avenue and South Ogden drive. Side access shafts will be located at the construction staging and materials laydown area and at the location selected for the station portal. The side access shafts will be excavated to the full depth of the station. The station box will be excavated by the cut and cover method and most probably use a temporary shoring system to support the excavation and decking system during construction, though a permanent shoring system that would be integrated into the permanent station structure could also be used. The side access shafts will be excavated by the open cut method and would most probably use the same type of shoring system that is used on the station box.

Figure 1-1: Wilshire/Fairfax Station Box



2.0 GEOLOGIC CONDITIONS

The geologic conditions in this region consist of soft alluvium deposits of sands, silty sand, clayey sand, gravely sand, silty clay, clayey silt, shell fragments, soil saturated with crude oil, and asphaltic (tar) sands. Several borings were taken within the station area; see Figure 2-1 through Figure 2-4. Core G-118 (Figure 2-1) was taken east of the station box between La Brea and Fairfax, the sample at 82-ft below ground surface (bgs) consists of silty clay/clayey silt with traces of crude oil. The portion of ring sample G-123 shown in Figure 2-2 is located just east of Fairfax at 60-ft bgs and consists of predominantly fine grained soil with channels of medium grained sand saturated with crude oil. Heavy tar was reported in G-123 from 38 – 110-ft bgs. Core sample G-124 (Figure 2-3 and Figure 2-4) was obtained just west of Fairfax by the Standard Penetration Test (SPT). The sample pictured was taken from 80-ft bgs and consists of medium to coarse grained sand saturated with tar. Heavy tar was reported in G-124 from 45 – 105-ft bgs. The consistency of tar in this region ranges from dry and hard to wet and oozing. This reach is also known to contain pockets of pressurized gases and dissolved gases in groundwater. The groundwater conditions are measured to have a water table depth of 74-ft bgs, and zones of perched water between 10 – 50-ft bgs. Since the station box invert depth will be located between 60 – 70-ft bgs, perched water can be anticipated during excavation.

Figure 2-1: Core Sample G-118

Figure 2-2: Core Sample G-123

Figure 2-3: Core Sample G-124 (1 of 2)

Figure 2-4: Core Sample G-124 (2 of 2)

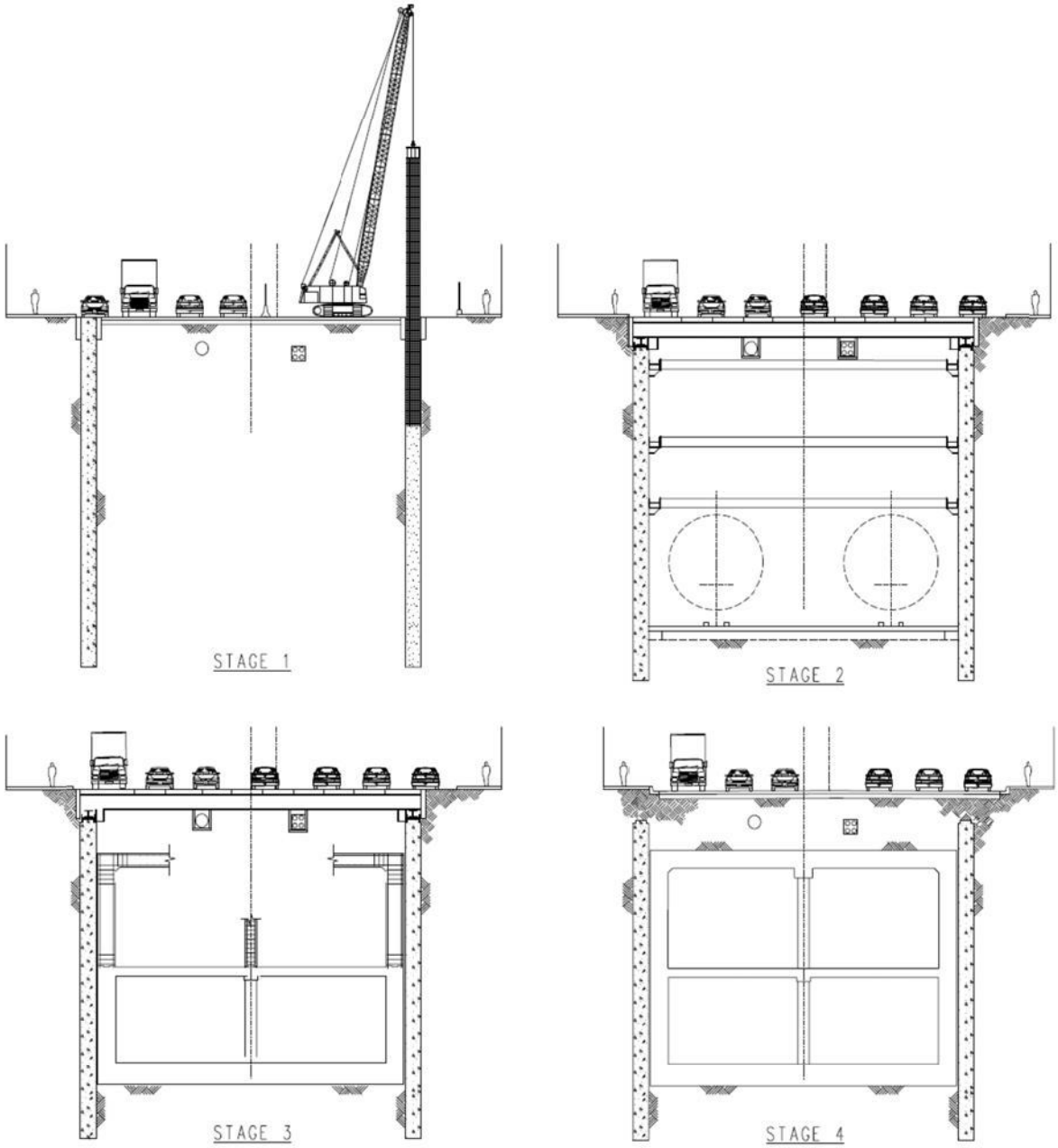
2.1 Gassy Ground Conditions

The gases present in the soils of this region are methane (CH_4) and hydrogen sulfide (H_2S). They are likely to occur in pressurized pockets as well as in a dissolved state in groundwater. These gases can seep into tunnels and other excavations through soil and also through discontinuities (fractures, faults, etc.) in bedrock. CH_4 and H_2S are considered hazardous gases due to their explosive properties. H_2S is also highly toxic. Being heavier than air, it tends to accumulate at the bottom of poorly ventilated spaces. Although very pungent at first, it quickly deadens the sense of smell, so potential victims may be unaware of its presence. CH_4 is extremely flammable and may form explosive mixtures with air. It is odorless and lighter than air, and it dissipates quickly once at the surface causing no threat of explosion. However, in 1985 an explosion occurred at the Ross Dress-for-Less in the Fairfax area which resulted in injuries requiring hospital treatment of twenty-three people. The explosion took place in a poorly ventilated ancillary room of the building where CH_4 gas had accumulated. There was no gas detection equipment at this location.

3.0 EXCAVATION SUPPORT TECHNIQUES

Cut and cover excavation is the preferred technique to excavate the station box structure, although cut and cover still leads to lengthy occupation of streets with noise disturbances and interrupted access (see Figure 3-1). Traffic interruptions can be mitigated by performing most excavation below a temporary decking system constructed at an early stage (See Figure 3-2 through Figure 3-6).

Figure 3-1: Open Cut Excavation



Shoring the excavation walls and providing structural support beneath the decking system can be accomplished through a variety of excavation support techniques. The following sections describe several excavation support methods, including: soldier pile and lagging, slurry walls, tangent piles, secant piles, and deep soil mix walls.

Figure 3-2: Initial Excavation at Soto Station

Figure 3-3: Precast Concrete Decking

Figure 3-4: Installation of Decking (1 of 2)

Figure 3-5: Installation of Decking (2 of 2)

Figure 3-6: Roadway Operations Restored on Temporary Decking System

3.1 Soldier Piles and Lagging

Soldier pile and lagging walls are a type of shoring system typically constructed along the perimeter of excavation areas to hold back the soil around the excavation. This support system consists of installing soldier piles (vertical structural steel members) at regular intervals and placing lagging in between the piles to form the retaining structure. Pre-augering is necessary for installation of the soldier piles. Pre-augering involves drilling holes for each pile from the street surface to eliminate the need for pile driving equipment and thereby reduces project noise and vibration levels that would otherwise occur while pile driving. Pre-augering also provides better accuracy of location than pile driving. The lagging, which spans and retains the soil between the piles, is typically timber or shotcrete (sprayed-on concrete) and is installed in a continuous downward operation taking place concurrently with excavation. The installation of soldier piles and lagging is a relatively clean process. The majority of construction materials, such as, drilled earth spoils, concrete, backfill, and H-piles are easy to contain within the construction site. The soldier piles and deck beams are installed first with excavation and lagging installation taking place from beneath the street decking. A soldier piles and lagging earth retention system is shown in Figure 3-7 through Figure 3-9. The equipment required for installation of the soldier piles includes drill rigs, concrete trucks, cranes, and dump trucks.

Soldier piles and lagging are generally used where groundwater inflow is not a consideration, or where grouting, or lowering of the groundwater level (dewatering) can be used to mitigate water leakage between piles. Based on findings from core samples, the geologic conditions in this area consist of soils containing deposits of oil and tar. Where these deposits occur along the excavation perimeter, oil or tar may tend to seep between the joints in the lagging. This is not considered to be a hazard to workers, although some cleanup may be necessary. Alternatives to soldier pile and lagging walls being considered for this station include tangent pile or secant pile walls, slurry walls, and deep soil mix walls (see next sections below).

Figure 3-7: Pre-augering for Soldier Pile

Figure 3-8: Cut and Cover with Soldier Pile and Lagging

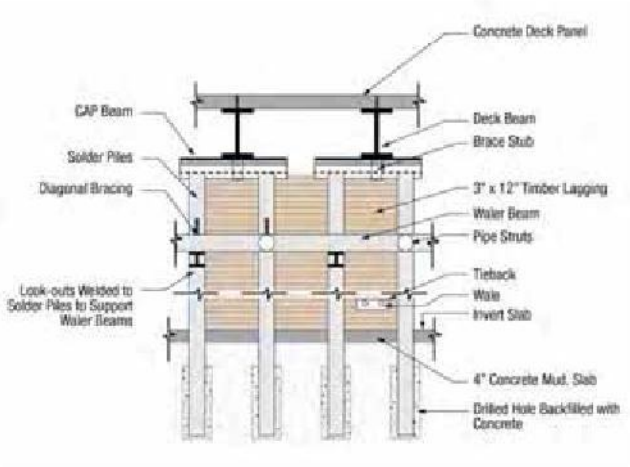
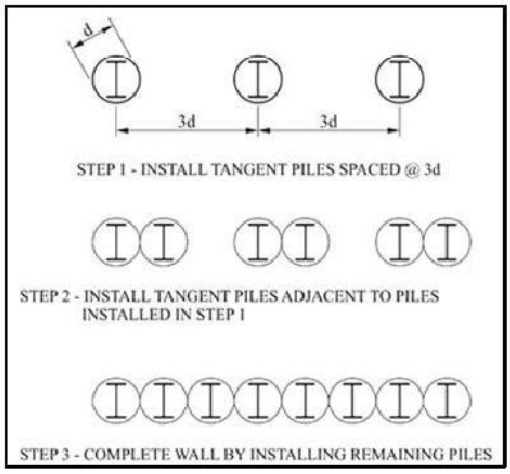


Figure 3-9: Soldier Pile and Lagging

3.2 Tangent Pile or Secant Pile Walls

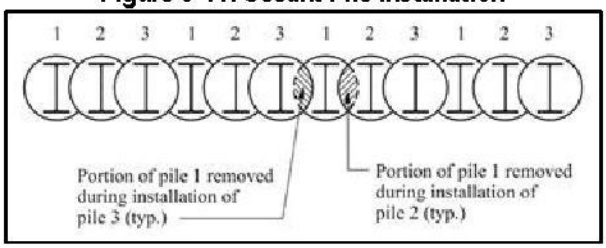
Tangent pile walls consist of contiguous cast-in-drilled-hole (CIDH) reinforced concrete piles – see Figure 3-10. The contiguous wall generally provides a better groundwater seal than the soldier pile and lagging system, but some grouting or dewatering could still be needed to control leakage between piles.

Figure 3-10: Tangent Pile Installation



A secant pile wall system is similar to the tangent pile wall but the piles have some overlap, facilitating better water tightness and rigidity - see Figure 3-11. This method consists of boring and concreting the primary piles at centers slightly less than twice the pile diameter. Secondary piles are then bored in between the primary piles, prior to the concrete achieving much of its strength.

Figure 3-11: Secant Pile Installation



In terms of relative cleanliness, tangent pile and secant pile walls are comparable to one another and both are more difficult to contain than soldier piles and lagging due to the greater amount of pumped concrete and the expected larger diameter of drilled holes. The completed secant pile wall for the Barnsdall Shaft in Hollywood for the Metro Red Line project is shown on Figure 3-12. Secant and Tangent pile shoring systems are slower to construct that soldier pile and lagging and therefore have the disadvantage of requiring longer lane closures on Wilshire while they are being constructed. Furthermore, because of the close spacing of tangent piles, utilities crossing the wall often require relocation whereas a soldier pile system can often be built around the existing utilities. The equipment required for installation of the tangent pile or secant pile walls includes drill rigs, concrete trucks, cranes, and dump trucks.

Figure 3-12: Secant Pile Wall at Barnsdall Shaft on Metro Red Line

3.3 Diaphragm/Slurry Walls

Diaphragm walls (commonly known as slurry walls) are structural elements used for retention systems and permanent foundation walls. Use of slurry wall construction can provide a nearly watertight excavation, eliminating the need to dewater. Slurry walls are constructed using deep trenches or panels which are kept open by filling them with a thick bentonite slurry mixture. After the slurry filled trench is excavated to the required depth, structural elements (typically a steel reinforcement cage - see Figure 3-13) are lowered into the trench and concrete is pumped from the bottom of the trench, displacing the slurry. Figure 3-14 and Figure 3-15 illustrate slurry wall excavation equipment.

Tremie concrete is placed in one continuous operation through one or more pipes that extend to the bottom of the trench. The concrete placement pipes are extracted as the concrete fills the trench. Once all the concrete is placed and cured, the result is a structural concrete panel. Grout pipes can be placed within slurry wall panels to be used later in the event that leakage through wall sections, particularly at panel joints, is observed. The slurry that is displaced by the concrete is saved and reused for subsequent panel excavations.

Figure 3-13: Steel Reinforcement Cage for Slurry Wall

Slurry wall construction advances in discontinuous sections such that no two adjacent panels are constructed simultaneously. Stop-end steel members are placed vertically at each end of the primary panel to form joints and guides for adjacent secondary panels. In some cases, these members are withdrawn as the concrete sets. Secondary panels are constructed between the primary panels to create a continuous wall. Panels are usually to full depth and 8 – 20-ft long and vary from 2 – 5-ft wide.

Figure 3-14: Slurry Wall Construction Equipment

Figure 3-15: Clamshell Digger for Slurry Wall Construction

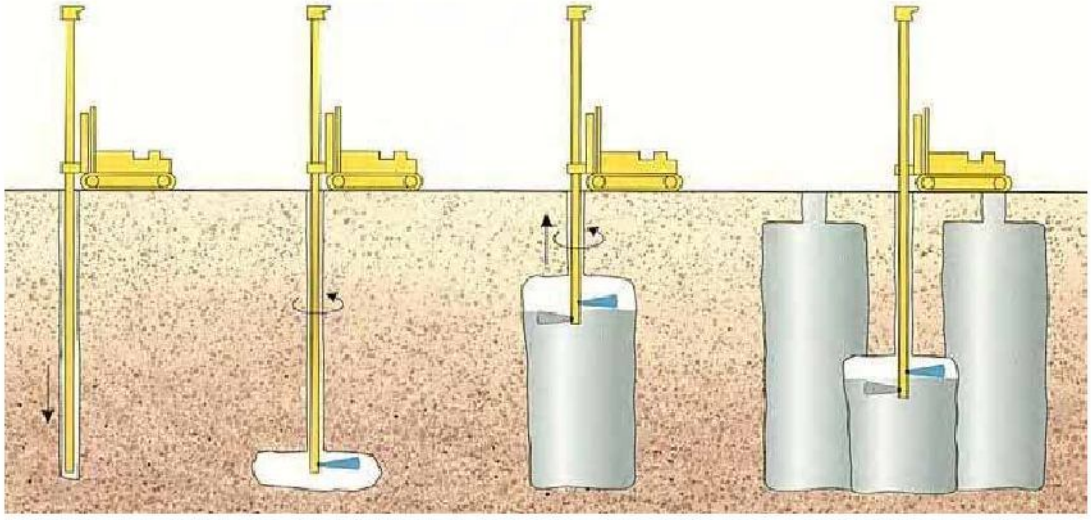
Similar to other shoring systems, slurry wall construction would occur in stages, working on one side of the street at a time. These walls have been constructed in virtually all soil types to provide a watertight support system in addition to greater wall stiffness to control ground movement. Because slurry walls are thicker and more rigid than many other shoring methods, the walls may in some cases be used as the permanent structural wall, although this application is not anticipated for this project. Where slurry walls are used, the thickness of the permanent structural walls can sometimes be reduced, i.e. when compared to wall thicknesses used with a conventional soldier pile and lagging system after removal of internal bracing.

Slurry wall construction materials are the most difficult to contain within the construction site of all the shoring types being considered due to the inherent messy nature of bentonite slurry combined with the operational characteristics of the clamshell digger which will likely be used to excavate large volumes of soil from the wall trench. Slurry walls are generally not adaptable to utility crossings and all utilities crossed by the wall would require temporary or permanent relocation. The equipment required for installation of the slurry walls includes clamshell or rotary head excavators, concrete trucks, slurry mixing equipment, cranes, slurry treatment plant, and dump trucks. The bentonite slurry would require disposal after a number of re-use cycles. Slurry walls are also slow to construct and will be very disruptive to traffic on Wilshire Boulevard.

3.4 Deep Soil Mix Walls

Deep soil mix walls are another type of temporary or permanent shoring system for deep excavation. Mechanical soil mixing is performed using single or multiple shafts of augers and mixing paddles. See Figure 3-16. The auger is rotated into the ground and slurry is pumped through the hollow shaft feeding out at the tip of the auger as the auger advances. Mixing paddles blend the slurry and soil along the shaft above the auger to form a soilcrete mixture with high shear strength, low compressibility, and low permeability. Spoils come to the surface comprised of cement slurry and soil with similar consistency to what remains in the ground. Steel beams are typically inserted in the fresh mix to provide structural reinforcement. A continuous soil mix wall is constructed by overlapping adjacent soil mix elements. Similar to secant pile walls, soil mix elements are constructed in alternating sequence; primary elements are formed first and secondary elements follow once the first have gained sufficient strength.

Figure 3-16: Deep Soil Mix Construction



Deep soil mix wall construction materials are also difficult to contain. Most of the construction process is performed by a single piece of equipment which mixes cement and soil in situ. Cement and soil mixture can be expected to escape beyond the confines of the drilling operation creating problems for traffic and pedestrians. The equipment required for installation of deep soil mix walls includes multi-shaft drill rigs, concrete trucks, cranes, and dump trucks.

3.5 Comparison of Excavation Support Techniques

Due to the speed of construction, and the ability to work around utilities, soldier piles and lagging is preferred unless site conditions dictate the use of other methods. See Table 3-1 for a comparison of excavation support methods. Soldier piles and lagging is the predominant shoring system used in the Los Angeles area and has been used successfully by Metro on construction of both Red and Gold Line stations. Experience at the LACMA parking garage excavation suggests that soil off-gasses immediately after being exposed but with a short period of time, the off gassing slows to levels acceptable for work. This suggest that the relatively impervious seal achieved by slurry walls, secant piles, and deep soil mix walls may only provide very short term benefits and that gas entering the station box excavation through a soldier pile and lagging system could be controlled with a well designed ventilation system.

Since it is anticipated that gassy soils will be encountered regardless of shoring system type, various methods of providing a safe and hazard free workplace will be implemented in all situations. No matter which type of temporary shoring system is selected; other measures such as, partially open decking, ventilation, gas detection, and Personal Protective Equipment (PPE), will be in use to protect workers from gases that may enter the excavation site.

Table 3-1: Comparison of Excavation Support Types

Shoring Method	Permeability	Installation Duration	Containment Impacts	Noise / Vibration Impacts	Traffic Impacts	Utility Impacts	Business Impacts
Soldier Pile & Lagging	High	concurrent w. excavation	Low	Moderate	Moderate	Moderate	Moderate
Slurry Wall	Low	3 Months	High	Moderate	High	High	High
Secant Pile	Low	3 Months	Moderate	Moderate	High	High	High
Tangent Pile	Moderate	3 Months	Moderate	Moderate	High	High	High
Deep Soil Mix	Low	3 Months	Moderate	Moderate	High	High	High

3.6 Construction Staging

For all types of shoring, the contractor would first occupy one side of the street to install one line of excavation support piles or wall panels. The installation will require extended closures of 2 – 3 traffic lanes on the side of the street where the equipment would be staged. After installation of piles or walls on both sides of the street at the station excavations, piles or walls would then be installed across the street at the station ends. This operation would also require lane closures, and is often done during night-time or weekend periods. The contractor would then proceed with installation of deck beams, installation of the deck panels and excavation and bracing. Deck panels (decking) allow continued traffic and pedestrian circulation since they will typically be installed flush with the existing street or sidewalk levels though raised decking, which requires less excavation during installation is being discussed with the traffic authority. Raised decking does have particular advantages at Wilshire / Fairfax Station as less excavation during the weekend closures while installing the decking makes it less likely that fossils will be encountered during the decking operation.

Deck installation will require successive full road closures on weekends with traffic detours. The decking would be installed in stages, commensurate with the amount of decking that can be installed during a weekend closure. Typical decking installation rates range from 50 -100 ft / weekend for an installation crew. Multiple crews will be used wherever possible to reduce the number of full road closures

3.7 General Approach to Handling Utilities

Prior to beginning construction of shoring and decking, it will be necessary to relocate, modify or protect in place all utilities and underground structures that would conflict with excavations. The contractor will verify locations through potholing methods and where feasible, the utility will be relocated so as to stay out of station or other surface structure excavation. Where the utility cannot be relocated outside the excavation footprint, it will be exposed and hung from the supporting structure (deck beams) for the roadway decking over the cut-and-cover structure. See Figure 3-17 and Figure 3-18.

Figure 3-17: Utilities Hung from Deck Beams

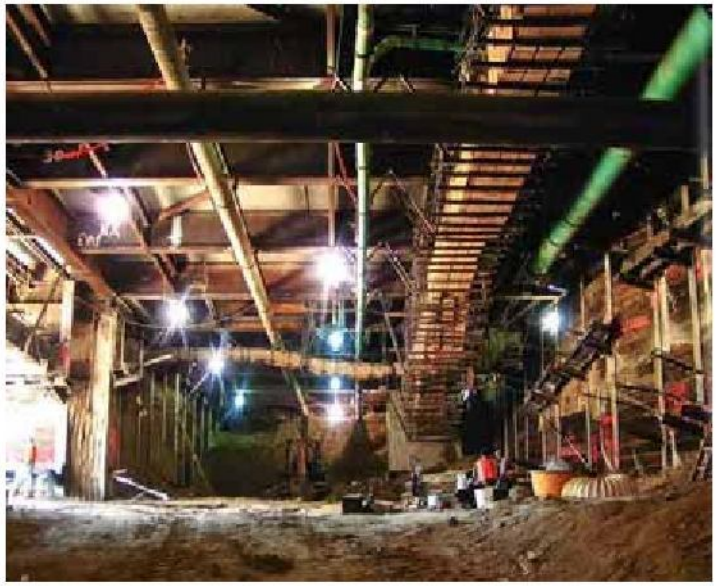
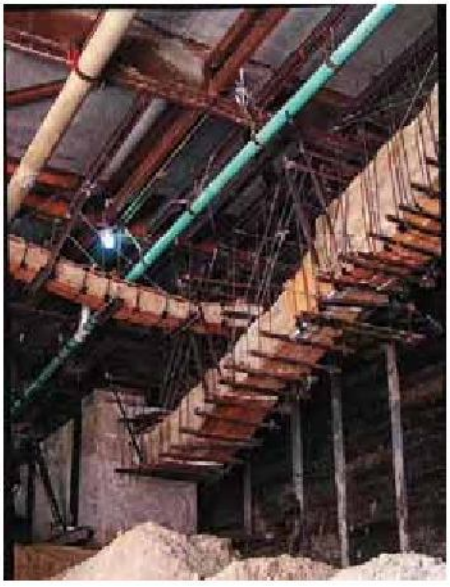


Figure 3-18: Utilities Hung from Deck Beams (Close Up)



Shallow utilities, such as maintenance holes or pull boxes, which would interfere with excavation work, will require relocation. The utilities alignments will be modified and moved away from the proposed facilities. Utility relocation takes place ahead of station and other underground structure excavation. During this time, it will be necessary to close traffic lanes.

It is possible that in some instances, block-long sections of streets would be closed temporarily for utility relocation and related construction operations. Pedestrian access (sidewalks) would remain open and vehicular traffic would be re-routed. Temporary night sidewalk closures may be necessary in some locations for the delivery of oversized materials. Special facilities, such as handrails, fences, and walkways will be provided for the safety of pedestrians.

Minor cross streets and alleyways may also be temporarily closed but access to adjacent properties will be maintained. Major cross streets would require partial closure, half of the street at a time, while relocating utilities.

Figure 3-19: Backfilling Utilities in Final Location beneath Road Surface

Utilities, such as high-pressure water mains and gas lines, which could represent a potential hazard during cut-and-cover and open-cut station construction and that are not to be permanently relocated away from the work site, would be removed from the cut-and-cover or open-cut area temporarily to prevent accidental damage to the utilities, to construction personnel and to the adjoining community. These utilities would be relocated temporarily by the contractor at the early stages of the operations and reset in essentially their original locations during the final backfilling above the constructed station. See Figure 3-19

4.0 PALEONTOLOGICAL ISSUES

The Wilshire/Fairfax Station is situated within the vicinity of the Hancock Park Rancho La Brea Tar Pits. The San Pedro Sand layer exists beneath the older and younger alluvium deposits near the surface in this region. This formation has a high likelihood for producing significant paleontological resources. The existing La Brea Tar Pits immediately adjoining the Wilshire/Fairfax Station site is the largest collection of fossils of extinct mammals in the entire world. Because of the high likelihood of fossil discovery while excavating the Wilshire/Fairfax station box, station construction at Wilshire/Fairfax will be given the maximum time available within the overall project schedule, so that excavation can proceed slowly and carefully and fossils located and removed without schedule pressures.

Before fossil recovery can begin, utility relocation and shoring for the station excavation using one or more of the shoring methods outlined above must occur. Utility relocations, by their nature (narrow trenches beneath paved streets) will make recovery of fossils during this phase of the work unlikely. Then, any fossils that lie within the footprint of the shoring will necessarily be destroyed when the shoring is constructed, as there is no way to remove them in advance of the shoring. However, shoring will at worst occupy less than 10% of the footprint of the station excavation, leaving 90% of the footprint unaffected and suitable for fossil recovery.

The plan for fossil removal has been based on the methods used by the Page Museum for the removal of fossils from the nearby LACMA parking garage excavation, referred to from here-on by the Page Museum name, Project 23. The ground will be excavated in shallow lifts, with museum staff on land to inspect the excavated surfaces as earth is removed and to mark the locations of fossils when discovered. It is assumed that the fossils will occur in a manner similar to that at Project 23, i.e. concentrated in vertical tar "pipes" which, once located, can be boxed in place and then removed from the site for further analysis. As with Project 23, fossils can also be found away from the tar pipes so all excavated surfaces must be inspected, and the contractor's team must be alerted to the possibility of finding fossils anywhere with the excavation. The Project 23 site was an open excavation, not constrained by a deck at ground level. This made boxing and removal of the fossil boxes a good deal more straight-forward than will be the case at Wilshire/Fairfax. Figure 4-1 shows fossils in a pit at the Page Museum, and Figure 4-2 a boxed "pipe" containing fossils being prepared at the Project 23 site. Figure 4-3 and Figure 4-4 show examples of fossils recovered from Project 23 after processing.

Figure 4-1: Tar Deposit Containing Fossils

Figure 4-2: Fossil Box Construction at Project 23

Figure 4-3: Smilodon (Sabre Tooth Cat) Pelvic Bone

Figure 4-4: Smilodon Skull in Fossil Box

4.1 Minimize Excavation Done Before Decking Installation

Although the Project 23 experience suggests that fossils will mainly be 10 ft or more below street level, fossils must be anticipated anywhere within undisturbed ground. Using the cut and cover excavation technique, deck beams which support the deck panels are installed in the road bed after the piles or shoring walls are complete. The top of the deck beams sit just below the roadway surface so that the decking is flush with the roadway. The deck beams are approximately 6-ft tall and joined together with cross bracing so a minimum of 7-ft of excavation is required for their installation. On Red line and Gold Line stations, contractors have normally excavated 10 ft deep when installing the deck beams to provide clear space beneath the beams for better access when commencing to dig out from beneath the decking and to expose utilities immediately below the deck beams.

Because the street decking requires a full street closure to install, only limited times are available in which to close the street. Full street closures, especially along Wilshire Boulevard will be limited to approximately 52 hours duration on week-ends, and this will not provide time to carefully remove soil in layers to expose fossils nor to box and remove any fossils found in this initial excavation. Therefore, opportunities for fossil recovery from the initial excavation for the street decking will be limited. It therefore requires a construction approach to try and reduce the depth of the initial excavation. Two strategies are being pursued in this regard. One approach is to use raised decking so that the bottoms of the deck beams can be raised up by the same height that the station decking is installed above street level. Metro is in discussions with traffic authorities regarding the acceptability of using raised decking at Fairfax. See Appendix A for details of raised decking. The other approach is to use shallower deck beams, either for a flush deck system or in conjunction with a raised decking approach. Shallower beams will almost certainly require installing the deck beams at closer centers, probably 7 ft centers instead of the usual 14 ft centers but the shallow beams will reduce the likelihood of finding fossils during decking.

It should be noted that many utilities in the street are much deeper than the bottom of the deck beams, and any fossils would have been destroyed during the construction of such utilities. Utilities already have disturbed a significant percentage of the station excavation footprint, and this will increase with the relocations required prior to the installation of the shoring and decking. Nevertheless, there will remain areas of undisturbed soil within the 10 ft immediately below street level and fossils therefore

could be found in these locations. These areas can be mapped in advance so that they can be excavated carefully.

4.2 Excavation of the topmost layers beneath the street decking

Once the street decking has been installed, excavation beneath the decking will commence. The side access shaft(s) from the contractor's laydown area (see Figure 4-5) and from the station portal site will be excavated in shallow lifts, using methods similar to those of Project 23. Any fossils found will be removed. Once the side access shafts are deep enough to allow equipment to commence digging beneath the street decking, equipment will be lowered into then shaft to commence digging. One scenario will be for the contractor to dig the initial lift by scraping down the face, using low headroom equipment such as a Gradall (see Figure 4-6) or other equipment acceptable to Metro and to the Page Museum. The working face would be inclined at probably a 2:1 slope and would be accessible for inspection (see Figure 4-7). The excavation would proceed in this manner until the first lift was completely removed. The height of the first lift will be determined by the head room needed by the equipment needed for the subsequent lifts, but probably of the order of 12-14 ft. depending on the equipment selected, subsequent lifts could continue to be inclined or horizontal. Fossils and tar pipes containing fossils would be removed under the supervision of Page Museum staff, probably using the boxing techniques developed for Project 23. Because the Fairfax Station will be decked, handling large boxes beneath the decking will be very difficult. Boxes of not more than 500 cubic ft (approximately 30 tons) are proposed as an upper limit, and smaller boxes for the first lift below the decking may be necessary so that low headroom equipment will be able to carry the boxes back to the side access shaft. Actual box sizes can be determined in the field by the contractor and paleontologists. Figure 4-7 and Figure 4-8 show the proposed excavation sequence.

Figure 4-5: Open Cut Excavation of Side Access Shaft

Figure 4-6: Gradall Excavator - East Side Access Project NYC

Figure 4-7: Cross Section Showing Excavation Procedure of Shallow Lifts at 2:1 (Approx) Slope Beginning from the Side Access Shaft

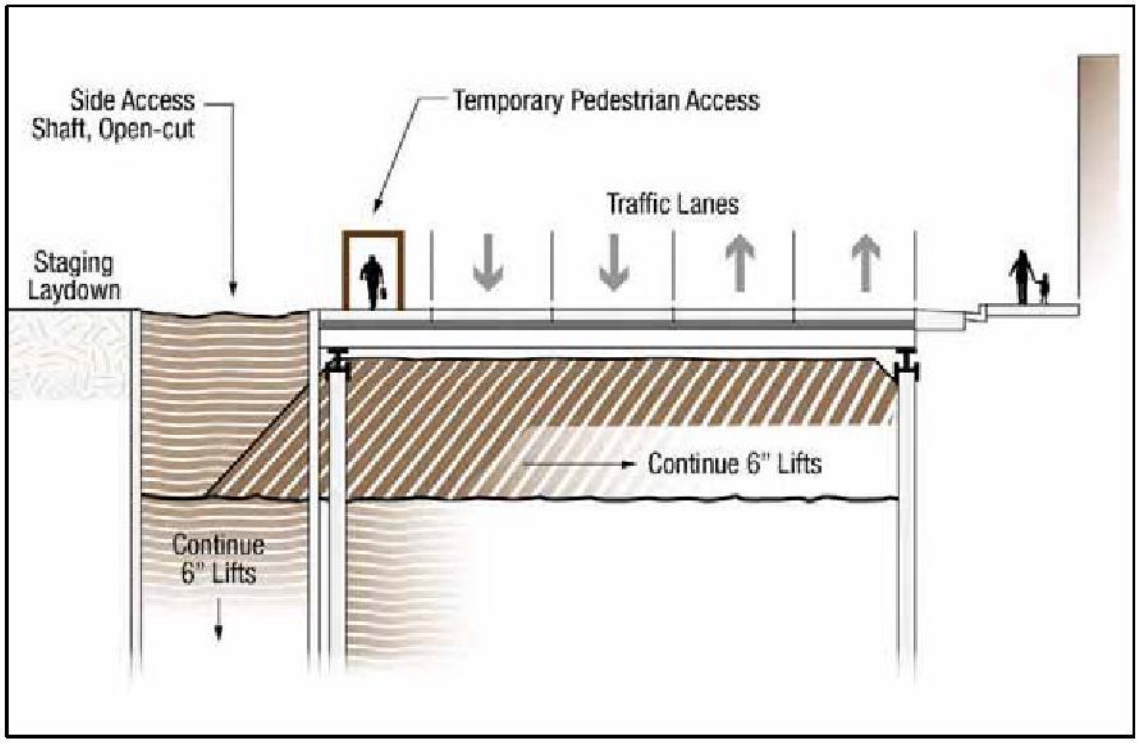
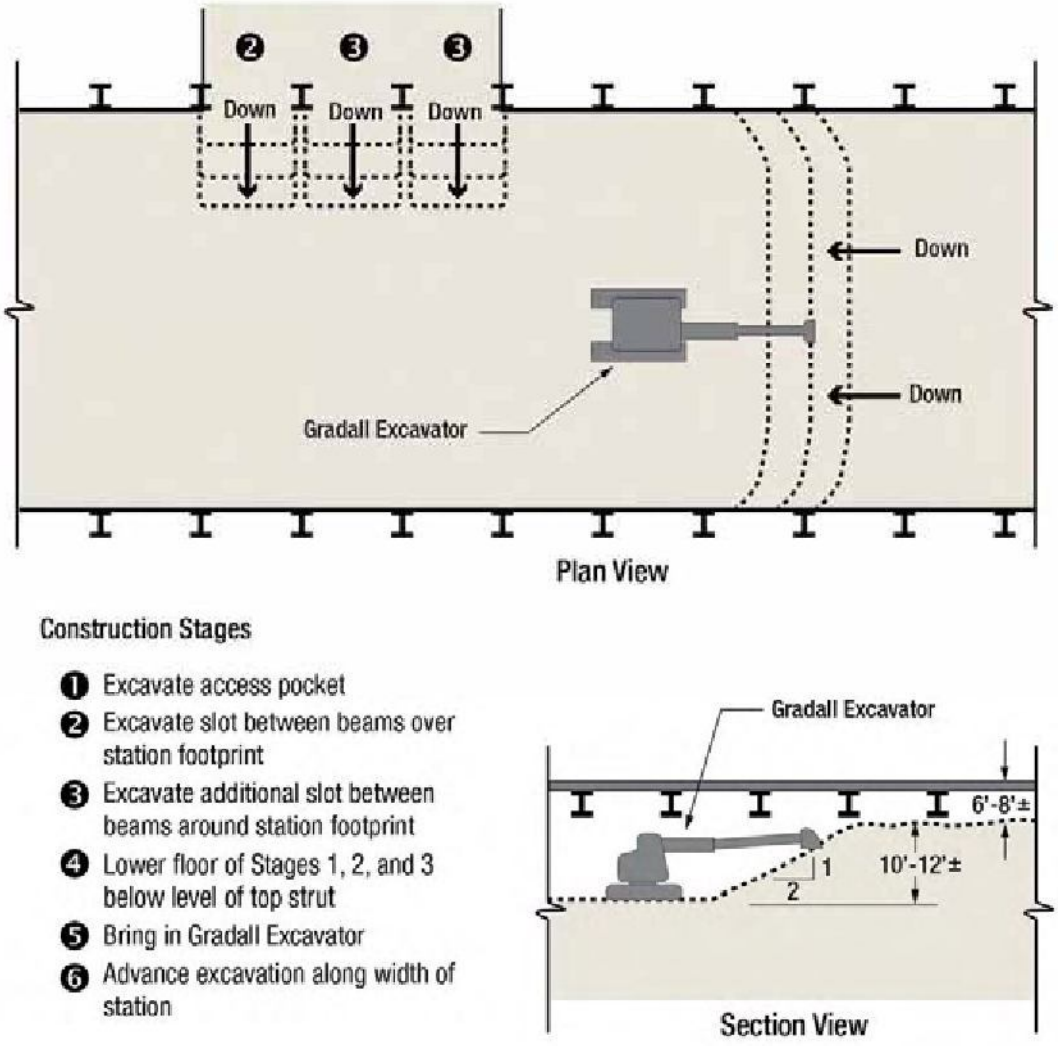


Figure 4-8: Plan Showing Excavation Procedure of Shallow Lifts with Low-Profile Gradall Excavator



4.3 Excavate in Layers

The station box and side access shafts will be excavated in shallow lifts to carefully expose and locate fossils. The Page Museum is suggesting 6" lifts based on experience at the Los Angeles County Museum of Art (LACMA) parking garage. As with Project 23, fossils can also be found away from the tar pipes so all excavated surfaces must be inspected, and the contractor's team must be alerted to the possibility of finding fossils anywhere with the excavation.

Compact track loaders and compact excavators (see Figure 4-9 and Figure 4-10) are likely necessary for initial soil removal directly beneath the deck beams due to their low vertical clearance, and relatively small bucket size capable of excavating precise lifts. Continuous tracks improve vehicle traction on soft and sticky terrain and reduce the amount of pressure exerted on the soil below. A pressurized although this may not be an option due to tight clearances and proper ventilation will still be needed regardless. If soil conditions permit, a rubber tire vehicle like skid steer loaders or equipment fitted with floatation tires may be used instead of compact track loaders. Gradalls operate a bucket at the end of a telescopic arm in a linear motion. The linear shoveling motion enhances depth control improving the ability to cut in precise shallow lifts. These will be considered considered as well. Track loaders, wheeled dozers and hydraulic excavators would be employed to remove the bulk of the soils in order to maintain efficiency in excavating (see Figure 4-11 through Figure 4-13. Excavation with these tools will require careful observation to identify the location of tar deposits. When tar deposits are located, smaller equipment should step in to avoid damaging fossil resources with heavier machines.

Figure 4-9: Compact Track Loader

Figure 4-10: Compact Excavator – 6.75'-Tall/12'-Long/6.5'-Wide

It is possible that the discovery and removal of fossils could lead to schedule delays and the station box structure would not be completed in time to precede the TBM breakthrough. As long as station box excavation has not breached a reasonable depth above where the top of the tunnel liner will be so that it would compromise the operation of the TBM, then the TBM drive should continue through the station box location and station excavation would work its way down and eventually break through the tunnel liner.

Figure 4-11: Tracked Loader Removing Muck from Beneath Struts

Figure 4-12: Hydraulic Excavator between Struts

Figure 4-13: Track Loader beneath Struts

It may be possible to use an imaging technique to locate fossils ahead of excavating operations thus allowing the pace of excavation to accelerate beyond the recommended 6" lift limit. If the imaging technique produces a reliable indication, the boxing of fossils can be pre-planned. Some techniques of scanning for objects below the surface that should be considered are Ground Penetrating Radar (GPR), HAARP Detection using ELF and VLF radio waves, electrical resistivity imaging, and geophysical diffraction tomography.

If an Early Work Authorization is obtained, construction can begin on an exploratory shaft to test the effectiveness of the anticipated geophysical methods. The shaft could be located within the limits of a side access shaft and would ideally reach full station depth in order to learn as much as possible from this process. The length and width of the shaft should be a minimum size to allow a variety of the equipment under consideration to perform excavation operations during the exploration process. Construction methods will be tested to determine the best techniques and tools for station box excavation. Shoring types will be tested to determine the effectiveness of the planned shoring in the soils present in the area. Gas levels will be measured to gauge the specifics of the ventilation scheme.

4.4 Fossil Box Size

As layers of soil are removed, tar-laden sand deposits containing fossils are likely to be uncovered. When this happens, work is halted within proximity of the fossil to allow the paleontologists on site to assess the discovery and begin preparations for boxing and removal of the deposit. The technique of boxing and removing fossil deposits to an off-site facility for additional paleontological work is an efficient process that was first implemented at the La Brea Tar Pits in 1915 and more recently during the construction of Project 23. A photo of the 1915 boxing method is contained on Page 8 of Rancho La Brea, Death Trap and Treasure Trove, Edited by John M. Harris, June 2001.

The box construction technique used on Project 23 is similar to that which is used for boxing palm trees for transport. See Figure 4-14. First, the paleontologist defines the location of the fossil deposit. Next, trenches are dug around the sides and excavation continues by removing sterile soil from around the fossil zone with heavy equipment leaving an island where the deposit sits. The bottom of the box is most challenging. After the box is supported by blocks and shims at each of the four corners, workers must crawl beneath the box and dig by hand while inserting the timber boards which make up the base of the box (Figure 4-15). An alternative approach to creating the bottom of the box which would improve worker safety and expedite the excavation process would require an auger to drill holes in the island beneath the fossil deposit. Timbers would be inserted through the auger holes, thus beginning to form the base of the box. The auger would then remove the balance of soil between the timbers allowing completion of the box and freeing the deposit from the soil below. See Figure 4-16. During the excavation of Project 23, sixteen tar deposits were discovered. From the sixteen deposits, twenty-three boxes were recovered, thus giving the parking garage project its name. The boxes range in size from 5x5x5-ft (weighing 3 tons) to 12x15x10-ft (weighing 56 tons).

Figure 4-14: Fossil Boxes at Project 23

Figure 4-15: Fossil Relocation Process. (From Page Museum Whiteboard)

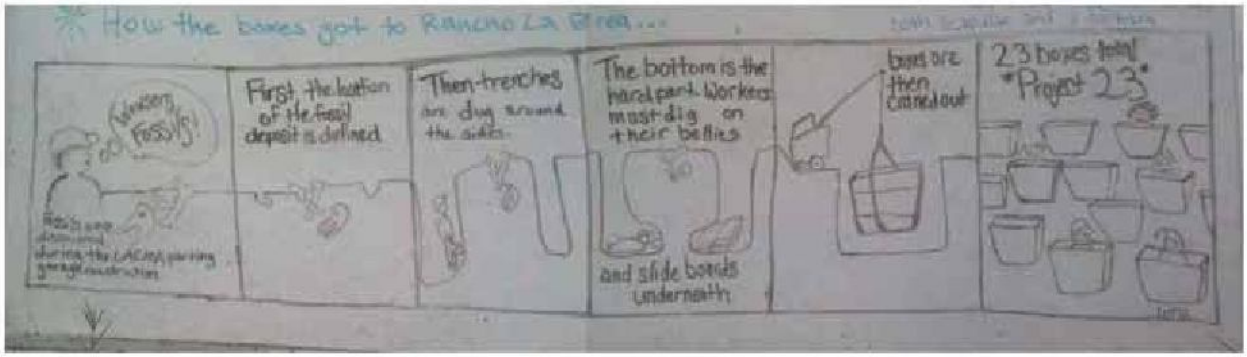
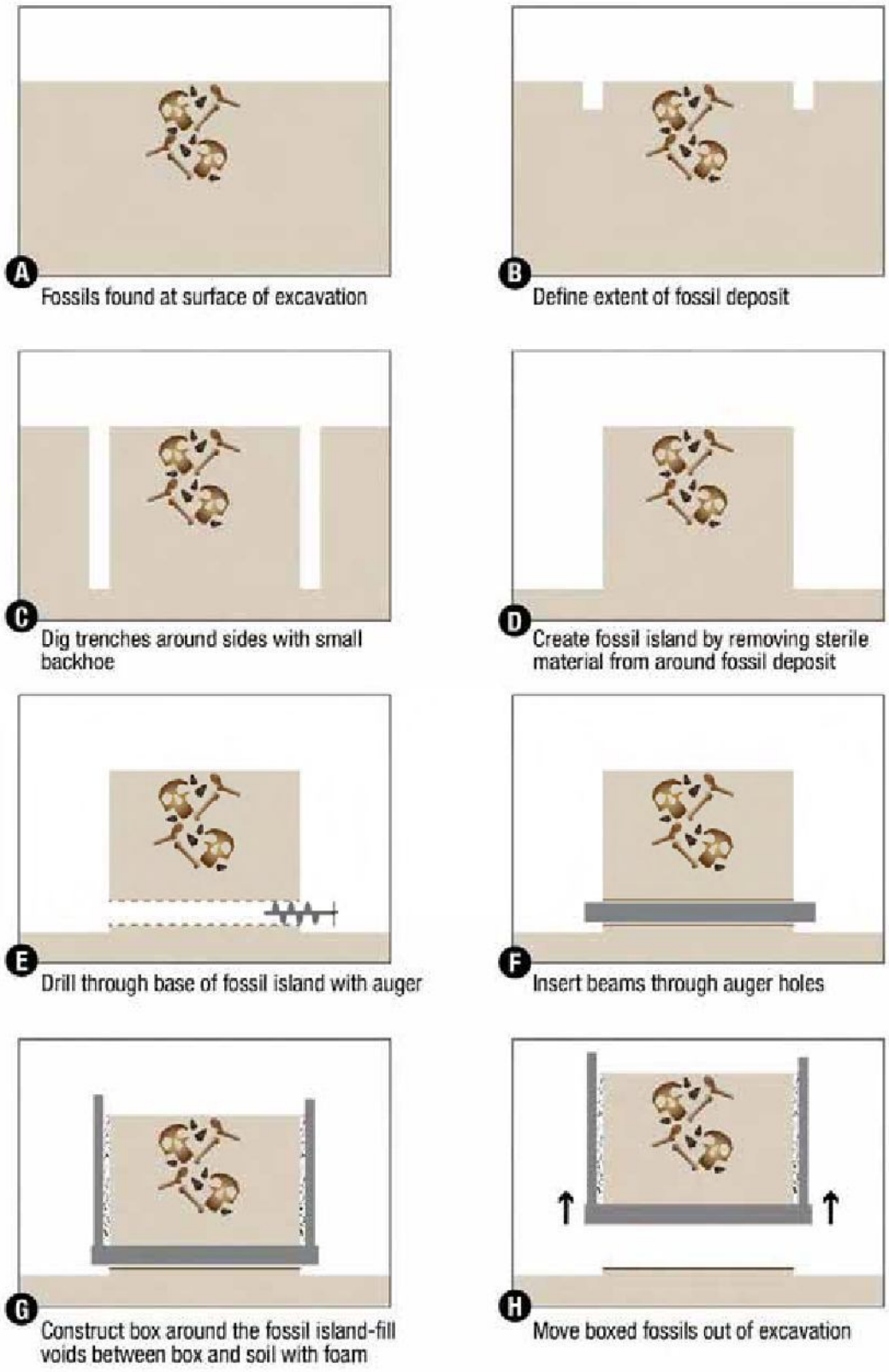


Figure 4-16: Proposed Alternative Boxing Technique Using Auger for Floor Construction



Depending on the size and weight of each box, fossils located beneath deck panels may be lifted in place by crane through temporary openings in the decking. However, this may prove to be impossible if street closure is not possible or the crane cannot be positioned on the street decking in a way to perform the lift. It is proposed to limit the size of fossil boxes to about 30 tons, i.e. 500 cubic feet which will make boxes easier to lift or to move around below the decking with low headroom equipment or with a system of skids and temporary tracks constructed within the station box. Once positioned adjacent to the side access shaft, fossil boxes can be lifted by mobile cranes positioned on "terra firma". The crane would lift the box out through the access shaft and load it on a truck which will transport the tar and fossils either to the Page Museum site where paleontologists can continue their work or to the contractor's laydown area at South Orange Grove/ Ogden for storage and processing. Offsite processing is preferred as there is less potential for damage by heavy equipment that will be operating at the South Orange Grove/Ogden laydown area.

4.5 Construction Issues in Tar-Laden Soils

The asphaltic sands have unique properties and the engineering characteristics are not as well documented as compared to other soils. However, contrary to common expectations, it is proven that these sands possess shear strength. Design parameters for excavation support systems in asphaltic sands will need to consider some additional pressure due to the makeup of these soils. There are numerous cases of successful experience in construction of deep basements and underground parking structures in the Wilshire/Fairfax area soils, such as construction of underground structures at LACMA (see Figure 4-17). Similar design elements, construction techniques and operating methods and procedures can be applied to the planned excavations.

Figure 4-17: Aerial View of Project 23 Excavation with Dark Tar Seeps

4.6 Potential Impacts to Construction Methods from Anticipated Tar-Laden Soils

When excavating in tar-laden soil, efforts will be undertaken to avoid excessive disturbance. Excavation methods will be closely controlled to minimize over-excavation or vibrations. When grade is achieved within these soils, a mud slab could be applied to minimize disturbance. In some cases, a layer of gravel may be placed over the asphaltic sands to increase traction and reduce the amount of soil compaction caused by construction traffic. The contractor can also apply various other materials on top of the tar such as cement, lime, or other additives to prevent it from fouling the tracked equipment. Wide tracked machinery can be used to reduce the pressure exerted on the soils below. Timber mats can make a sturdy foundation to drive equipment on. Rubber tire vehicles are considerably lighter than their tracked counterparts and could be operated with floatation tires specifically designed to minimize the amount

of soil compaction caused by heavy equipment. Because the tar is rather sticky or tacky in some areas, it is anticipated that the equipment's tracks, axles, or buckets could become fouled and would require occasional cleaning. Steam cleaners would handle the task well, by heating the tar to a less viscous consistency.

4.7 Handling Gas Intrusions during Construction Operations

Previous projects in the Methane Risk Zone have been successfully and safely excavated. Multiple underground parking garages have been constructed in this area. For example, LACMA built a two-level subterranean parking structure in the Methane Risk Zone, previously referred to as Project 23. During the excavation, H2S (above safe working levels) was encountered on several occasions. Workers donned PPE to protect against exposure during these events (se Figure 4-18). Further investigation of operating underground structures will be undertaken during future design phases to assess effectiveness of barrier systems and detection equipment used.

Figure 4-18: Fossil Boxes with Worker Donning Oxygen Respirator at Project 23

Since the majority of gas is expected to enter the excavation through the excavation surface, the release of gases may be constricted by applying a ground cover to all areas except the area where current excavation operations are taking place. An impervious membrane of Visqueen plastic sheeting or geotextile fabric may serve this purpose.

In areas of potential H2S exposure, there are a number of techniques that can be used to lower the risk of H2S release or exposure. Because station excavations are less confined than tunnels, gas exposure issues are anticipated to be less significant. Although pre-treatment of the ground water prior to excavation, with additives such as hydrogen peroxide or copper-zinc, is an option, it is not expected to be required. If released, H2S will not naturally dissipate because it is heavier than air, hence it would build up around the bottom of the excavation. The first line of defense is dewatering since H2S occurs in a dissolved state in ground water. Dewatering will remove any contaminated water from the excavation area. At the surface, a sealed tank would capture the water and treat the air for H2S off-gassing before discharging it to the surrounding environment. Additionally, a ventilation system will be used to introduce fresh air in the workspace. Fans will be used to circulate the air while a gas detection system monitors levels of hazardous gas. A suction system fitted with scrubbers may be required to collect H2S from the bottom of the excavation and treat the air before discharging clean air at the street surface.

CH4 is a hazard in confined spaces. As such, it is essential that workers be sufficiently protected, and thus detection and monitoring equipment would be required. Fans similar to those used to dilute H2S

concentrations would also dilute CH4 concentrations in the station box. Once above-ground, CH4 dissipates rapidly in the atmosphere and would not be a health hazard.

4.8 Ventilation Schemes

Ventilation is required to combat harmful or dangerous gasses when present in underground construction. Cal OSHA classifies subterranean work areas as "gassy", "potentially gassy", "non-gassy", or "extra hazardous". Excavation equipment in "gassy" spaces must be manufactured to resist accidental sparks and either be sealed or of explosion proof design.

Since CH4 and H2S gases are expected to be encountered during the excavation of Wilshire/Fairfax station, adequate ventilation and continuous air quality monitoring will be in use throughout construction. In addition to maintaining acceptable levels of CH4 and H2S in the air supply, the ventilation system must maintain a certain level airflow for workers present in the work space (see Figure 4-19) . The size of the system is dependent on the number of persons and the size of diesel equipment underground. The air supply shall not be less than 200 CFM (cubic feet per minute) per person underground, plus 100 CFM per diesel horse brake power.

Use of perforated deck panels, either perforated steel or concrete integrated with steel could be used in place of concrete only deck panels to allow the free flow of air between the excavation area and the surface, especially if full decking is required across the entire station box.

Figure 4-19: Underground Ventilation Ducts

5.0 CONCLUSIONS AND RECOMMENDATIONS

The project is committed to recover fossils and to work closely with the Page Museum to minimize the loss of fossils due to the construction of a station at Wilshire/Fairfax.

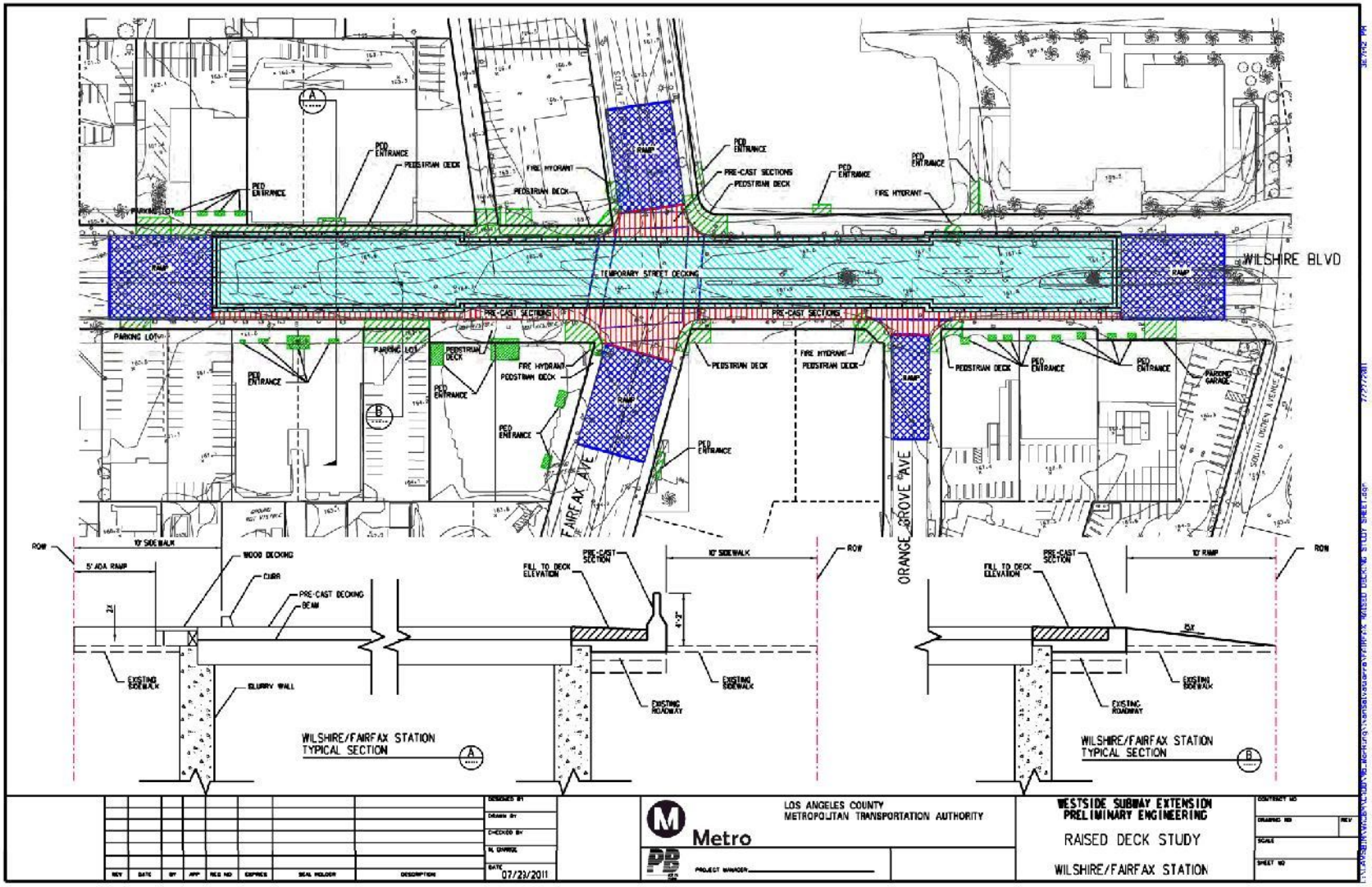
The project plans to use the same recovery methods that have been proven at Project 23, and with the cooperation of Page Museum staff, will seek to customize and improve on these methods to tailor them for the site conditions at Wilshire/Fairfax.

Further studies are on-going to find ways to raise the height of the beams used for street decking, which in turn, will leave more soil beneath the beams for controlled excavation and fossil recovery.

The fastest and lowest cost shoring method is preferred. This means that a soldier pile and lagging system will be employed provided that continuing geotechnical investigation do not find ground conditions that preclude this system. Soldier pile and lagging shoring has the added advantage of disturbing less of the station excavation footprint than other methods, minimizing the loss of fossils in this phase.

Gases will be controlled by installing adequate ventilation within the excavation, and by designing the street decking system with gaps for natural ventilation and elimination of pockets where gases could accumulate.

APPENDIX A EXAMPLE OF RAISED DECKING


WILSHIRE BLVD
TEMPORARY STREET DECKING
PRE-CAST SECTIONS
PEDESTRIAN DECK
PED ENTRANCE
FIRE HYDRANT
RAMP
PARKING LOT
FAIRFAX AVE
ORANGE GROVE AVE
SOUTH HOBEY AVENUE
PARKING GARAGE
ROW
12' SIDEWALK
5' ADA RAMP
WOOD DECKING
CURB
PRE-CAST DECKING BEAM
FILL TO DECK ELEVATION
PRE-CAST SECTION
EXISTING SIDEWALK
SLURRY WALL
EXISTING ROADWAY
12' RAMP
WILSHIRE/FAIRFAX STATION TYPICAL SECTION
A
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LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
Metro
WESTSIDE SUBWAY EXTENSION PRELIMINARY ENGINEERING
RAISED DECK STUDY
WILSHIRE/FAIRFAX STATION
07/23/2011

ATTACHMENT 4

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

PALEONTOLOGICAL RESOURCES MONITORING AND MITIGATION PLAN FOR THE LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

PURPLE LINE EXTENSION PROJECT,

LOS ANGELES, LOS ANGELES COUNTY, CALIFORNIA

Submitted to:

Westside Extension Support Team
6320 Canoga Avenue, Suite 200
Woodland Hills, CA

Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA

Author:
Sherri Gust, M.S., Qualified Principal Paleontologist

May 2013; revised February 2015

Project Number: 2068-003
USGS 7.5' Quadrangles: Beverly Hills 1995, Hollywood 1966 (PR 1981), Los Angeles 1996 (PR 1981, MR 1994)
Area: nine linear miles with seven stations
Key Words: Fernando Formation, San Pedro Formation, Quaternary older alluvium, Rancho La Brea, Pleistocene fossils, Pliocene fossils, mitigation plan, La Brea Zone

ABSTRACT

This Plan includes an overview of the Project, regional paleontological setting, significance criteria, and methods to be employed for monitoring, fossil recovery and evaluation, laboratory work, reporting and curation of paleontological resources encountered during the construction activities associated with the Purple Line Extension (PLE) Project proposed by the Los Angeles County Metropolitan Transportation Authority (Metro) and Federal Transit Administration (FTA).

Specific significance criteria and examples of application for fossils discovered are delineated. Generally fossils must be recovered to allow evaluation. When combined with observations on extent and integrity of the resource, this will allow rapid implementation of treatment measures and a concomitant minimization of work delays. All work within the La Brea Zone (2 mile radius around Page Museum at depths up to 55 feet below the surface) will have oversight from Page Museum staff.

The Purple Line (Westside Subway) Extension Project is located in western Los Angeles County and includes portions of the Cities of Los Angeles and Beverly Hills, as well as an unincorporated portion of Los Angeles County in the vicinity of the Greater Los Angeles Healthcare System-West Los Angeles Medical Center. The Project Alignment would extend heavy rail transit, in subway, from the existing Metro Purple Line Wilshire/Western Station to the Westwood/VA Hospital South Station, a distance of approximately nine miles. The separated right-of-way is all in a tunnel, with the top of the tunnel at least 30 to 70 feet below the ground surface. The extension would include a total of seven new stations.

More than a dozen fossil localities are known in non-asphaltic Quaternary older alluvium adjacent to the Project Alignment and have produced fossils including mammoth, mastodon, camel, horse, bison, deer, American lion and rodents. In the Project Alignment vicinity, the San Pedro Formation has produced horse, coyote, turtle, fish, shark, and numerous invertebrate fossils. While this formation is entirely marine, terrestrial animals such as fossil horse and coyote were washed into the ocean in streams or rivers. The Fernando Formation has produced invertebrate fossil in the Project Alignment but no vertebrate paleontological resources. Elsewhere in the Los Angeles Basin the formation has produced vertebrate fossils.

The late Pleistocene fossils of the La Brea tar pits are internationally known. Over 4 million specimens including mammals, birds, fish, plants and insects have been documented. The La Brea deposits are known within a two mile radius around the George C. Page Museum of La Brea Discoveries, an area known as the La Brea Zone.

Based on locations and depths of prior fossil discoveries, all excavations for stations and associated facilities and the drop/retrieval shafts for the tunneling machine require full time paleontological monitoring of native sediments. At Fairfax Station only, work from the bottom of imported fill to the top of the marine sediments will be performed using six inch lifts. Once marine sediments are encountered, regular excavation lifts will be utilized. Unanticipated discoveries along the Project Alignment may be encountered during trenching below existing streets or during other ground-disturbing activities. For unanticipated discoveries crews will stop work in the vicinity of the discovery so that the resource may be evaluated for significance. Evaluation and/or recovery operations will be completed as quickly as feasibly possible in order to minimize construction delays.

TABLE OF CONTENTS

1. INTRODUCTION

1.1 PURPOSE OF DOCUMENT

This Plan includes an overview of the Project, regional paleontological setting, significance criteria, and methods to be employed for monitoring, fossil recovery and evaluation, laboratory work, reporting and curation of paleontological resources encountered during the construction activities associated with the Purple Line Extension (PLE) Project proposed by the Los Angeles County Metropolitan Transportation Authority (Metro) and Federal Transit Administration (FTA).

1.2 PROJECT DESCRIPTION AND LOCATION

The Purple Line (Westside Subway) Extension Project is located in western Los Angeles County and includes portions of the Cities of Los Angeles and Beverly Hills, as well as an unincorporated portion of Los Angeles County in the vicinity of the Greater Los Angeles Healthcare System-West Los Angeles Medical Center (Figure 1). The Project Alignment would extend heavy rail transit, in subway, from the existing Metro Purple Line Wilshire/Western Station to the Westwood/VA Hospital South Station, a distance of approximately nine miles. The separated right-of-way is all in a tunnel, with the top of the tunnel at least 30 to 70 feet below the ground surface. The extension would include a total of seven new stations.

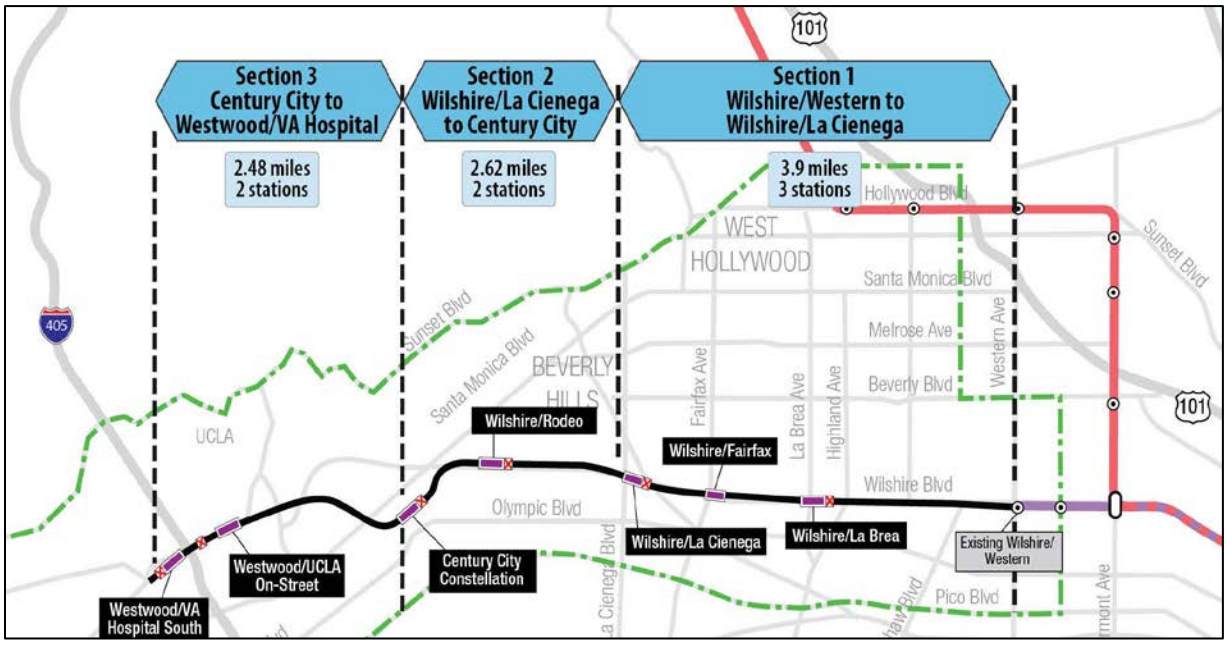

Figure 1. Project Sections and Components

1.3 PLE MITIGATION REQUIREMENTS

The Federal Transit Administration (FTA) is acting as the Federal lead agency for this Project. Metro is the cooperating State lead agency. A Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the undertaking was approved in March 2012 (Metro 2012). The instructions contained in this document, (together with the already completed Paleontology Exploratory Shaft), if implemented, will ensure compliance with Metro's legally binding obligation to enact the Paleontology Mitigation Measures contained in the Final Environmental Impact Statement/Environmental Report.

Metro retained the services of a qualified Principal Paleontologist in 2012 (Appendix A). This document is the Paleontological Resources Monitoring and Mitigation Plan (PRMMP) required. Metro is currently implementing the PRMMP during preconstruction utility relocations and will do so for construction once that phase of work begins. This PRMMP includes specifications for processing, stabilizing, identifying, and cataloging any fossils recovered on the PLE. It also includes provisions for curation of scientifically significant fossils.

Upon conclusion of construction excavations on the Project, the Principal Paleontologist will prepare a report detailing the paleontological resources recovered, their significance, and interpretation. Yearly progress reports will be prepared since the Project has a long time frame. Repositories for the Project will be the George C. Page Museum for fossils from the La Brea Zone, the Natural History Museum of Los Angeles County for fossils outside the La Brea Zone and the University of California Museum of Paleontology for plant fossils.

2. PALEONTOLOGICAL SETTING

The paleontological context prepared for the present study is based on information from the *Cultural Resources Technical Report* (URS 2010), the Final EIS/EIR (Metro 2012:Section 4.14) in addition to data from Fraser and Sues (2013), Gust (2012), Harris and Jefferson (1985), Parsons Brinckerhoff (2012), Powell and Stevens (2000), Quinn et al (2001) and tarpits.org.

2.1 GEOLOGY

2.1.1 Artificial Fill

Discontinous deposits of artificial fill are present in some locations up to 13 feet deep. These sediments were generally imported from other locations for past construction purposes. It generally consists of silty sand, silt, clay and gravel of varying colors.

2.1.2 Quaternary younger alluvium and fan deposits

These sediments are Holocene in age (less than 11,000 years old) and were deposited by streams flowing over the Project area. The sediments are typically yellow sand, silt and clay up to five feet deep.

2.1.3 Quaternary older alluvium and fan deposits

These sediments are late Pleistocene in age (50 to 11 thousand years old) and were also deposited by streams flowing over the Project area. The sediments are layered yellow silt sand, clay, silty clay and silt with some gravel. Quaternary older alluvium was encountered from about two to about 40 feet deep.

2.1.4 San Pedro Formation

The marine San Pedro Formation (one million to 50 thousand years old) is generally below the alluvium. The sediments consist of mostly greenish gray and bluish gray fine-grained sand, medium to course-grained sand, and some layers of silt. The San Pedro Formation was found as shallow as 12 feet below the surface and as deep as 100 feet.

2.1.5 Fernando Formation

The marine Fernando Formation (five to one million years old) underlies the San Pedro Formation and mostly consists of massive buff siltstone with some claystone layers. The Fernando Formation was identified as shallow as 65 feet below the surface.

2.2 PALEONTOLOGY

Work under this plan is divided between most Project sediments, regardless of geological formation and depth, and those within the La Brea Zone which are entirely Quaternary older alluvium saturated with asphalt and extend no more than 55 feet below the surface. Most such deposits discovered in the past have been less than 35 feet deep; however, the staff of the Page Museum specifically requested that a maximum depth of 55 feet be included in this document to account for the fact that natural ground surface slopes toward the ocean (John Harris, Chief Curation of Earth Sciences, personal communication, 2013). The La Brea Zone has a radius of two miles around the George C. Page Museum of La Brea Discoveries.

2.2.1 Deposits outside the La Brea Zone

More than a dozen fossil localities are known in non-asphaltic Quaternary older alluvium adjacent to the Project Alignment and have produced fossils including mammoth, mastodon, camel, horse, bison, deer, American lion and rodents. In the PLE vicinity, underlying sediments may be non-asphalt or asphaltic. The San Pedro Formation has produced horse, coyote, turtle, fish, shark, and numerous invertebrate fossils. While this formation is entirely marine, terrestrial animals such as fossil horse and coyote were washed into the ocean in streams or rivers. The Fernando Formation has produced invertebrate fossils in the Project Alignment but no vertebrate paleontological resources. Elsewhere in the Los Angeles Basin the formation has produced vertebrate fossils.

2.2.2 Deposits within the La Brea Zone

The late Pleistocene fossils of the La Brea tar pits are internationally known (Fraser and Sues 2013, Harris and Jefferson 1985). Over four million specimens including mammals, birds, fish, plants and insects have been documented.

Prehistorically, local Native Americans collected and utilized the asphaltum at La Brea for both waterproofing and glue. The alignment of Wilshire Boulevard was the original indian trail to the tar pits. After El Pueblo de la Nuestra Señora la Reina de los Angeles was founded in 1781, the residents of the town used the asphaltum to waterproof their roofs and as fuel. Fossils were probably discovered and collected in both prehistoric and early historic times. By the late nineteenth century, La Brea was owned by the Hancock family. They gave a saber cat canine tooth to a visiting professor named William Denton who published the first description of the fossils from La Brea.

Between 1907 and 1913 there was a flurry of fossil collecting at La Brea by The University of California at Berkeley, the Southern California Academy of Sciences, and Los Angeles High School. The scientific importance of these collections was instrumental in the Hancock family's decision to donate the land to the County as a scientific park. The fledgling Los Angeles County Museum conducted excavations from 1913 to 1915 and again in 1929 of more than 100 separate localities. The focus was on collecting large animals and they successfully collected about one million fossils.

In 1969, the Museum reopened excavations at La Brea at Pit 91. This pit was discovered and partially excavated in the early 20th century but deliberately backfilled and preserved for future excavation. Pit 91 was excavated with vastly improved technical methods and focused on recovering small and microscopic specimens in addition to taphonomic information such as how the fossils were oriented. These new excavations doubled the number of species known; particularly of small mammals, fish, lizards, frogs, snails, plants, and insects.

In 1975, when the foundations for the Page Museum were being excavated, fossils were discovered there also. The fossils were divided into blocks and jacketed (covered with burlap soaked in plaster to make a strong, protective casing) for later excavation in the laboratory. These jackets yielded the first articulated skeletons of individual animals known from La Brea. One of the articulated animals was a saber cat and it was discovered that past assumptions regarding the order and placement of bones of the forepaw of sabercats had been incorrect.

In 2006, new La Brea Zone deposits were discovered at Wilshire and Ogden during excavations for a parking garage. These included 23 new localities in asphaltic matrix as well as some non-asphaltic deposits with fossils. Among the new discoveries from the portions of this material excavated to date is recovery of the most complete individual skeleton of a mammoth known at La Brea.

2.3 PALEONTOLOGICALLY SENSITIVE AREAS

Based on locations and depths of prior fossil discoveries, all excavations in native sediments (non-fill) for stations and associated facilities and the drop/retrieval shafts for the tunneling machine require full time paleontological monitoring. Construction of the Project Alignment is expected to encounter La Brea Zone fossils at the Wilshire/Fairfax Station and possibly at Wilshire/La Brea Station. All stations have potential to encounter non-asphaltic or asphaltic fossils from the marine formations. No monitoring is required for any other Project components. The tunneling for the subway is exempt from monitoring due to logistics of the machinery which drills and then immediately exudes the tunnel wall materials. Unanticipated discoveries along the Project Alignment may be encountered during trenching below existing streets or during other ground-disturbing activities.

3. SIGNIFICANCE CRITERIA

3.1 DEFINITION OF SIGNIFICANCE FOR PALEONTOLOGICAL RESOURCES

Only qualified, trained paleontologists with specific expertise in the type of fossils being evaluated can determine the scientific significance of paleontological resources. Fossils are considered to be significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life;
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

As so defined, significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important (Scott and Springer 2003).

4. RESOURCE ASSESSMENT METHODS

This section details the statutory requirements and standard professional methods used to evaluate paleontological resource significance. The methods discussed include those used to conduct fieldwork, recover fossils, document localities, prepare specimens, identify specimens, analyze specimens and formally evaluate significance of fossils identified during the course of the Project.

The potential to impact fossils varies with depth of impacts, previous disturbance and presence of non-fossiliferous sediments. Unidentifiable fossils will generally not meet significance criteria and should not be collected unless the quantity and preservation is sufficient for dating purposes (criterion 2 above). For identifiable fossils, significance will need to be assessed subsequent to recovery but generally single fossils are isolated finds that will not meet significance criteria unless they represent previously unknown species in the area or they provide a useful radiocarbon date that assists with local sedimentary sequencing (criteria 2 and 5 above). This is because single fossils, such as a left bison tibia, do not have sufficient data potential to evaluate evolutionary relationships, development of biological communities, interaction between paleobotanical and paleozoological biotas, or unusual or spectacular circumstances in the history of life (criteria 1, 3 and 4 above). Associations of whole or partial skeletons of different animals are likely to meet multiple significance criteria. Deposits which are determined to be part of the Rancho La Brea deposits will meet criterion 4 at a minimum.

5. WORKER PALEONTOLOGICAL AWARENESS TRAINING

All Project management supervisory and earth-moving personnel, including construction workers, inspectors and supervisors, will receive Paleontological Resources Awareness Training prior to commencement of any ground-disturbing activity. The training program was developed by the author of this document to ensure consistency. The training will include instruction on: (1) the possibility of unearthing fossils; (2) the types of fossils and deposits that may be unearthed and how to recognize them; (3) the importance of, and legal basis for, the protection of significant resources; and (4) the requirement that they immediately halt work within 50 feet of discovery of fossils.

All attendees will sign to verify that they understand the Project mitigation requirements and will be issued hard-hat stickers. Personnel will be required to affix the stickers prior to signing. New personnel commencing work on the project must receive the training prior to start of work.

Paleontological Resources Awareness Training will be provided in at least two setting – classroom and field tailboard. The training presentation will take about 15 minutes and 10 minutes will be allowed for questions. A current contact list will be provided to each attendee. The worker education will include visuals of fossils that might be found in the project vicinity. Presentations for management personnel may be conducted as presentations utilizing computer software. Presentations for field construction crews (generally less than 10 people) may be conducted in the field as tailboard flipbook presentations.

6. TREATMENT OF FOSSILS OUTSIDE THE LA BREA ZONE

6.1 SCOPE OF WORK

This section of the work plan was developed to guide and facilitate the identification and treatment of paleontological resources located in non-asphaltic Quaternary older alluvium and non-asphaltic or asphaltic underlying sediments during the Project in an effort to reduce adverse effects on significant resources. Since the La Brea Zone is a maximum of 55 feet deep, this applies to sediments that underlie the Quaternary sediments even at Wilshire/Fairfax Station.

6.2 PALEONTOLOGICAL PERSONNEL

The qualified Principal Paleontologist retained by Metro, Sherri Gust, has a graduate degree, more than ten years of experience as a Principal Paleontologist, demonstrated expertise in vertebrate paleontology, and has been specifically approved by the Museum. The Principal Paleontologist will be responsible for ensuring that all subordinate personnel are appropriately qualified.

Personal protective equipment (PPE) may be required for safe working conditions. All will receive a comprehensive safety manual and Project-specific safety training. Attendance at job site safety meetings is required of all paleontological field personnel. Paleontological field personnel will wear clothing appropriate to the jobsite and are required to wear hard hats, safety vests, hard-toed boots and hearing protection in active construction zones.

6.3 MONITORING

6.3.1 Full-time Monitoring

All excavations for stations and associated facilities and the drop/retrieval shafts for the tunneling machine require full time paleontological monitoring below any fill. All stations and the drop/retrieval shaft locations may encounter paleontological resources in non-asphaltic sediments outside the La Brea Zone (both horizontally and vertically). No excavation is permitted at any of these locations without presence of a paleontological monitor.

6.3.2 On-Call Monitoring

No monitoring is required for any other Project components other than those stated above. The tunneling for the subway is exempt from monitoring due to logistics of the machinery which drills and then immediately exudes the tunnel wall materials. Unanticipated discoveries may be encountered during trenching below existing streets or during other ground-disturbing activities. The crew should immediately halt work in that specific location and notify the Principal Paleontologist. Work may resume immediately a minimum of 50 feet from the find.

6.3.3 Construction Phase Schedule

Metro will provide the Principal Paleontologist with an initial schedule of subsurface ground-disturbing activities to be conducted within the Project limits in writing at least 15 working days prior to beginning of construction and update the schedules as needed. The Contractor will make arrangements for the Paleontological Monitoring Team to be at the work site in accordance with these requirements.

6.3.4 Monitor's Authority to Temporarily Halt Project Activities

Paleontological monitors may temporarily divert equipment to inspect fossil finds and reveal the extent of deposits. The excavation contractor will cooperate with the monitor and assist with sediment removal around fossil deposits at the request of the monitor and with approval of Metro. Metro will be responsible for final decisions regarding the issuance and duration of any formal Suspend Work orders.

6.3.5 Monitoring Methods and Documentation

The paleontological monitor will maintain close communication with the on-site resident engineer and earthmoving personnel in order to maintain a safe working environment and to be fully appraised of the upcoming areas of impact and any schedule changes.

The paleontological monitor is responsible to complete daily documentation of monitoring presence and daily documentation of monitoring activities including the location of monitoring activities throughout the day and the type, observations of sediment type and distribution, observations regarding fossils, collection of fossils and other information. The paleontological monitor is responsible to photograph activities, sediments and paleontological resources for documentation purposes and to fill out a Photograph Record Sheet daily. All paperwork and photographs will be submitted to the Principal Paleontologist weekly. All documentation will be filed and maintained by the Principal Paleontologist.

6.3.6 Reporting

A weekly email summary will be submitted to Metro. If fossils are observed, the Contractor and Metro will be immediately notified. Additional documentation will also be incorporated if fossils are recovered. These records and the field notes will be used to prepare a monthly letter report. The monthly reports will summarize the monitoring activities of the previous period, discoveries made, and other information as appropriate. Monthly reports will be submitted to the Metro.

Upon conclusion of the Project, a final report will be prepared. The final report will include the inclusive dates of monitoring, personnel utilized including qualifications, summarize the monitoring effort and coverage using text and maps, documentation of paleontological localities discovered, paleontological resources identified, interpretation of fossils, evaluation of the adequacy of this paleontological resources management plan and suggestions for improving paleontological resource monitoring procedures and include all specialists' reports as appendices. The report will be submitted to Metro and the repository.

6.4 FOSSIL DISCOVERY AND RECOVERY

Fossils observed will be treated differently depending on type and circumstance. Generally, discovery of identifiable invertebrate (shells, crustaceans, etc.) fossils requires a scientifically significant sample be collected for identification and analysis and that the locality be documented (see below). Similar procedures are followed for microvertebrates such as rodents. Current professional standards call for testing of 200 lb. samples (four-five full five gallon buckets) from each locality followed by processing of up to 6000 lbs. of matrix if significant fossils are recovered by testing. Documentation of localities is required.

Larger fossils observed must be evaluated to determine their condition. Generally the monitor will be able to quickly determine if the fossils are sufficiently well-preserved to meet preliminary significance criteria. If necessary, the monitor will cordon off the immediate area around the fossil to permit a safe work zone to recover the fossil and notify the construction foreman. The monitor will also immediately notify the field supervisor if assistance is needed and sufficient personnel to perform the work will be fielded. Documentation of localities is required.

Discovery of a bone bed or other type of fossil sites containing multiple large fossils may require a formal Stop Work order. The monitor will cordon off the area until evaluation occurs. The Principal Paleontologist will consult with the Metro Cultural Resources Coordinator regarding the amount of time necessary. This type of discovery requires a detailed field map, a sedimentary structure analysis, one or more stratigraphic columns and data for taphonomic analysis.

Depending on the formations being impacted additional samples collected may include specimens for dating analyses or materials for microfossil, botanical or pollen analyses. All fossils and sediment samples are accompanied by a field tag with Project and locality information including a unique field number.

6.4.1 Fossil Locality Documentation

Every fossil locality requires a standard set of data be taken. This includes one or more coordinate readings using a resource grade high resolution GPS device such as a Trimble GeoXH or better. Currrently, the combination of Trimble GeoXH and most recent updates to the post-processing software permit an average accuracy of four". All field members of the Paleontological Team will be trained in the use of the resource grade GPS prior to start of the Project. The Paleontological Team will coordinate with the prime construction contractor to obtain accurate elevation readings. Lithology, paleoenvironmental information and a true north reading are also required. Additional information collected may include one

or more stratigraphic columns, sedimentary structure analysis, taphonomic analysis and photographs of the fossil *in situ*. Depending on the formations being impacted additional samples collected may include specimens for dating analyses or materials for microfossil, botanical or pollen analyses.

If recovered fossils are within the limits of radiocarbon dating, samples will be submitted to Beta-Analytic to obtain dates. If fossils are demonstrably older, radiocarbon may not be feasible and alternative dating methods will be utilized if possible such as optical luminescence dating.

6.4.2 Fossil Preparation

Many fossils require only cleaning and stabilization through the use of hardeners. Others require lab excavation of plaster jackets with gradual cleaning and hardening. Sometimes larger fossils require a "cradle", usually a form-fitted plaster lined with acid-free cloth to provide support and prevent breakage during storage or transport. Fossils found in bedrock formations may require more tedious preparation using mechanical devices such as zip scribes.

Processing of matrix samples for microvertebrates varies depending on the nature of the sediments and may be washed using water, may require chemical agents to break apart the rock or may require floatation using heavy liquids. Sediment to be screenwashed will be transported to the lab for mechanical screen washing.

6.4.3 Fossil Identification

All fossils will be identified by experts. All identifications will be as specific as possible and include element, portion, side, sex, age, taphonomy and notes. Cataloging, including identification information, is entered into a computer database. Each specimen is maintained with a tag specifying the provenience and identification information.

6.4.4 Fossil Analyses

Analyses conducted depend to a great extent on the number of fossils recovered and their condition. Guild analysis (relative number of carnivores, herbivores and omnivores of various body weights in an ecosystem), demographic analysis (age and sex structure of populations), habitat analysis (certain types of animals indicate grasslands as opposed to deserts for example), paleoecology (use of botanical and/or pollen analysis to reconstruct the paleoenvironment) and comparative analysis (comparison to other faunas of the same time period regionally) are the most typical. Geological context analyses include stratigraphy of the fossil deposit, dating (to narrow the time range of the fossils), taphonomy (history of alteration of the fossils by scavengers, water transport, etc.) and other ancillary studies.

6.4.5 Fossil Curation and Discard Protocol

Fossils meeting significance criteria will be curated in perpetuity at an accredited repository along with all Project data and a copy of the final report. Fossils are only to be removed from a collection at the discretion of the Principal Paleontologist. Typically specimens are discarded to educational uses because the fossil was not identifiable to at least family level, was not found *in situ* or was part of a large collection of the same species from the same locality and individual specimens in poor condition are discarded.

6.4.6 Fossil Repository

The Natural History Museum of Los Angeles County will be the repository for all significant fossils from outside the La Brea Zone. Plant fossils will be curated at the University of California Museum of Paleontology. FTA/Metro will make available Project funds to pay for curating the collection.

7. TREATMENT OF FOSSILS WITHIN THE LA BREA ZONE

7.1 SCOPE OF WORK

This section of the work plan was developed to meet the requirements of the 2011 Memorandum of Understanding (MOU) between the Metropolitan Transportation Authority of Los Angeles County (Metro) and the Natural History Museum of Los Angeles County (Museum) (see Attachment B) and subsequent communication (see Attachment C). Implementation of the paleontological resources mitigation plan will guide and facilitate the identification and treatment of paleontological resources located during the Project in an effort to reduce adverse effects on significant resources.

Geotechnical work for the Project did not reveal asphaltic deposits at Wilshire/La Brea and on that basis this section applies to Wilshire/Fairfax station from the bottom of fill to the top of the marine sediments only. These are typically Quaternary older alluvium saturated with asphalt and contain terrestrial and freshwater species only. The George C. Page Museum of La Brea Discoveries will provide oversight to ensure that data standards are met and will be the repository for any fossils recovered.

7.2 PALEONTOLOGICAL PERSONNEL

The qualified Principal Paleontologist retained by Metro, Sherri Gust, has a graduate degree, more than ten years of experience as a Principal Paleontologist, demonstrated expertise in vertebrate paleontology, demonstrated expertise in the paleontology of Rancho La Brea and has been specifically approved by the Museum. The Principal Paleontologist will be responsible for ensuring that all subordinate personnel are appropriately qualified.

In addition to preparing this mitigation plan the Principal Paleontologist will coordinate with the Museum for all activities, supervise monitoring of all subsurface ground disturbance, recovery of the fossil deposits, ensure data collection in accord with MOU, provide progress reports and ensure that construction delays are minimized while preserving significant fossils. When requested by the Museum, the Principal Paleontologist will ensure appropriate identification and maintain necessary space for storage and laboratory work on recovered deposits at a secure laboratory facility.

Due to environmental hazards including subsurface methane and hydrogen sulfide, all paleontological field personnel including selected Museum staff must participate in all special training offered by Metro for safety. Personal protective equipment (PPE) may be required for safe working conditions. All will receive a comprehensive safety manual and Project-specific safety training. Attendance at job site safety meetings is required of all paleontological field personnel. Paleontological field personnel will wear clothing appropriate to the jobsite and are required to wear hard hats, safety vests, hard-toed boots and hearing protection in active construction zones.

7.3 MONITORING

7.3.1 Full-time Monitoring

All excavations for stations and associated facilities and the drop/retrieval shafts for the tunneling machine require full time paleontological monitoring below any fill. All stations and the drop/retrieval shaft locations may encounter paleontological resources. No excavation in native sediments (this excludes fill) is permitted without presence of a paleontological monitor.

7.3.2 On-Call Monitoring

No monitoring is required for any other Project components other than those stated above. However, unanticipated discoveries along the Project Alignment may be encountered during trenching below existing streets or during other ground-disturbing activities. The crew should immediately halt work in

that specific location and notify the Principal Paleontologist. Work may resume immediately a minimum of 50 feet from the find.

7.3.3 Construction Phase Schedule

Metro will provide the Principal Paleontologist and Museum with an initial schedule of subsurface ground-disturbing activities to be conducted within the Project limits in writing at least 15 working days prior to beginning of construction and update the schedules as needed. The Contractor will make arrangements for the Paleontological Monitoring Team to be at the work site in accordance with these requirements.

7.3.4 Monitor's Authority to Temporarily Halt Project Activities

Paleontological monitors may temporarily divert equipment to inspect fossil finds and reveal the extent of deposits. The excavation contractor will cooperate with the monitor and assist with sediment removal around fossil deposits at the request of the monitor and with approval of Metro. Metro will be responsible for final decisions regarding the issuance and duration of any formal Suspend Work orders.

7.3.5 Monitoring Methods and Documentation

The paleontological monitor will maintain close communication with the on-site resident engineer and earthmoving personnel in order to maintain a safe working environment and to be fully appraised of the upcoming areas of impact and any schedule changes.

Fill does not require monitoring but all excavations in native sediments require full time paleontological monitoring. Due to the special circumstances of asphaltic deposits (Attachment B), all grading for Fairfax Station from the bottom of the fill to the top of the marine sediments will proceed in shallow removals of six inch lifts. This requirement does not apply to Western, La Brea or La Cienega drop shaft/station excavations as no asphaltic matrix was observed in any geotechnical boring at these locations. The paleontological monitor will need to be in direct proximity to the excavations to be able to observe fossils uncovered by grading. As noted above, the monitor has the authority to temporarily halt excavations if fossils are observed.

The paleontological monitor is responsible to complete daily documentation of monitoring presence and daily documentation of monitoring activities including the location of monitoring activities throughout the day and the type, observations of sediment type and distribution, observations regarding fossils, collection of fossils and other information. The paleontological monitor is responsible to photograph activities, sediments and paleontological resources for documentation purposes and to fill out a Photograph Record Sheet daily. All paperwork and photographs will be submitted to the Principal Paleontologist weekly. All documentation will be filed and maintained by the Principal Paleontologist.

7.3.6 Reporting

A weekly email summary will be submitted to Metro and forwarded to the Museum by Metro. If fossils are observed, the Museum, Contractor and Metro will be immediately notified. Additional documentation will also be incorporated if fossils are recovered. These records and the field notes will be used to prepare a monthly letter report. The monthly reports will summarize the monitoring activities of the previous period, discoveries made, Museum involvement and other information as appropriate. Monthly reports will be submitted to the Metro.

Upon conclusion of the Project, a final report will be prepared. The final report will include the inclusive dates of monitoring, personnel utilized including qualifications, summarize the monitoring effort and coverage using text and maps, documentation of paleontological localities discovered, paleontological resources identified, interpretation of fossils, evaluation of the adequacy of this

paleontological resources management plan and suggestions for improving paleontological resource monitoring procedures and include all specialists' reports as appendices. The report will be submitted to Metro and the Museum.

7.4 LA BREA ZONE FOSSIL DISCOVERY AND RECOVERY

If La Brea Zone fossils are discovered, Metro and the Museum will be immediately notified. The Principal Paleontologist in consultation with the Museum will determine the best method of collecting any fossil or deposit. All work will be expedited to minimize construction delays. The extent of the fossil deposit will require controlled excavation by the paleontological monitor and assistance from additional paleontological personnel will be provided as needed. The contractor may be requested to assist the paleontological team with sediment removal. All fossil localities will be extensively recorded using a Trimble GeoXH high resolution GPS unit to ensure precise locational data. If satellite reception by the GPS unit is not adequate, localities will be mapped using triangulation of multiple metric tape measures.

Asphaltic fossil deposits may be conical or tabular and range from five to 20 ft. across. If a conical deposit is found and the extent has been determined the sediment surrounding it will be carefully removed by the paleontological team with possible assistance from the contractor so that the deposit is fully exposed except for a pedestal of dirt under the deposit. The deposit is reinforced with wooden planks surrounded by metal bands and covered with nylon or plastic tarping to preserve the integrity of the deposit. A custom tree box can then be constructed around each deposit. The space between the tarping and box must be filled in with foam or preferably fill/gravel of a distinctly different color than the native sediments to prevent deformation of the deposit during transit while making the packing material easily differentiable. More metal bands are added around the outside of the completed tree box. Subsequently, the sediment beneath the tree box is removed by tunneling so that the box floor can be constructed. The field number of the locality and the locality data will be placed on the exterior of the box, in addition to the field notes, using permanent ink or paint. A crane is used to place the tree box on a flatbed truck for transit. Boxes will be moved to the Page Museum or a secure laboratory of the Principal Paleontologist depending on space required. [Attachment B]

Non-asphaltic fossil deposits can consist of single bones or whole skeletons. These fossils must be stabilized using conventional paleontological methods such as hardeners and plaster jackets in order to be removed. These fossils can generally be moved onto truck by hand. [Attachment B]

7.4.1 La Brea Zone Locality Documentation

Every fossil locality requires a standard set of data be recorded. A field number is assigned to each locality and sometimes to multiple specimens. Field number convention to be utilized consists of the numerical year, the numerical month, the date, followed by the monitor's initials, and possibly a specimen number (for example, 20120427 SMG.1). Multiple precise location readings with resource grade GPS (Trimble GeoXH), creation of an accurate field map, accurate elevation measurements, depth below surface, lithology including Munsell Soil Color Chart evaluation, and true north reading are necessary. Additional information collected may include one or more stratigraphic columns, sedimentary structure analysis, taphonomic analysis and photographs of the fossil *in situ*. Tree boxed deposits and plaster jackets must have the permanent markings indicating top and bottom of deposit, north arrow and field number as well as reference corners (coordinated with GPS readings).

7.4.2 La Brea Zone Treatment Decisions

The MOU provides that recovered fossils will be evaluated by the Museum for a determination about who will prepare and identify the fossils. The Museum will be involved in oversight of any fossils prepared by the Principal Paleontologist's team.

Metro and the Museum will determine when fossils are prepared. This may be immediately after recovery or may await full Project construction. Generally, immediate preparation is preferred to prevent drying out of the sediments and subsequent problems with the integrity and scientific value of the deposits due to slumping and other deformations. Decisions about further analysis will depend on the nature of the deposit recovered and the potential of the fossils to provide information new to science.

7.4.3 La Brea Zone Asphaltic Fossil Preparation

A detailed protocol has been prepared and is included by reference (Attachment B). Under the direction of the Museum the fossils will be prepared either by the Museum or by the Principal Paleontologist overseen by Museum personnel in accordance with the protocol and the MOU.

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2003 CEQA and fossil preservation in southern California. *The Environmental Monitor* Winter: 4-10, 17.

ATTACHMENT A: QUALIFICATIONS

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

SHERRI GUST
Project Manager & Principal Paleontologist

EDUCATION

1994 M. S., Anatomy (Evolutionary Morphology), University of Southern California, Los Angeles
1979 B. S., Anthropology (Physical), University of California, Davis

SUMMARY QUALIFICATIONS

Gust has more than 34 years of experience in California, acknowledged credentials for meeting national standards, and is a certified/qualified principal paleontologist in all California cities and counties that maintain lists. She holds California and Nevada statewide BLM paleontology permits. Gust is an Associate of the Natural History Museum of Los Angeles County in the Vertebrate Paleontology and Rancho La Brea Sections. She is a Member of the Society of Vertebrate Paleontology and the Society of Economic Paleontologists and Mineralogists. She has special expertise in the identification and analysis of fossil bone.

SELECTED PROJECTS

Aroleda Drive Freeway Project. Paleontological Monitoring for 5 mile segment of State Route 99 south of Merced. Some 128 localities and 1667 fossils recovered in five months of excavation for detention basins. Project Manager and Principal Paleontologist. 2012. Subconsultant to URS.

Plainsburg Interchange Project. Paleontological Mitigation Plan with updated assessment for 5.5 mile new road segment and interchange on State Route 99 between Chowchilla and Merced. Project Manager and Principal Paleontologist. 2012. Subconsultant to URS.

Westside Subway Exploratory Shaft Project. Paleontological Mitigation Plan for deep exploration prior to excavation of new subway station near the La Brea tar pits. Project Manager and Principal Paleontologist. 2012. Subconsultant to PB.

Santa Clara County Express Lanes Project. Paleontological Evaluation Report and Mitigation Plan for 34 miles of State Route 85 in San Jose and Mountain View. Project Manager and Principal Paleontologist. 2012. Subconsultant to URS.

Topock Groundwater Remediation Project. Paleontological Resources Management Plan with updated evaluation for 794 acre project at energy facility on California-Arizona border. Project Manager and Principal Paleontologist. 2012. Subconsultant to Parus Consulting.

Geospatial Paleontology Database. Managed paleontological research and GIS database development for 15 counties in central and eastern California. Delivered detailed information about potential fossil yield, geological units, prior fossils and other information at cursor click. Project Manager and Principal Paleontologist. 2011-2012. Subconsultant to URS.

Eldorado-Ivanpah Transmission Line. Paleontological survey and Paleontological Resources Management Plan for 71 miles of electrical lines and associated telecommunications from Eldorado, NV to Ivanpah, CA across both BLM and private lands. Project Manager and Principal Paleontologist. 2010. Prime contractor.

Mojave Water Agency Ground Water Replenishment Project. Cultural and Paleontological Resources Management Plan was prepared, including an updated assessment, and submitted to SHPO. Cultural resources awareness training provided to all construction personnel and both archaeological and paleontological monitoring performed. Principal Archaeologist and Paleontologist and Project Manager. 2010-2012. Subconsultant to RBF.

Attachment B: Page Museum MOU and attachments

MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING ("MOU") is entered into as of this 2nd day of November 2011 by and between the Los Angeles County Metropolitan Transportation Authority ("MTA") and the Los Angeles County Museum of Natural History, including the Page Museum at the La Brea Tar Pits ("Museum") (collectively, "the Parties"), for the preservation of paleontological and archaeological resources associated with the Wilshire/Fairfax Station and other portions of the Westside Subway Extension Project alignment within two miles of the Wilshire/Fairfax Station.

BACKGROUND

WHEREAS, the MTA has the responsibility under Federal and State law to recover and preserve for future scientific and educational use paleontological, archaeological, and historical resources that may be impacted by the Westside Subway Extension Project and associated records; and

WHEREAS, the Museum has established expertise in recovery, management, curation and research of paleontological resources and is willing to permanently curate paleontological and asphalt-related archaeological resources recovered from the Westside Subway Extension Project in asphaltic deposits associated with the Wilshire/Fairfax Station and other portions of the Westside Subway Extension Project alignment within two miles of the Wilshire/Fairfax Station and recognizes the benefits which will accrue to it, the public and scientific interests by housing and maintaining the Paleontological Resources and Records Collection for study and other educational purposes; and

WHEREAS, the Parties hereto recognize the mutual benefits to be derived by having paleontological and archaeological resources suitably housed and maintained by Museum;

NOW, THEREFORE, in consideration of the terms, conditions, covenants and performances herein contained, and other consideration the receipt and sufficiency of which is hereby acknowledged, and with the intent to be legally bound hereby, the Parties agree to incorporate the above recitals into this MOU and further contract, promise and agree as follows:

1. **MTA shall:**

a. Retain a qualified principal paleontologist (minimum of graduate degree, ten years of experience as a principal paleontologist and having demonstrated expertise in vertebrate paleontology) approved by the Museum to plan, implement and supervise paleontological monitoring, preservation, fossil recovery, fossil preparation, fossil documentation and reporting of significant paleontological resources within the areas of disturbance for the Wilshire/Fairfax Station or other portions of the Westside Subway Extension Project alignment within two miles of the Wilshire/Fairfax Station. The principal paleontologist will be responsible to ensure that all subordinate personnel are appropriately qualified.

b. Require the principal paleontologist to prepare a mitigation plan, subject to approval by the MTA and Museum, to address monitoring, preservation and, recovery of any paleontological resources. The mitigation plan shall be consistent with best practices guidelines for both field and laboratory work on project paleontological resources to meet state and federal laws and guidelines and Museum standards (Attachments 1 and 2).

c. Require the principal paleontologist to monitor all ground-disturbing activities where sub-surface soils are exposed. The areas to be examined will be determined based on project plans and in consultation with construction staff and the qualified paleontologist during pre-construction meetings and as needed throughout the construction process.

d. Ensure that if subsurface paleontological resources are identified by the principal paleontologist during construction, all construction activities in the area of identified paleontological resources will be temporarily halted so that the resources may be documented and recovered. All resources shall be documented on appropriate forms approved by the Museum and these will be placed on file in the Museum.

e. Ensure that any paleontological resources, including asphaltic deposits containing fossils and/or archaeological objects, will be recovered in accordance with best practices outlined by the Museum (Attachment 1).

f. Require that the principal paleontologist have designated and secure space sufficient to store and, if necessary, analyze and process boxed or individual fossil deposits for preparation [but see section 2.c].

g. Require that the principal paleontologist record all data and, if necessary, perform excavation of boxed deposits or individual fossils, prepare fossils and store fossils prior to curation in accordance with best practices outlined by the Museum (Attachment 2).

h. Require that the principal paleontologist provide periodic progress reports including copies of all field notes to the MTA and Museum in addition to a comprehensive final report meeting all state and federal standards. The original copies of the field notes will be archived in the Page Museum at the time that the fossils are transferred to its jurisdiction.

i. Provide funding for required fossil recovery, cleaning, preservation, curation and storage and any other fossil-related Museum activities specified in Paragraph 2 based on a cost per amount recovered to be agreed upon by the MTA and Museum in a subsequent detailed Agreement to be signed between the MTA and Museum during further Project Design. Such agreement will be based in part on the Museum's cost for processing and storage of its Project 23 materials, taking into account the possible variation in the density of fossils and in the matrix in which the fossils are found. Such agreement should include contribution to cost of permanent storage premises in the event that significant quantities of fossils are recovered. Such agreement shall prevent unreasonable payment if few fossils are found, but assure payment for vital effort.

j. Allow the Museum to be involved, in an oversight capacity, for all field and laboratory work to ensure that Museum standards are being maintained.

k. Require that paleontological resources be removed expeditiously to allow Project completion according to schedule, but in compliance with Museum standards as recently demonstrated in the construction of the new LACMA Underground Garage and corresponding Project 23 Paleontological Project.

l. Retain responsibility for compliance with all legal and regulatory provisions related to monitoring, reporting, consultation, and repatriation of Native American remains and related material, including under NAGPRA and California law.

m. Assign an MTA Representative to make any further revisions or adjustments to this document necessary in the course of the project, in cooperation with the Museum.

n. Designate the Museum as the sole source for the scientific description of fossils and artifacts recovered from the Westside Subway Extension Project in asphaltic deposits associated with the Wilshire/Fairfax Station and other portions of the Westside Subway Extension Project alignment within two miles of the Wilshire/Fairfax Station. Publicity concerning the discovery of such fossils and artifacts shall be jointly undertaken by MTA and the Natural History Museum of Los Angeles County.

2. **Museum shall:**

a. Make available Museum personnel to provide oversight for the qualified principal paleontologist's preparation of a mitigation plan, subject to approval by the Agency, to address monitoring, preservation and, recovery of paleontological resources. The mitigation plan shall be consistent with best practices guidelines for both field and laboratory work on project paleontological resources to meet state and federal laws and guidelines and Museum standards (Attachments 1 and 2).

b. Make available Museum personnel to provide oversight of all field and laboratory work on paleontological resources for the duration of the project to ensure that Museum standards are being maintained.

c. Provide an option, dependent upon the volume and number of fossils recovered, that the Museum will directly house boxed fossil deposits and internally perform excavation and preparation of those deposits for compensation comparable to that offered to the principal paleontologist for similar services.

d. Provide for the professional care and management of the curated paleontological resources associated with the Wilshire/Fairfax Station and other portions of the Westside Subway Extension Project alignment within two miles of the Wilshire/Fairfax Station.

e. Ensure that personnel assigned responsibilities related to the Westside Subway Extension Project are qualified museum professionals whose expertise is appropriate to the nature and content of the paleontological resources recovered.

f. Provide and maintain a repository facility having requisite equipment, space and adequate safeguards for the physical security and controlled environment for the paleontological resources (but see 1.i).

g. Perform those conservation treatments necessary to ensure the physical stability and integrity of the paleontological resources prepared by the principal paleontologist.

h. Curate the paleontological resources to ensure adequate scientific documentation of the circumstances of their recovery.

i. Credit the MTA when the Collection or portions thereof are exhibited, photographed or otherwise reproduced and studied in accordance with the terms and conditions of Museum policy with the statement: "In Cooperation with the Federal Transit Administration and Los Angeles County Metropolitan Transportation Authority". The Museum agrees to provide the Agency with copies of any resulting publications.

3. **Paleontological Advisory Board**

The Parties agree to mutually appoint a three person Paleontological Advisory Board comprised of appropriately qualified paleontologists to help guide this effort as previously agreed by the Parties in their Paleontological MOU for this site in 1983.

4. **Amendment**

This MOU may be revised by issuance of a written amendment signed and dated by both parties.

5. **Donation of Paleontological and asphalt-related Archaeological Resources**

Agency agrees to donate title to all paleontological and asphalt-related archaeological resources to the Museum.

IN WITNESS WHEREOF, the Parties hereto have executed this MOU.

Jane S. Pisano — 10/25/11

Dr. Jane Pisano
President and Director
Los Angeles County Museum of Natural History

Date

Arthur T. Leahy — 11-02-11

Arthur T. Leahy
Chief Executive Officer
Los Angeles County Metropolitan Transportation Authority

Date

ATTACHMENTS

Attachment 1. Paleontological Methods for Mitigation of Fossils in the Vicinity of Hancock Park

Attachment 2. Techniques for Excavation, Preparation and Curation of Fossils from the Project 23 Salvage at Rancho La Brea

Attachment 3. Wilshire/Fairfax Station Construction Methodology

Paleontological methods for mitigation of fossils in the vicinity of Hancock Park.

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Images courtesy of ArchaeoPaleo Resource Management, Inc.

2011

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Introduction

Rancho La Brea is the world's richest Ice Age fossil locality, yielding well over 3 million fossils and representing more than 600 species of animals and plants that lived in the Los Angeles Basin between 11,000 and 50,000 years ago. The asphaltic fossil deposits generally occur in randomly distributed inverted cone-shaped masses between 10 to 35 feet in depth. The sizes of the accumulations vary considerably from less than 5 cubic feet to more than 20 cubic feet. Flat tabular deposits such as that recovered during the construction of the Page Museum are rare. Ideally, the fossil accumulations should be carefully excavated as they are discovered. The fall back position is to remove the deposit intact, preserving it for excavation at a later date. This methodology, developed during the mitigation of the LACMA underground parking structure, preserves stratigraphic integrity, permits less hurried excavation under more optimum conditions, maximizes fossil and information retrieval, and enhances opportunities for major discoveries and new scientific contributions. All data pertaining to the location and condition of newly discovered fossil deposits must be recorded and photographed as outlined later in this document.

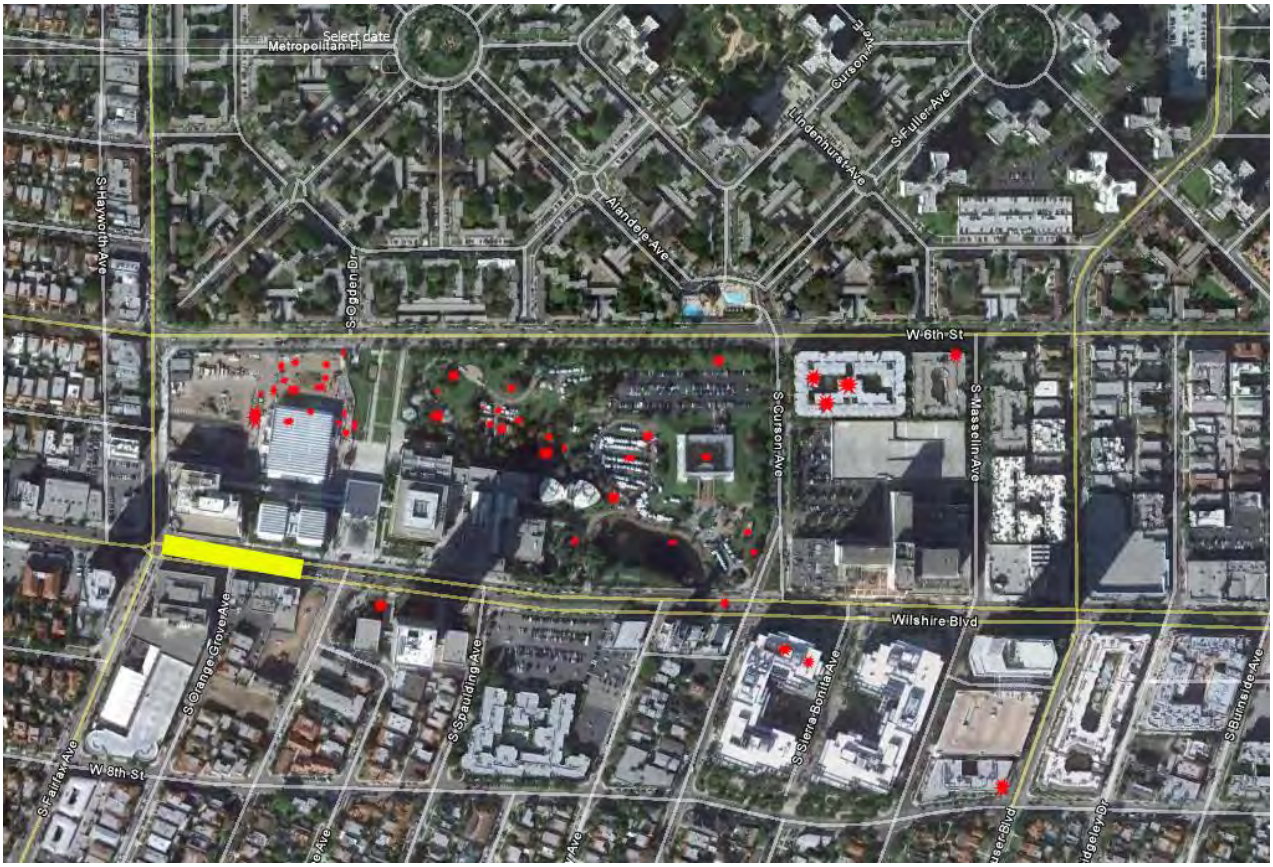

Fig 1: Map of Hancock Park and vicinity with known asphalt preserved fossil localities (red stars) and the approximate location of the proposed MTA subway station (yellow rectangle)

Fig 2: Monitoring

All excavation activity must be carefully monitored. In areas of asphaltic sediment or other areas where fossils have been discovered, sediment should be removed in 4-6” levels while paleontologists monitor closely. The monitors are empowered to halt the process as soon as fossils are located.

Fig 3: Fossils are discovered

After a fossil deposit has been located the surrounding area must be roped off so that paleontologists can determine the extent of the deposit or if it is an isolated fossil. In the case of an accumulation deposit this may range from 5 feet to 20 or more feet across. Construction work in the immediate vicinity of the fossil deposit must be halted temporarily but may proceed normally elsewhere in the construction site. Asphalt saturated conical shaped deposits and isolated fossil mitigation are described separately below.

Taking Field notes

Whether an accumulation of fossils are discovered or an isolated fossil is found, detailed field notes must be taken. The precise locality of each fossil deposit must be recorded with a resource-grade GPS device, its extent clearly described, mapped, and photographed on site using conventional field data collection methods, and its context including represented lithologies and depositional environments must be described. Types of geologic information to be collected should include: the nature of bounding contacts (erosional, sharp, gradational), thickness, geometry, grain size, shape, and sorting, color (fresh and weathered, use a color chart), sedimentary structures (physical and biogenic), cement type, pedogenic features (rooting, nodules, slickensides, etc.), halos, mineral crusts, microstructures around bio-clasts, and other fossils. Types of taphonomic information to be collected should include: taxonomic

representation, skeletal articulation and association, scale and geometry of assemblage, density, and orientation of bones. Bone modification information to be collected should include: weathering, polishing, abrasion, scratch/tooth marks, root traces, borings, fragmentation/breakage, and distortion. Each isolated fossil and each individual fossil deposit must be given an individual field number. This number should be written in permanent ink on individual fossils and clearly marked in permanent marker or paint on the box containing a deposit.

Asphalt saturated conical shaped deposits

Fig 4: Pedestal a deposit

Once the extent of the fossil accumulation has been determined, the sediment surrounding the fossiliferous deposit is carefully removed, isolating the accumulation on a pedestal. It may be necessary for monitors to wear a SCBA, as in this image, because of the high concentrations of hydrogen sulfide.

Fig 5: View of east end of LACMA construction site

It is possible that there will be a number of fossil deposits within the construction site. Work may continue at non-fossiliferous locations while the deposits are being salvaged.

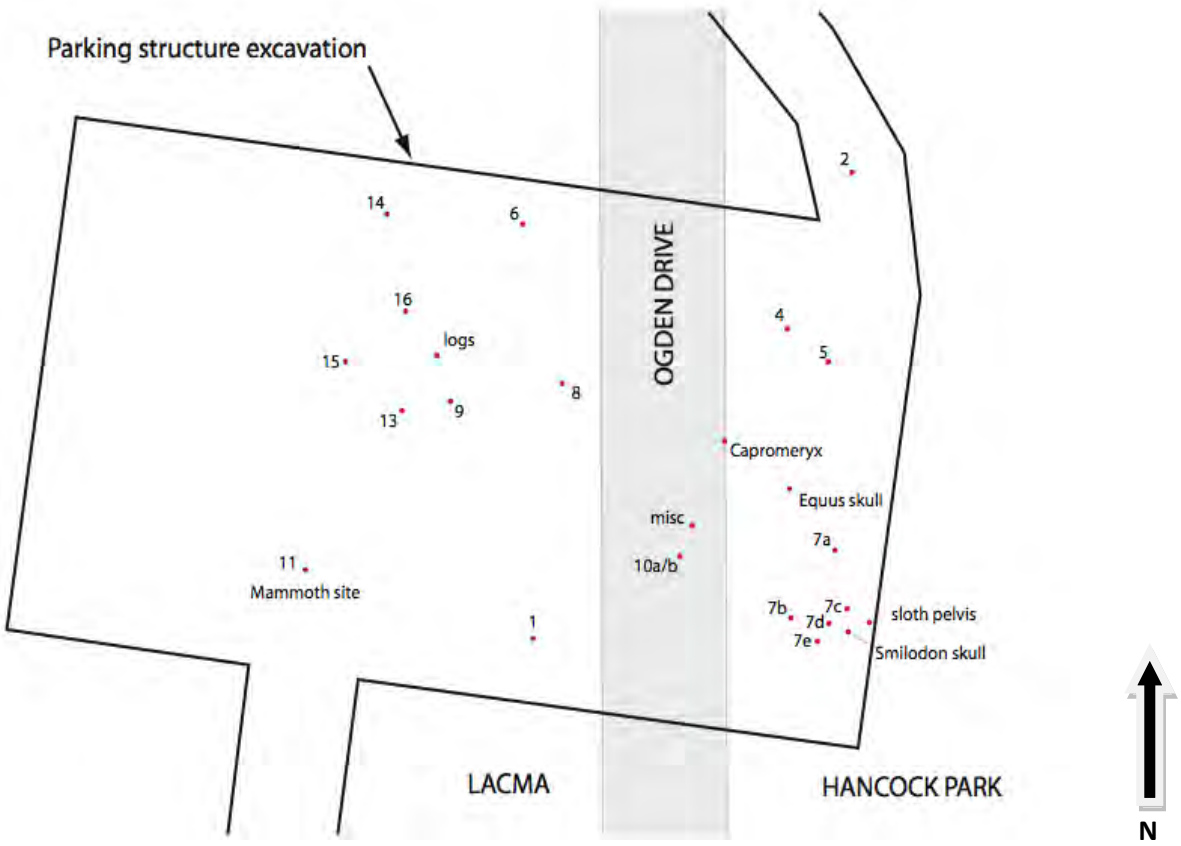

Fig 6: Map of fossil localities from LACMA parking garage

These were mostly asphaltic fossiliferous masses but included some occurrences of isolated bones, trees, and other fossils.

Fig 7: Fossil accumulation pedestals before tree box

After the deposit has been isolated it will be surrounded by metal bands to conserve its integrity before the box is built and a brightly colored strong plastic or a tarp to keep the deposit dirt separated from the 'fill' dirt.

Fig 8: Building a tree box around a fossil deposit

A custom sized box is then built around each deposit by a 'tree boxing' company. Valley Crest was used on the LACMA project. Any space between the plastic-wrapped deposit and the edge of the box must be filled with polyurethane foam, distinctly different sediment or gravel to preserve the integrity of the deposit and to prevent its deformation during subsequent transportation and storage. It is important that the 'fill' sediment be easily recognizable from the matrix during later excavation of the deposit.

Fig 9: Secure the tree box with metal bands

After the sides of the box are nailed into place, metal bands are added to secure and strengthen the sides of the box.

Fig 10: Tunnel under the tree box

After the sides of the box are secured and banded, the sediment beneath the box is removed by tunneling so that the box floor can be constructed. The field number and locality data must be clearly written on the outside of the box in permanent marker or paint. The orientation of the box and the depth below datum of the top and bottom of the deposit must also be clearly and permanently marked on the box, as well as added to the field notes for that deposit.

Figs 11, 12 & 13: Relocating the tree boxes by crane and truck

A crane is used to lift the completed boxes, load them onto a flat bed truck, and to relocate them to the place where their excavation will take place.

Isolated fossils

In addition to conical and flat tabular asphaltic accumulations, construction activities may encounter isolated fossils in non-asphaltic or asphaltic sediments such as the trees, mammoth skeleton, and bison and horse skulls that were discovered during the recent construction of the LACMA's underground parking structure. Similar procedures pertain. The area must be roped off in order for the monitors to determine the extent of the fossil occurrence, which may then be removed using conventional paleontological field techniques. Large or fragile bones must be pedestaled (with sediments immediately surrounding the fossil) and covered in a plaster and burlap jacket. The type of plaster used determines the time it takes to dry. Once the plaster is dry, it is flipped over and the other side is covered with plaster and burlap and left to dry completely. In the meantime paleontologists need to determine the extent of other isolated fossils in the area looking in particular for other elements of the skeleton of the jacketed specimen or sediments in which microfossils such as rodent, bird and reptile remains may occur.

It is crucial; that all isolated fossil occurrences be given a field number, their location recorded with a resource-grade GPS device, and these data entered into the field notes together with a map and description of the fossil, its orientation and its locality including description of the lithology in which the fossil was preserved. Standard guides such as Munsell Soil Color Charts should be used. The field number should be clearly and permanently affixed to the fossil and written on its container or jacket as appropriate. Maps must have a legend and scale to the show the orientation and depths of each fossil as well as a datum point. In addition to the field number, plaster jackets should also be marked "field side up" on the appropriate surface.

Fig 14: Excavating isolated fossils

Paleontologists need to excavate around large bones with hand tools before covering them with a protective plaster jacket for later removal and transport.

Fig 15: Mammoth discovered

This image show the mammoth locality in the context of the construction site during the LACMA underground parking garage.

Techniques for excavation, preparation and curation of fossils from the Project 23 salvage at Rancho La Brea.

A MANUAL FOR THE RESEARCH AND COLLECTIONS STAFF OF THE GEORGE C. PAGE MUSEUM

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Introduction

This document was compiled mid project to record and codify best practices for excavation, preparation and curation of specimens from Project 23 and other Rancho La Brea localities that are housed in the George C. Page Museum. Some of the techniques are similar to Pit 91 excavations that were reported by Shaw (1982) and others that are unique to Project 23 because of the nature of the salvage. This provides guidelines for possible future salvage efforts. Documents discussing the nature of the mitigation are available elsewhere.

Excavation Techniques for Project 23

Excavation of Project 23 deposits began in August, 2008. The measuring techniques used to determine and record data for *in situ* specimens follow those of Shaw (1982) for Pit 91 with some modifications described here (for instance, the imperial measurement system was used prior to Project 23). New excavation procedures have also been devised as a result of the removal of the deposits from their original location due to construction.

In Project 23, a custom-sized wooden box was built around each isolated plastic-wrapped deposit by a 'tree boxing' company (Valley Crest was used for this particular project). Any space between the deposit and the edge of the box was filled with either polyurethane foam or sediment to preserve the integrity of the deposit and to prevent its deformation during subsequent transportation and storage.

Because the deposits are no longer *in situ*, all excavation grids are oriented with respect to the deposits' original north orientation. Where feasible, box walls may be removed in part or in their entirety to allow excavation from the side of the deposit rather than from the top. Each "tree box" from Project 23 is treated differently depending on the type of deposit, size of the box and integrity of the sediments in the box. Refer to paleo mitigation protocol and ArchaeoPaleo report documents for descriptions on how the 'tree boxes' were constructed.

Preparing a tree box for excavation

First read all the field notes pertinent to that particular deposit. In a field notebook or deposit logbook document the nature of the "box" size, construction, fill, plastic, etc. If the box is taller than 5 feet, erect scaffolding for excavators to safely access the box. Depending on the size of

the tree box it may be necessary to construct a safety railing extending upward from the sides of the box. After the top of the box is safe to access, remove the metal bands that are strapped across the top of box. Use specific snips if recommended by the tree boxing company. Remove supportive fill dirt, foam and plastic to reveal deposit surface, taking care to maintain an appropriate area for excavators to work safely.

Depending on box stability and size, board walls or portions of board walls may be removed to enable excavation from the side of the deposit. Smaller boxes containing deposits with cohesive sediments may allow the removal of all sidewalls. For larger boxes, removal of one wall or a small "window" cut into a sidewall may be feasible.

Before any asphaltic sediment is removed, set up a gas monitor close to where work will be conducted. The Solaris Multigas Detector is an economical, 4-gas instrument providing simultaneous detection of CO, O2, H2S and combustible gas and costs ~$600 from Safety Tek Industries.

Grid layout

Determine the deposit's north side from field data and data written on the box.

Establish a datum point near the top of the box and record it based on field data. The datum point should not be removed during excavation.

Lay out grids into 1m x 1m squares with origin in the SE corner of the box using an alphanumeric system (N/S = A-Z; W/E = 1, 2, 3). Gridlines can be marked with string, spray paint or chalk and need to be refurbished and maintained periodically. A map of the box showing the grid lines and a north arrow should be drawn for reference.

Excavation and Documentation

After grids are established, clean surface to remove fill dirt, to determine sediment type and to locate fossils if exposed. Note nature and location of fossils (bones, shells, plant remains, etc.)

Excavate grids in 25 cm spits (i.e. Level 1=0cm-25cm, L2=25cm-50cm, etc). If multiple grids are worked on at the same time, ensure that this doesn't compromise the mapping of each spit wall and floor. If a deposit has been exposed from the side, the spits in any one grid may be excavated sequentially from the top to the base of the deposit.

Depending on degree of consolidation, use small hand tools (hammers, chisels, and screwdrivers as required) on non-fossiliferous areas. Pneumatic or electric hammers can be used on areas with hard matrix where there are no fossils. Use dental picks and small screwdrivers to expose and extract fossils. Hard asphaltic matrix can be softened with clamp lamps or loosened with a small amount of solvent. Measure exposed fossils *in situ* (see below) within each grid and record their data in field notes before extracting them.

Note: Clamp lamps should be placed at least 8" away from the specimens and always monitored. Never leave lamps unattended. If the sediments start to smoke immediately turn off the lamp. 150 watt incandescent unfrosted bulbs should be used.

Save all of the surrounding sediments but separate them based on sediment type into 5 gallon metal buckets with lids. The pre-designated sediment types are A= asphaltic sand, B=brown silts and C=clay. Mark each bucket with box #, grid and level data as well as the sediment type (A, B or C). Note the number of buckets of each sediment type from each grid on an inventory list kept by the lead excavator. This is important because it determines how each bucket is processed later (see matrix processing section).

Keep daily documentation in field notes of who is excavating, a list of the grid or grids being excavated and describe the type of matrix being removed, what is being found within each grid, and any challenges encountered with the excavation. Geologic and paleobiological data should be recorded in field notes for later use to constrain and further refine taphonomic, paleoenvironmental, and paleobiological interpretations. A description of each lithology (soil type) should include color (fresh and weathered), lithologic composition, grain size, sorting and shape, sedimentary structures, induration, type of cement, fossil content, and pedogenic features (rooting, nodules, slickensides, etc.). As excavation proceeds note unit thickness, nature of the bounding contacts (erosional, sharp, gradational), and inferred depositional setting. Note nature and location of fossils (bones, shells, plant remains, etc.). Any visible modifications to the bones (weathering, polish, abrasion, scratch/tooth marks, root traces, borings, pitwear, breakage, distortion) and gross orientation should be recorded. Features of the matrix surrounding the bones, such as alteration halos, mineral crusts, micro-structures, fine root traces (small burrows or borings), and localized invertebrate bioturbation should be noted. The degree and nature of articulated, semi-articulated, associated, and dissociated skeletal elements should be described. Notes should also be taken on the general geometry of the fossil deposit (vertical pipe, tabular, etc.) drawings and/or photographs should be taken when appropriate.

Measurement system

The most common types of macrofossils recovered from asphaltic deposits are isolated bones. The following measurement system has been devised for capturing data for individual bones.

See the Special Cases section for the treatment of associated skeletons, dermal ossicles, plant masses, etc.

In situ measurements are taken from specific anatomical points on each bone (see Table 1 and 2 Appendix A) to define its spatial orientation with reference to its depth below an established datum point (BD), its distance north (N) of the southern grid line and its distance west (W) of the east grid line using the metric system (see Fig 1. of Shaw (1982) but note this uses the imperial measurement system). Recording this data at the time of excavation will facilitate studies of stream current energy and direction, deposition, and taphonomy.

All identifiable bones from 1 cm to 2 cm in size should be measured *in situ* as a 1-point measurement before being excavated. Each Standard Measurement (BD, N, W) is taken to the center point of the longest dimension (Fig. 3)

Bones larger than 2cm in minimum length or diameter should be measured as either a 2-point or a 3-point measurement. The 3-point measurement is used on all bones in which three predetermined identifiable anatomical points are visible. The 2-point measurement is used if the bone lacks three distinct reference points and records the orientation of the long axis of the specimen (proximal-distal, anterior-posterior, medial-lateral, etc.). Detailed instructions for measuring out specimens are provided by Shaw (1982), which also lists the elements that generally fall into each of these categories.

All the data pertinent to the specimen should be recorded in the field notebook and should also accompany the specimen until its preparation and curation have been completed. One method of doing this is to duplicate the field notebook entries onto a 3” x 5” card using carbon paper (Fig 1, 2 and 3 below). This card then accompanies the specimen throughout its preparation, curation, and final cataloging. Only when the data have been recorded in the catalog are they separated.

In addition to measurements on individual bones, the dip of all limb bones and skulls should be recorded with a Brunton compass. Recording these data at the time of excavation will assist with interpretation of stream current energy and direction, and taphonomy which may include possible vertical movement in a vent, trampling, etc.

The soil type surrounding each measured bone should also be noted on the 3” x 5” card by a letter using a pre-designated lettering system. The pre-designated sediment types are A= asphaltic sand, B=brown silts and C=clay.

After a bone has been measured *in situ*, it is placed in an appropriate sized clear plastic bag. The 3” x 5” data card is placed in its own small clear plastic bag for safety and then placed in the bag with the bone.

Fig 1: Example of excavation data for a 3-point measurement in a field notebook and transcribed onto a 3" x 5" card template.

P23-14 B3/L4

	GT	Px	Dt
BD =	58cm	53cm	64cm
N =	31cm	35cm	31cm
W =	13cm	10cm	90cm

Canis dirus femur

Soil type= A
Dip=30°SW
Excavator initials and date

P23-14 = Project 23-Box 14
B3/L4 = grid B3/level 75cm-100cm

GT = Greater Trochanter is 58cm below datum, 31cm from the south grid axis and 13cm for the east axis
Px = Proximal end is 53cm below datum, 35cm from the south grid axis and 10cm from the east axis
Dt = Distal end is 64cm below datum, 31cm from the south axis and 90cm from the east axis

Soil type A= asphaltic sand

Fig 2: Excavation data for a 2-point measurement in a field notebook and transcribed onto a 3" x 5" card template.

P23-1 B1/L2

	Px	Dt
BD =	53cm	64cm
N =	35cm	31cm
W =	10cm	90cm

Canid juv. radius

Soil type= B
Dip=1°SW
Excavator initials and date

P23-1 = Project 23-Box 1
B1/L2 = grid B1/level 25cm-50cm

Px = Proximal end is 53cm below datum, 35cm from the south grid axis and 10cm from the east axis
Dt = Distal end is 64cm below datum, 31cm from the south axis and 90cm from the east axis

Soil type B= brown silt

Fig 3: Excavation data for a 1-point measurement in a field notebook and transcribed onto a 3" x 5" card template.

P23-5B D3/L7

BD = 20 cm
N = 10cm
W = 15cm

Rodent tooth

Soil type=C
Excavator initials and date

P23-5B = Project 23-Box 5B
D3/L7 = grid D3/level 150cm-175cm

20cm below datum
10cm from south gridline
15cm from east gridline

Soil type=clay

Specimens smaller than 1 cm, fragments, or unidentifiable smaller bones are placed into “bulk matrix bags” together with field data cards (P23-deposit # and grid/level information, excavator initials and date). Because they are known to contain fossils, the bulk matrix bags will be processed before the rest of the matrix samples. Keep associated fragments together in capsules or envelopes within the bag. Be sure to always place delicate bones into snap cap vials first and then into a clear plastic bag with their data. If a fossil is not in place, identify it and label it “not *in situ*”

Special cases

Each special case requires consultation by lab and collections staff to assess the best way of documenting each potentially unique occurrence.

- An articulated or associated skeleton should be extensively photographed. If, after consultation with Lab and collection staff this is removed as a small block, be sure to place a white pin in the top surface along the northern middle portion of the block so that it can be oriented later. Draw and annotate a diagram of the block and the elements that are visible on each surface before it is removed. Measure out the block as a 2-point measurement. Elements within the block that can be identified and measured without compromising the specimens should be also noted and can be measured using the 1 or 2-point measurement system but should not be removed from the block. Labeled copies of all photographs should be placed in the bag with the specimen. This is additional to downloading the photographs to the archive computer (see photography section). Articulated or semi-articulated specimens should be extracted in articulation and the sediments around the specimens stabilized to conserve the maximum amount of information derivable from the specimen.

- Bone masses with poorly preserved specimens (fragmented and/or less asphalt-impregnated) are more difficult to measure out individually. Measure out the extent of the mass with the 2-point system rather than the constituent bones. Place a white pin in the top surface along the northern middle portion of the block so that it can be oriented later. Photograph in situ specimens, print and label images and place them in the bag with the specimens.

- As instructed by Lab and collections staff, and depending on their nature and frequency, dermal ossicles and pockets of plant, shell or insect material should either be measured out as a small block with a 2-point measurement (same as above) or placed in pre-labeled bags with locality information for a specific 10cm square within the 1m x 1m grid.

Geologic Samples

Collect 15 cm by 15 cm soil samples of each sediment type from each grid and level for geologic analysis of composition, weathering, and grain size at a later date. Document each sample in your notebook and measure each one *in situ* as a block using the 2-point measurement system used for fossils and described above. Each sample should have a white pin placed on the upper surface in the northern middle portion of the sample so that later the sample can be oriented. Transcribe all data onto a 3" x 5" card and place in a clear plastic bag with the soil sample. A list of soil samples taken should be kept by the lead excavator for each grid and deposit.

When spits are completed, photograph and map each exposed wall and the floor.

Floor and Wall mapping

When mapping a wall or floor (Fig. 4, 5 and 6)

- Draw maps on graph paper with a scale of 3 squares = 10 cm.
- Keep the origin point (0, 0) in the southeast corner.
- Mark north arrow.
- Draw in empty spaces and the edge of the box when present.
- Mark asphalt and sediment contacts.
- Use standardized symbols for lithologies and other known sedimentary features. Also
- Indicate where fossils, cobbles, bone, shells and plants masses are located (Fig 4).

Figure 4: Standard symbols used in mapping each grid's floor and wall

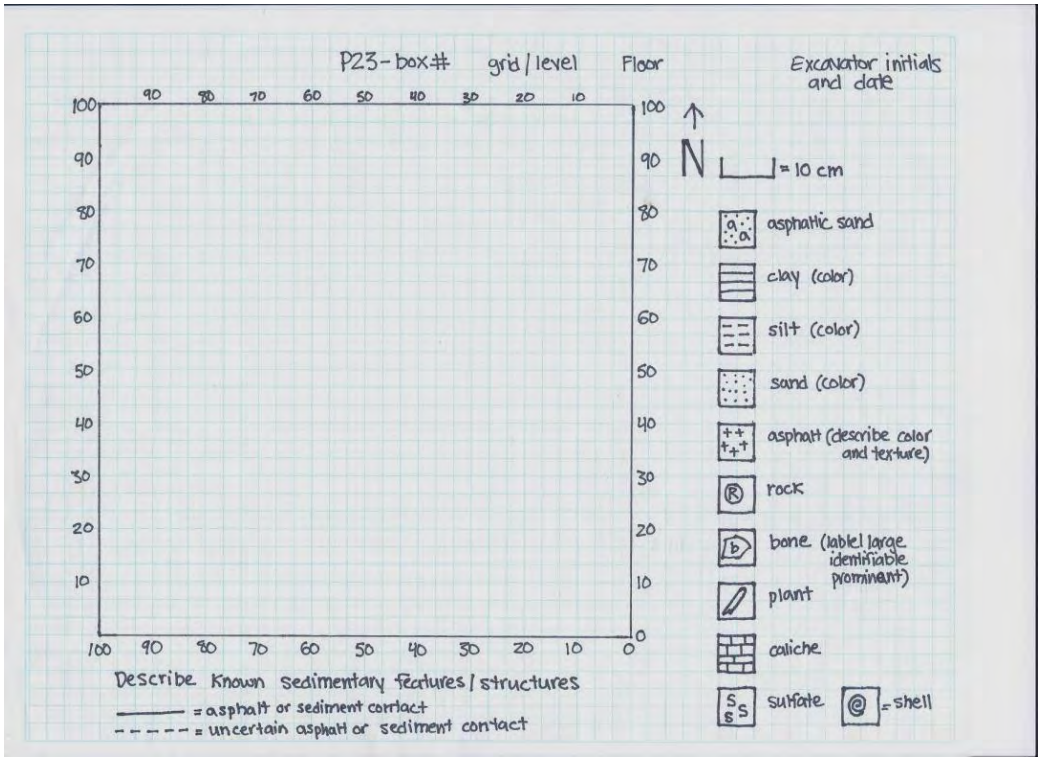


Figure 5: Sample drawing of the floor of grid C3/L3 of box 14

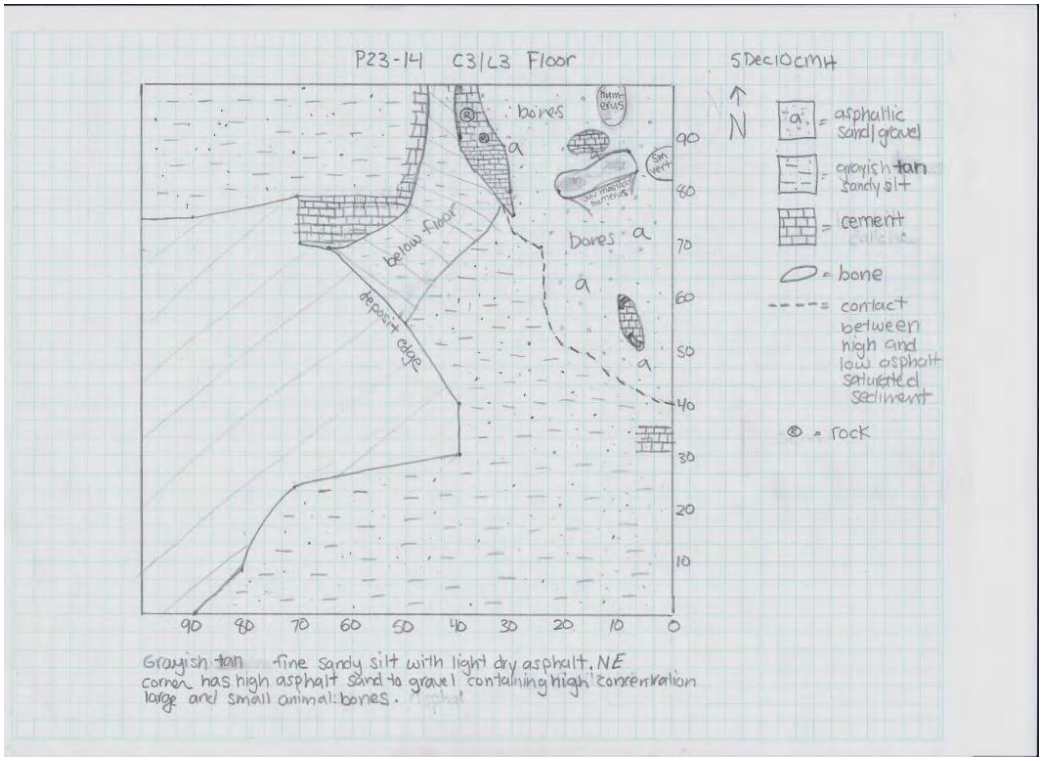
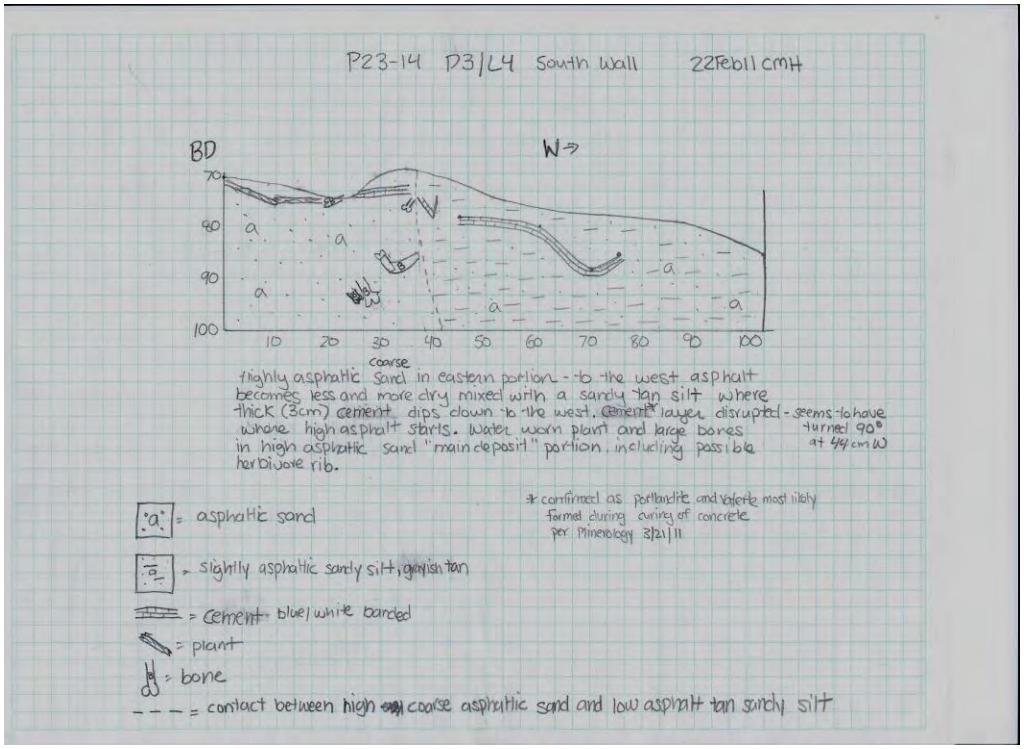


Figure 6: sample drawing of the south wall of grid D3/L4 of box 14



Photography

Photo documentation and the labeling of downloaded images are very important. In the field photo logbook provided, record all the images that you take. This is shared by everyone and has columns for name of photographer, date, box #, grid and level, orientation of image, file number and special notes. Take a photograph whenever it might be useful for lab staff and researchers to see how a specimen was oriented in the ground, broken in a certain way or for any other unusual circumstance. Always photograph the floor and each wall of a grid before starting a new one.

<u>When photographing a specimen:</u>

Write the project name, box #, grid and level #'s, orientation, description of what you are photographing, the date and excavator initials on a 3"x 5" card with a black sharpie and place next to the object you are photographing.

For example:

P23-14 C3/L3	
Skull , ventral view	↑
	N
Excavator initials and date	

Print the photo as soon as possible and place it in the bag with the specimen. This may not be necessary for all the images of *in situ* specimens, so make a judgment call here.

<u>When photographing a floor or wall:</u>

- Write the project name, box #, grid and level #'s, orientation, the date and excavator initials on a 3"x 5" card with a black sharpie.

For example:

P23-14 C3/L3	
South Wall	↑
Excavator initials and date	N

- Place meter sticks in north and west orientation.
- Take a picture of each exposed wall and floor with the card and meter sticks in frame so as not to cover up any significant features and so the information on the card can be used to tag the photograph in the database.

Download all photographic images to the archive computer and place in the folder "to be sorted" under My Pictures\Project23 under the project 23 login. Rename your files appropriately so that they can be retrieved, tagged in Adobe Bridge and added to the EMu database. This is where the photo logbook will be useful. Each image should be named with the following conventions in order to be searchable in the database:

1. If it is a photo of a grid and a level then name it P23-1 B1 L2 where P23-1 refers to the Box number, B1 refers to the grid and L2 refers to the level. Notice a space between P23-1 and B1 and also between B1 and L2. This is on purpose and helps the database find the files. If there is no level just enter the information that you have.
2. If it is just an image of several grids just name it with the box number e.g. P23-14.

3. If it is a photo of a possible associated skeleton or a specimen in the ground include some more information such as what it might be e.g. P23-1 B1 L2 bird skeleton

Data entry of field notes

Write field notes in pre-bound notebooks. For each day compile a daily journal that includes notes on the weather, who was working, general work done that day, grids being worked on, etc. as well as geological information on open grids and specimen measurements. On a weekly basis all excavation notes, photographs and grid drawings will be captured electronically.

- Type journal entries into word documents with each day saved as a new file. The naming convention of the file should be "project yearmonthday initials" (e.g. P23 20090201 ABF). Within the word doc file at the top of the page type the initials of the excavator and the date. This serves as a search tool for the database. Save these to the flash drive that is provided. The Collections Manager will import these data into the database.

- Type specimen measurement data into a pre-prepared Excel spreadsheet and save to the flash drive provided. The Collections Manager will import these data into the database.

- The floor and wall drawings and photographs for each grid must be scanned and downloaded onto the archive computer at the Page Museum.

Matrix processing

There are two different ways that matrix from the excavation is processed. All asphaltic matrix from or adjacent to asphaltic bone concentrations needs to be processed with solvent in a vapor degreaser in order to release small bones and other plant, insect, invertebrate and vertebrate remains from the asphalt. After degreasing, the matrix is dried and dry screened to remove the clay-to-silt fraction. The remaining concentrate is sorted for microfossils under a microscope.

Samples of other (apparently non-fossiliferous) non-asphaltic sediments are screen-washed in water on 20 mesh screens and the concentrates are sorted for microfossils under a microscope. If there is no evidence of microfossils in the sample, the remaining material from that facies of that grid may be discarded (except for the 15 cm archival cube that was collected during excavation of the grid).

Laboratory Protocols

All material sent to the Lab for cleaning is triaged to resolve appropriate methodology, account for the skill level of available lab workers, and for research and collection priorities. An n-propyl bromide solvent is used to remove asphalt from the bones. Trade names for this solvent include Lenium, GenTech and EcoMax. Elmers white glue is used to repair broken bones and Acryloid (Paraloid) B-72 (Ethyl methacrylate copolymer) is occasionally used to consolidate dry bones.

Prioritize new specimens

1. For cleaning method
    - Sort and store by locality, grid, depth.
    - Sub-sort by best cleaning method: ultrasonic, soaking, or hand prep.
2. For significance
    - Rareness of taxon
    - Incomplete section of previously excavated specimen
    - New element of known individual skeleton from that locality
    - Unrecognizable to element or taxon.

Ultrasonic cleaning

Ultrasonic cleaning can be used for the following types of specimens:

- Complete or sturdy bones measured in individually (examples include *Smilodon* or *Canis dirus* carpals, tarsals, phalanges)
- Complete or mostly intact avian bones. The feasibility of processing other fragile bones, including broken small bones, should be assessed by the person who will be re-assembling them.
- Shells, insects, and concentrations of mollusks or insects from within known locality with measurements.

Steps to be followed

1. Place each specimen or sample in a baby food-sized jar with all contents of envelope.
2. With pencil, number the envelope and the top of the jar (on masking tape).
3. Prepare six jars as above.
4. Fill with solvent to an equal level in all jars.
5. Place in ultrasonic tank and fill with water up to the level of solvent in jars.
6. Buzz for fifteen minutes.
7. Strain contents of jar through 20 mesh screen on top of pitcher.
8. Rinse with clean solvent.
9. Check specimen or sample for matrix, detail with brush or skewer as needed.
10. Place each specimen or sample on separate paper tray, with flipped out matrix, data, and masking tape number from jar top.
11. Let dry over night, polish, and sort matrix.
12. Solvent that was strained into pitcher can be reused for setting up next batch of six jars if not too dirty.

Pre-soaking

- Large bone masses: If there is no single identifiable bone, put it in a large jar or a bucket with more solvent than volume of mass. Mass may require a second rinse if solvent becomes too thick with asphalt.
- Unusually hard matrix: Put all of the specimen and loose matrix in jar with data taped to lid.
- Broken *in situ* specimens: If matrix is in internal structure of bone, soak and rinse.

Hand preparation

- Individual specimens with positional data include vertebrae, ribs, long bones, etc. that are relatively complete.

Steps to be followed

1. Rubber stamp, date, and write the signature of preparator on back of data card.
2. Empty all contents of plastic bag or envelope into stainless steel pan.
3. Wet specimen with solvent from squirt bottle.
4. Scrub with tooth brush, dipped in small jar of solvent (n-propyl bromide)
5. DISOLVE MATRIX, DO NOT PUSH OFF WITH BRUSH OR OTHER TOOL.
6. Wood skewers or sticks can be used to loosen or nudge matrix off (If the stick breaks, the matrix is not soft enough yet)
7. When specimens appear clean, rinse thoroughly with solvent and immediately hold in front of vent for quick dry. Matrix still adhering to specimen will be black or darker than bone.
8. DENTAL TOOLS ARE TO BE USED FOR THE REMOVAL OF VISIBLE ROCKS ONLY!
9. When the entire matrix has been removed, place specimen, data card and jarred contents of metal pan matrix on paper tray lined with paper towels to dry.
10. DO NOT GLUE UNTIL ALL MATRIX IS SORTED.

- Multiple pieces of one specimen.
    1. Should be prepared by one person but treated as separate projects.
    2. Finished elements held until all parts are done.
    3. If glued, the part that goes with which data should be recorded in pencil on back of data card.
- Possibly associated elements of one individual
    1. Treat as above but can be cleaned by multiple preparators.
    2. Label for possible association with a known skeleton or a single other element. [more specific].

- Skulls

    1. External surfaces should be freed of larger associated specimens and gross matrix clumps using toothbrushes and solvent.
    2. DO NOT POKE IN EARS, NOSE OR BRAIN CASE.
    3. At the end of session, immerse in solvent in sealable bucket with copy of data on lid.
    4. Soak for two or three days.
    5. Hold skull over bucket and flush with clean solvent to remove loose matrix.
    6. Working in metal tray, nudge with skewers to loosen softened matrix and rinse off.
    7. Add removed matrix back into bucket.
    8. Replace skull in bucket at end of session.
    9. If the tympanic bulla is intact, nudge and rinse ear region over metal pan and process matrix separately for ear ossicles.
    10. When brain case and nasal region are mostly free of matrix, skull will not need to continue to soak and can dry between sessions.
    11. Strain contents of bucket.

Polishing

- When specimen has dried overnight, go over small sections of solid bone with a dampened **soft cloth**, then go over the same space with a dry cloth. Exposed cancellous tissue should be <u>blotted</u> with a damp rag. Not rubbed!
- If there are small spaces that cannot be reached with a rag use a pipe cleaner or Q-tip. Dip it in solvent and blot off some liquid before applying. IF THE SPECIMEN GETS DARKER OR BEGINS TO LEAK ASPHALT, IT IS TOO WET. Put aside for a day and begin again.

Processing Matrix from Individual specimens

- Processing sediment that has been soaked in solvent. (most common situation)

1. Pour contents through 20 mesh screen sitting on funnel into carboy.
2. Rinse with clean solvent.
3. With one motion, flip contents onto paper toweling on a paper tray.
4. Make sure everything is out of jar and out of screen.
5. Place tray near vent to dry.
6. When completely dry, sift and put in appropriate sized jar for later sorting.
7. If matrix appears clumpy after sifting, re-soak in solvent.
8. If matrix appears dirty with clay or silt after sifting, soak in hot water with a small amount (1 tsp) of detergent)

- Processing soaked in water sediment.
    1. Pour contents of jar through 20 mesh screen in a basin in the sink.
    2. Agitate the screen in clean warm water.
    3. Flip contents onto newspaper and leave screen on top to thoroughly dry.

Microfossil sorting

When the matrix from an individual specimen is clean and dry it is ready for microfossil sorting.

Take the entire project (specimen, data and matrix) to a sorting station.

Do not pour out more matrix than you have time to sort. Only 1½ to 2 Tbs. may take several hours.

1. Sifting
    - Always sift matrix before sorting even if it was sifted before putting in a jar.
    - Sift through a designated 20 mesh screen with 2 inch sides.
    - Shake back and forth, (not up and down) over a paper towel.

- Empty contents of screen onto a clean piece of white sorting paper and shape matrix into a pile.
- Discard the fine soil that went through the sifter.

2. Sorting
   - Examine matrix, several grains at a time, by moving it across the paper with a fine paintbrush.
   - Create a “discard pile” for sediment and oxidized asphalt.
   - Move bone, plant, shell and insect fossils into distinct piles on one side of the paper.
   - Create a “questions” pile for indeterminate fossils.
   - When the entire matrix has been categorized, review fossils and “discard pile”.
   - Have a staff person double check sorting.
   - It may be necessary to examine some specimens under the microscope.
3. Temporary packaging of categories
   a. <u>If all of the matrix of a individual project is sorted</u>
      - Review bone and separate into three categories:
      - 1. Broken pieces of the main bone (put aside for possible gluing);
      - 2. Identifiable bones (put into individual capsules or plastic containers);
      - 3. Unidentifiable bone fragments (put into one capsule or larger container).
      - Review plant material (separate seeds and put into capsule) and put into glass vial.
      - Review insect and put into one capsule.
      - Review shell and put into one capsule.

   b. <u>If only a portion of the matrix is sorted</u>
      - Place complete identifiable bones in capsules.
      - Place all bone fragments, plant, insect and shell into their own labeled containers.

When a large project is complete, all of the bone fragments must be reviewed and sorted to the above categories. It will be necessary to look at the small bone fragments under the microscope to determine the final number of Identifiable bones.

Gluing

DO NOT GLUE UNTIL ALL MATRIX REMOVAL, POLISHING AND MATRIX SORTING IS DONE.

Use white glue for reconstructing most bones because it is reversible with warm water.

If a specimen is shattered, first reconstruct it holding the pieces together with masking tape. Do not glue until all of the fragments have been tested in available holes. Determine where all the major fragments go first and then glue from one direction. Have small strips of masking tape cut before the glue is applied. Apply glue with stick or dental pick in small amounts to the broken edges. Tape glued pieces in place and/or balance in sandbox for drying. Allow large pieces to dry overnight.

Envelopes for finished projects

A copy of the original data must be made for every identifiable bone and one copy each for vial containing plant, insect, shell and unidentifiable bone. A rubber stamp template for “Found in assoc. w/” data is stamped on the face of a #5 ½ coin envelope. An exact copy of the original is then filled in. Note: Do not change the tentative field identification that is part of the original data even if it is wrong. The back of the envelope is stamped with a template for the scientific identification. If an “assoc. w/ bone “or the plant fragment is too large to fit inside an envelope, it should be put in a small plastic bag with an envelope. The envelopes are stapled shut and the entire project is put in one large plastic bag.

The finished bag should include the main bone, fragments of the main bone that could not be glued on, the original data and all the “associated with” specimens.

Pre-Curation

After the specimens have been cleaned, the microfossils sorted and put into individual capsules and individual envelopes have been made for each specimen with all of the provenance data written on each envelope (see laboratory procedures) they are sent to the curation station. Identification of all of the fossils takes place near the comparative collection in the lab in order to facilitate identification. The principal measured out specimen with its original 3”x 5” field data card is identified first. The card is stamped on the back with a custom stamp with Scientific Name, Element, Identifier, and Notes. The specimen is identified as much as possible but identifications necessarily range from class identification such as Aves to genus and species. The identifier also describes the element according to an established list of bone terminology. Then each of the microfossils associated with that main bone are also identified in the same manner. After all of the microfossils that accompany that main specimen are identified, they are placed in a clear plastic bag with a twist tie and sent to the cataloging station. Below are detailed step-by-step instructions on how to identify specimens.

For each specimen follow the steps below in the order given.

1. Choose a specimen from the ‘to be identified’ box. If several envelopes are fastened together you must keep them together and complete the work on all of them.
2. Check the bone to see if it is clean and that all broken pieces have been glued if possible. If the bone is not clean then do not proceed with that one and send it back to the lab
3. Identify the bone using the reference collection and write the identification on the back of the envelope or card in pencil. Only use paperclips to join envelopes together.
4. Check to see if the main identified bone is in the original envelope or with the original 3” x 5” card.
5. Send identified specimen to be cataloged

- Always put the comparative bone back in the box it came from!
- if you find a ‘found in association with’ envelope which is not still with its original envelope, find the original envelope and fasten them together
- put all tools away and empty bags and containers

Associated groups

If there is more than one specimen in an envelope the principal bone for which the measurements were recorded should remain in the original envelope. The other specimens should be treated as follows;

- all plants in one envelope
- all insects in one envelope
- all shells in one envelope
- each identifiable bone in a separate envelope, along with any of its broken pieces
- all unidentifiable bone in one envelope
- all difficult to identify bones in one envelope

Use envelopes stamped “Found in Association with” and make a complete copy of the information from the original envelope on each one.

Identifiable and Unidentifiable Specimens

Identifiable bone characteristics:

- presence of an articular surface
- cross-sectional shape
- foramina
- distinctive curves
- relative size combined with other features

Bones are rated in three different grades of how easy they are to identify

- identifiable
- difficult to identify
- unidentifiable

Double check all identifications

Identification of Specimens

The back of each envelope is marked with a custom stamp (stamp in bold below). Identifications are printed in pencil. An example below

- **Scientific name:** *Smilodon* (use both genus and species if more than one species)
- **Element:** prox. rt. tibia
- **Special Notes:** Pathology
- **Identifier:** ABF

1. Avoid using terms such as “frag” or “portion”. Use prox. or dist. if appropriate.
2. You must not abbreviate scientific names but you may use abbreviations for the elements as long as they are the ones listed in this manual.
3. When identifying skulls and mandibles always list the teeth that are present and if they are erupting, fully erupted or worn.
4. The format of the identification is very important. Do not invert the word sequence e.g. prox. rt. rib is correct but rib, rt. prox. is not.
5. For incomplete bones name both the bone e.g. XIII thoracic vert and either the represented part e.g. centrum or the missing portion, e.g., w/o right transverse process. Make sure that the identity of the bone and its qualifier are both listed.
6. Be specific about the identity of any represented epiphysis, e.g., proximal or distal epiphysis of a limb bone, or head epiph of lt femur or ant cent epiph of thoracic vert.

7. Ordinal numbers of ribs, vertebrae, metapodials and digits are written in Roman numerals e.g. rt. II rib or XII thoracic vert

8. Number of phalanges and teeth are written in Arabic numerals e.g. 2nd phalanx or rt. M1. Note that abbreviations for upper molars are written in upper case letters (I, C, P, M) whereas those for lower teeth are written in lower case (i, c, p, m). For clarity of handwritten entries, put a line below the number for upper teeth (e.g. P4/) and a line above the number for lower teeth (e.g. $\overline{\text{m}/1}$).

9. The side, either left or right comes before a number e.g. rt. II metatarsal

10. There are two special cases:

    - Phalanges that can be precisely named include sloth phalanges, carnivore 'thumb' phalanges and bird carpal phalanges e.g. rt. 1st carpal phalanx, digit I

    - Teeth which can be specifically named e.g. lt. p2

11. Skull fragments: if the facial or cranial region of the skull is mostly intact this can be recorded as 'ant' or 'post' skull. However if there are only a few fragments the individual bones are named e.g. basisphenoid, occipital and rt. temporal or indicate if some parts are missing, e.g. post. skull w/o rt. occipital.

12. Juvenile specimens: it is important to note if an epiphysis is missing as the order of ephiphyseal fusion is used to detect the age of an animal. Also mark "juv." in the special notes section of the identification.

Abbreviations chart for elements

Left: lt.	Posterior: post.	With: w/
Right: rt.	Ventral: vent.	Without: w/o
Proximal: prox.	Dorsal: dors.	Juvenile: juv.
Distal: dist.	Medial: med.	Pathological: path.
Anterior: ant.	Lateral: lat.	Unidentifiable: unid.

Difficult to identify: diff.

Zygomatic: zygo.

Epiphysis: epiph.

Diaphysis: diaph.

Tuberosity: tub.

Trochanter: troch.

Articular: artic.

Vertebra: vert.

Transverse: trans.

Process: proc.

Centrum: cent.

Prezygapophysis: prezyg.

Postzygapophysis: postzyg.

Incisor: I (upper) or i (lower)

Canine: C (upper) or c (lower)

Premolar: P (upper) or p (lower)

Molar: M (upper) or m (lower)

Deciduous: D

Dental formulae for Rancho La Brea fauna

Dental formulae are a short hand way of indicating the number and kind of teeth that are present. The upper jaw is indicated first and the teeth are in order: incisor, canine, premolar, molar.

Ruminant artiodactyls

0,0,3,3 / 3,1,3,3

(Antilocapra, *Bison, Capromeryx, Odocoileus)*

Camelids

Camelops: 1,1,2,3 / 3,1,1,3

Hemiauchenia: 1,1,2,3 / 3,1,1-3,3

Peccaries

Platygonus: 3,1,4,3 / 3,1,4,3

Horses

Equus: 3,1,3,3 / 3,1,3,3

Tapirs

Tapirus: 3,1,4,3 / 3,1,4,3

Dogs and bears

3,1,4,2 / 3,1,4,3

(Arctodus, Canis dirus, Canis latrans, Urocyon, Ursus)

Cats

3,1,3,1 / 3,1,2,1

(Felis atrox: Felis concolor: Lynx)

Sabertoothed cats

Smilodon: 3,1,2,1 / 3,1,1,1

Skunks, weasels, & badgers

3,1,3,1 / 3,1,3,2

(Mephitis, Mustela, Spilogale, Taxidea)

Hares and rabbits

2,0,3,3 / 1,0,2,3

(Lepus: Sylvilagus)

Shrews

Notiosorex: 3,1,1,3 / 2,0,1,3

Sorex: 3,1,3,3 / 1,1,1,3

Wood rat, grasshopper mice, deer mice, & harvest mice

1,0,0,3 / 1,0,0,3

(Neotoma: Onychomys: Peromyscus: Reithrodontomys)

Ground squirrel

Otospermophilus: 1,0,2,3 / 1,0,1,3

Pocket mice, gophers, and kangaroo rats

1,0,1,3 / 1,0,1,3

(Perognathus: Thomomys, Dipodomys)

Proboscideans

1,0,3,3/0,0,3,3

(*Mammuthus, Mammut*)

Special Cases

Ground sloths (cheek teeth only)

Paramylodon: 4-5 / 4

Nothrotheriops: 4 /3

Bone terminology

Skull

- Alisphenoid
- Basioccipital
- Basisphenoid
- Frontal
- Interparietal
- Lacrimal
- Jugal
- Mastoid
- Maxilla
- Nasal
- Occipital
- Occipital condyle
- Palatine
- Paramastoid process
- Paraoccipital
- Parietal
- Postglenoid process
- Postorbital process
- Premaxilla
- Presphenoid
- Pterygoid
- Squamosal
- Temporal

- Tympanic bulla
- Vomer

Auditory ossicles

- Malleus
- Incus
- Stapes

Mandible

- Angular process
- Coronoid
- Articular condyle
- Symphysis

Hyoid

- Basihyal
- Epihyal
- Thyrohyal
- Ceratohyal
- Stylohyal

Teeth

- Permanent upper and lower. Upper denoted by upper case abbreviation and lower by lower case abbreviation.
    - Incisor – I (upper) or i (lower)
    - Canine – C (upper) or c (lower
    - Premolar – P (upper) or p (lower)
    - Molar – M (upper) or m (lower)
- Deciduous upper and lower. Upper denoted by upper case abbreviation and lower by lower case abbreviation.
    - Incisor – DI (upper) or di (lower)
    - Canine – DC (upper or dc (lower)
    - Premolar –DP (upper) or dp (lower)

Vertebra (e)

- Atlas
- Axis
- Caudal
- Centrum
- Cervical
- Lumbar
- Neural spine
- Odontoid process
- Postzygapophysis
- Prezygapohysis
- Sacral
- Sacrum
- Thoracic
- Transverse process
- Wing

Ribs

- Capitulum
- Shaft
- Tuberculum

Sternum

- Manubrium
- Sternebra
- Xiphisternum

Scapula

- Acromium process
- Coracoid process
- Glenoid fossa
- Metacromion
- Spine
- Vertebral border

Humerus

- Deltoid tuberosity
- Entepicondylar foramen
- Greater tuberosity
- Head
- Lateral condyle
- Lateral epicondyle
- Lesser tuberosity
- Medial condyle
- Medial epicondyle

Radius

- Styloid process
- Radial tuberosity

Ulna

- Coronoid process
- Olecranon
- Semilunar notch
- Styloid process
- Radial notch

Carpals

- Cuneiform
- Trapezium
- Lunar
- Magnum
- Trapezoid
- Central
- Pisiform
- Unciform
- Radial sesamoid
- Scapholunar
- Scaphoid

Metacarpal

- Plantar tubercle

Sesamoids

- Proximal sesamoid
- Distal sesamoid

Phalanges

- 1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th}
- Carpal
- Tarsal

Inominate

- Acetabulum
- Iliac crest
- Ilium

- Ischial tuberosity
- Ischium
- Pubic symphysis
- Pubis

Fabella

- Lateral
- Medial

Femur

- Greater trochanter
- Head
- Lateral condyle
- Lateral epicondyle
- Lesser trochanter
- Medial condyle
- Medial epicondyle
- Neck
- Patellar track
- Third trochanter

Patella

Tibia

- Lateral condyle
- Medial condyle
- Medial malleolus
- Tibial tuberosity

Fibula

- Head
- Lateral malleolus
- Distal fibula (herbivore)

Tarsals

- Astragalus
- Calcaneum
- Cuboid
- Ectocuneiform
- Entocuneiform
- Mesocuneiform
- Navicular
- Sustentaculum
- Naviculocuboid

- Mesoectocuneiform

Metatarsal

- Plantar tubercle

Non-articulating bones

- Baculum (male)
- Dermal ossicle (sloth)
- Sclerotic ossicles (birds and lizards)
- Falciform (sloth)
- Tracheal ring (birds)
- Dermal scale (lizard)

Variations for juveniles

- Diaphysis – shaft of juvenile long bone
- Epiphysis – the unfused articular surfaces of juvenile bone

Numbers

- Ribs – roman numerals
- Metapodials – roman numerals
- Digits – roman numerals
- Phalanges – Arabic numerals—1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th}, terminal

Curation

In order to curate specimens into the collections of the George C. Page Museum, all of the above-mentioned steps for excavation, preparation, and identification must be followed. The field number, orientation measurements, and pertinent field notes and photographs are all integral parts of the specimen information and must be readily available. Each specimen will receive an individual catalog number that is first recorded in an archival catalog book and then entered into the electronic database EMu, which is stored on the Natural History Museum's server. Once cataloged, each specimen is stored taxonomically in the collections. Specimens are housed in metal or wooden drawers within standard metal Lane cabinets. On average each drawer holds about seventy five specimens and each cabinet contains nine drawers.

Based on a typical deposit for Project 23, a 1m X 1m x 25cm grid yields approximately 1000 macro-vertebrate specimens per one (1) cubic meter. Additionally each cubic meter can have up to 2000 micro-vertebrate fossils. A typical conical shaped deposit can be up to 30 cubic meters.

Appendix A

Table 1. Anatomical codes used for orienting specimens in the 2- and 3-point measurement system.

A -- Anterior	Px -- Proximal
P -- Posterior	Dt -- Distal
M -- Medial	Lt -- Left
L -- Lateral	Rt -- Right
D -- Dorsal	R -- Root
V -- Ventral	C -- Crown

Table 2. Anatomical codes of osteologic points used for orienting specimens in the 3-point measurement system.

MAMMALS

Skull:
- AP - Anterior Premaxillae
- OC - Occipital Condyles
- POP- Postorbital Process (Rt or Lt)

Vertebra:
- AC - Anterior Centrum
- ANS- Anterior Neural Spine
- NS - Neural Spine
- PC - Posterior Centrum
- TP - Transverse Process (Rt and Lt)

Scapula:
- AP - Acromion Process
- CP - Coracoid Process
- D - Dorsal
- PA - Posterior Angle
- V - Ventral

Radius:
- Dt - Distal
- Px - Proximal
- RT - Radial Tuberosity

Innominate:
- IC - Iliac Crest
- IS - Ischial Tuberosity
- PU - Anterior Pubic Symphysis

Tibia:
- Dt - Distal
- Px - Proximal
- TT - Tibial Tuberosity

Calcaneus:
- Dt - Distal
- Px - Proximal
- S - Sustentaculum

Mandible;
- A - Anterior
- CP - Coronoid Process
- P - Posterior

Rib:
- Dt - Distal
- GC - Greatest Curve
- Px - Proximal
- Tub- Tuberculum

Humerus;
- Dt - Distal
- LEP- Lateral Epicondyle
- MEP- Medial Epicondyle
- Px - Proximal

Ulna:
- CP - Coronoid Process
- Dt - Distal
- Px - Proximal

Femur:
- Dt - Distal
- FC - Fovea Capitis
- Px - Proximal

Fibula;
- Dt - Distal
- LM - Lateral Malleolus
- Px - Proximal

Metapodial:
- Dt - Distal
- PT - Plantar Tubercle
- Px - Proximal

BIRDS

Skull:
- Same as Mammals

Vertebra:
- NS - Neural Spine
- TP - Transverse Process (Rt and Lt)

Mandible:
- Same as Mammals

Sternum:
- A - Anterior
- CA - Carinal Apex
- P - Posterior





WESTSIDE SUBWAY EXTENSION

Project No. PS-4350-2000

Attachment 3

Wilshire / Fairfax Station Construction Methodology

Task No. 7.04.__

Prepared for:

Metro

Prepared by:

PARSONS BRINCKERHOFF

444 South Flower Street
Suite 3700
Los Angeles, California 90071

Review Copy		
	Date	Initials
Originator	28-Jul-11	LBC
Checker		
Back checker		
Verified by		

July 28, 2011

1.0 BACKGROUND

The Wilshire/Fairfax station box excavation will be approximately 860-ft long, 70-ft wide, and 60 to 70-ft below street level. The station extends beneath the intersection of Wilshire Boulevard and Fairfax Avenue - see Figure 1-1. The station entrance is planned to be located near the northwest corner of Wilshire and Fairfax between the 99 Cent Only Store and Johnie's Coffee Shop. Two alternative entrances under consideration; the south side of Wilshire between South Orange Grove Avenue and South Ogden Drive and; within the LACMA building at the north east corner of Fairfax Avenue and Wilshire Boulevard (May Company). A construction staging and materials laydown area is planned for the south side of Wilshire between South Orange Grove Avenue and South Ogden drive. Side access shafts will be located at the construction staging and materials laydown area and at the location selected for the station portal. The side access shafts will be excavated to the full depth of the station. The station box will be excavated by the cut and cover method and most probably use a temporary shoring system to support the excavation and decking system during construction, though a permanent shoring system that would be integrated into the permanent station structure could also be used. The side access shafts will be excavated by the open cut method and would most probably use the same type of shoring system that is used on the station box.

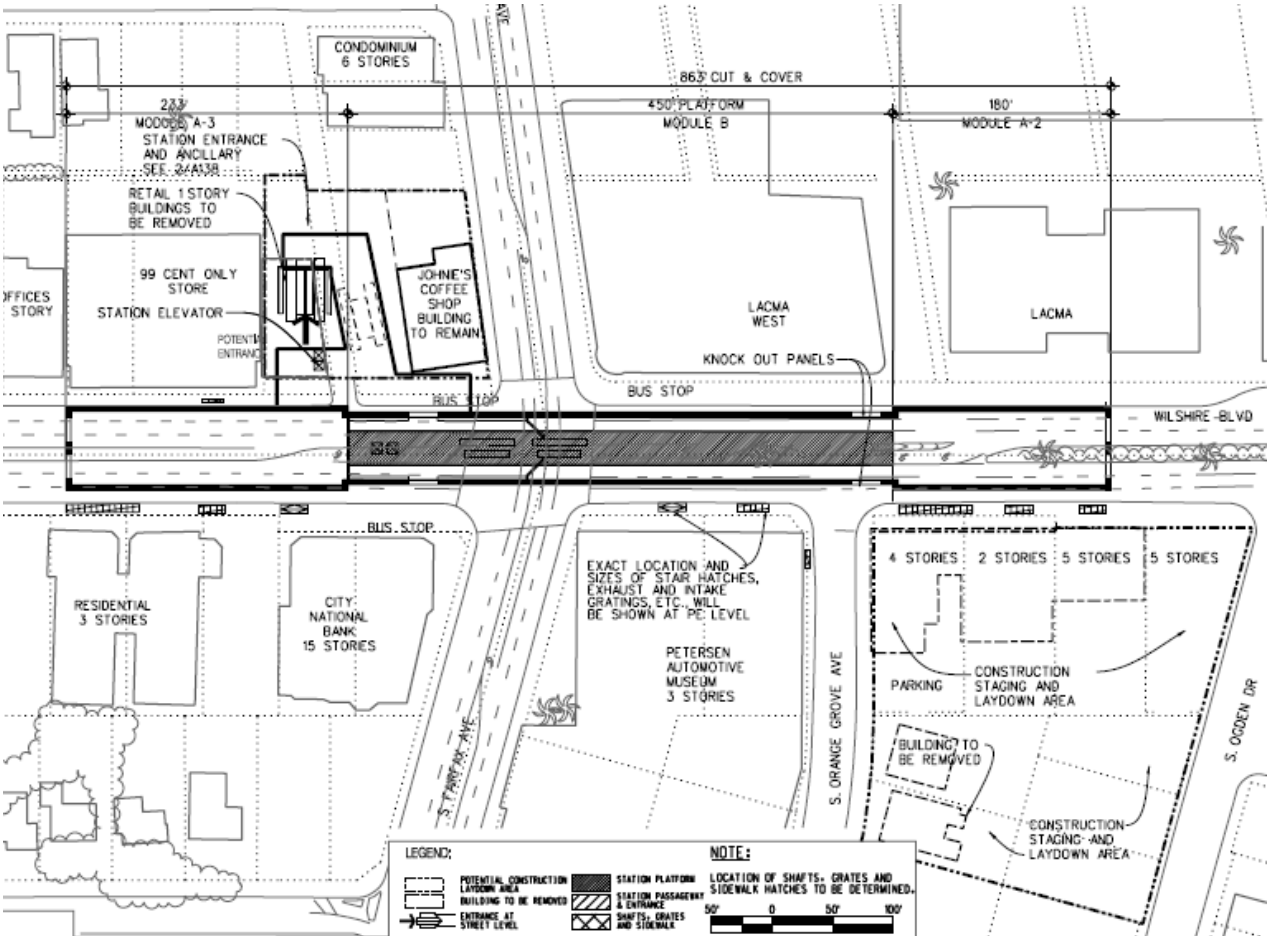


Figure 1-1: Wilshire/Fairfax Station Box

2.0 GEOLOGIC CONDITIONS

The geologic conditions in this region consist of soft alluvium deposits of sands, silty sand, clayey sand, gravely sand, silty clay, clayey silt, shell fragments, soil saturated with crude oil, and asphaltic (tar) sands. Several borings were taken within the station area; see Figures 2-1 through 2-4. Core G-118 (Figure 2-1) was taken east of the station box between La Brea and Fairfax, the sample at 82-ft below ground surface (bgs) consists of silty clay/clayey silt with traces of crude oil. The portion of ring sample G-123 shown in Figure 2-2 is located just east of Fairfax at 60-ft bgs and consists of predominantly fine grained soil with channels of medium grained sand saturated with crude oil. Heavy tar was reported in G-123 from 38 – 110-ft bgs. Core sample G-124 (Figures 2-3 and 2-4) was obtained just west of Fairfax by the Standard Penetration Test (SPT). The sample pictured was taken from 80-ft bgs and consists of medium to coarse grained sand saturated with tar. Heavy tar was reported in G-124 from 45 – 105-ft bgs. The consistency of tar in this region ranges from dry and hard to wet and oozing. This reach is also known to contain pockets of pressurized gases and dissolved gases in groundwater. The groundwater conditions are measured to have a water table depth of 74-ft bgs, and zones of perched water between 10 – 50-ft bgs. Since the station box invert depth will be located between 60 – 70-ft bgs, perched water can be anticipated during excavation.

Figure 2-1 Core Sample G-118

Figure 2-2 Core Sample G-123

Sample G-124 (1 of 2)

Figure 2-3 Core

Core Sample G-124 (2 of 2)

Figure 2-4

2.1 Gassy Ground Conditions

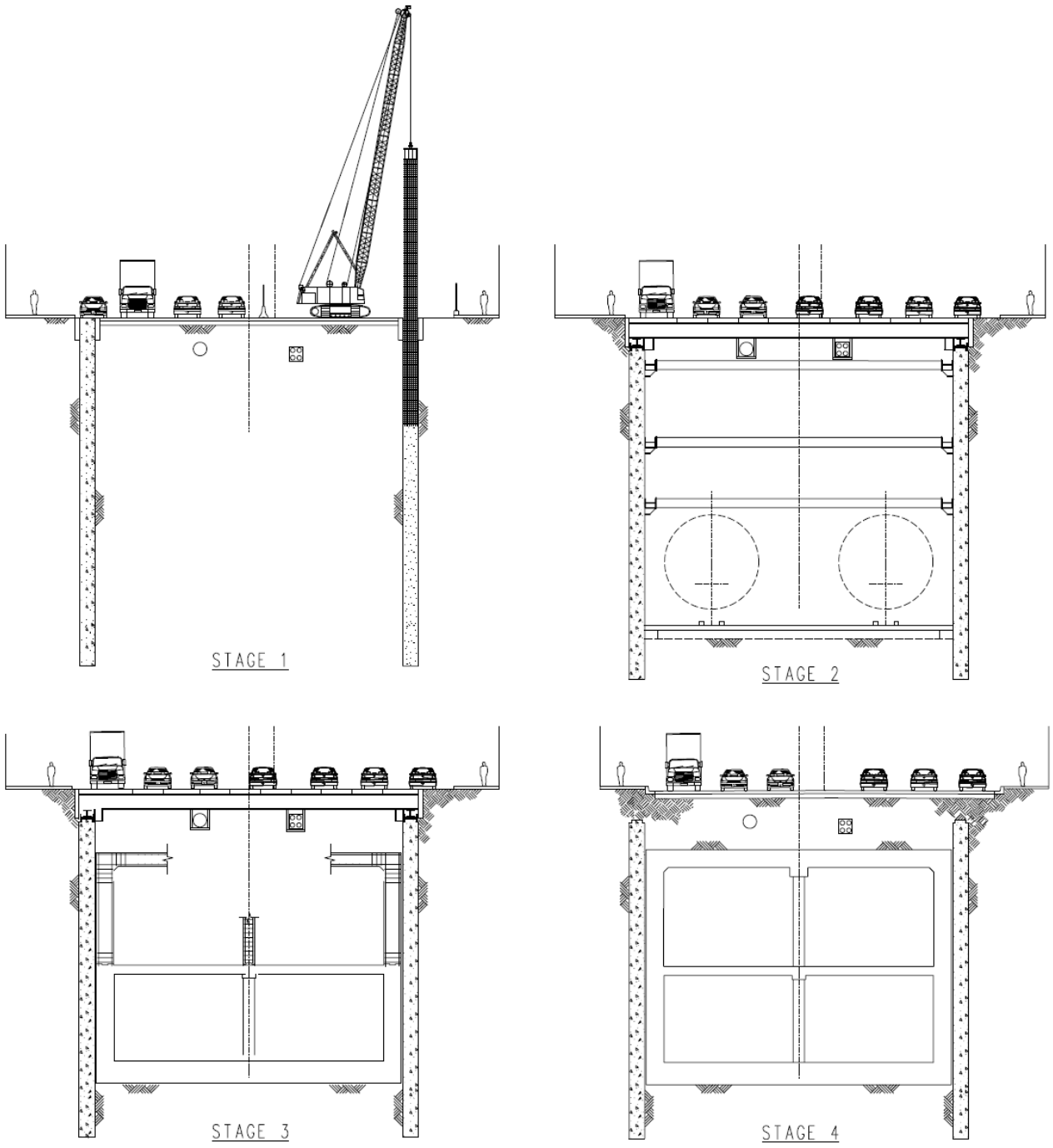
The gases present in the soils of this region are methane (CH_4) and hydrogen sulfide (H_2S). They are likely to occur in pressurized pockets as well as in a dissolved state in groundwater. These gases can seep into tunnels and other excavations through soil and also through discontinuities (fractures, faults, etc.) in bedrock. CH_4 and H_2S are considered hazardous gases due to their explosive properties. H_2S is also highly toxic. Being heavier than air, it tends to accumulate at the bottom of poorly ventilated spaces. Although very pungent at first, it quickly deadens the sense of smell, so potential victims may be unaware of its presence. CH_4 is extremely flammable and may form explosive mixtures with air. It is odorless and lighter than air, and it dissipates quickly once at the surface causing no threat of explosion. However, in 1985 an explosion occurred at the Ross Dress-for-Less in the Fairfax area which resulted in injuries requiring hospital treatment of twenty-three people. The explosion took place in a poorly ventilated ancillary room of the building where CH_4 gas had accumulated. There was no gas detection equipment at this location.

3.0 EXCAVATION SUPPORT TECHNIQUES

Cut and cover excavation is the preferred technique to excavate the station box structure, although cut and cover still leads to lengthy occupation of streets with noise disturbances and interrupted access. Traffic interruptions can be mitigated by performing most excavation below a temporary decking system constructed at an early stage.

Figure 3-1: Roadway Operations Restored on Temporary Decking System

Figure 3-2: Open Cut Excavation



Shoring the excavation walls and providing structural support beneath the decking system can be accomplished through a variety of excavation support techniques. The following sections describe several excavation support methods, including: soldier pile and lagging, slurry walls, tangent piles, secant piles, and deep soil mix walls.

Figure 3-3 Initial Excavation at Soto Station

Figure 3-4 Precast Concrete Decking

Figure 3-5: Installation of Decking (1 of 2)

Figure 3-6: Installation of Decking (2 of 2)

3.1 Soldier Piles and Lagging

Soldier pile and lagging walls are a type of shoring system typically constructed along the perimeter of excavation areas to hold back the soil around the excavation. This support system consists of installing soldier piles (vertical structural steel members) at regular intervals and placing lagging in between the piles to form the retaining structure. Pre-augering is necessary for installation of the soldier piles. Pre-augering involves drilling holes for each pile from the street surface to eliminate the need for pile driving equipment and thereby reduces project noise and vibration levels that would otherwise occur while pile driving. Pre-augering also provides better accuracy of location than pile driving. The lagging, which spans and retains the soil between the piles, is typically timber or shotcrete (sprayed-on concrete) and is installed in a continuous downward operation taking place concurrently with excavation. The installation of soldier piles and lagging is a relatively clean process. The majority of construction materials, such as, drilled earth spoils, concrete, backfill, and H-piles are easy to contain within the construction site. The soldier piles and deck beams are installed first with excavation and lagging installation taking place from beneath the street decking. A soldier piles and lagging earth retention system is

shown in Figures 3-7 through 3-9. The equipment required for installation of the soldier piles includes drill rigs, concrete trucks, cranes, and dump trucks.

Soldier piles and lagging are generally used where groundwater inflow is not a consideration, or where grouting, or lowering of the groundwater level (dewatering) can be used to mitigate water leakage between piles. Based on findings from core samples, the geologic conditions in this area consist of soils containing deposits of oil and tar. Where these deposits occur along the excavation perimeter, oil or tar may tend to seep between the joints in the lagging. This is not considered to be a hazard to workers, although some cleanup may be necessary.

Alternatives to soldier pile and lagging walls being considered for this station include tangent pile or secant pile walls, slurry walls, and deep soil mix walls (see next sections below).

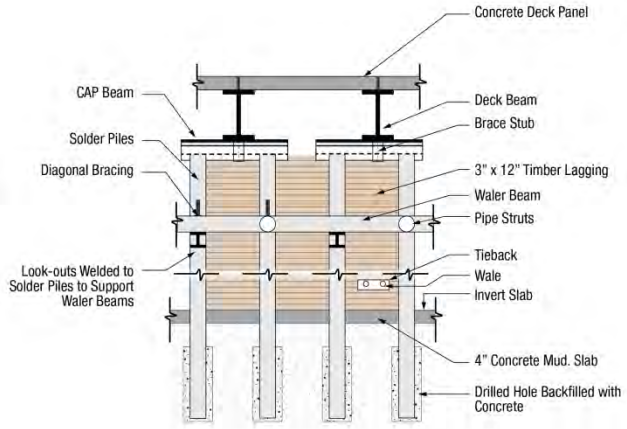


Figure 3-7: Pre-augering for Soldier Pile Cover with Soldier Pile and Lagging

Figure 3-8: Cut and

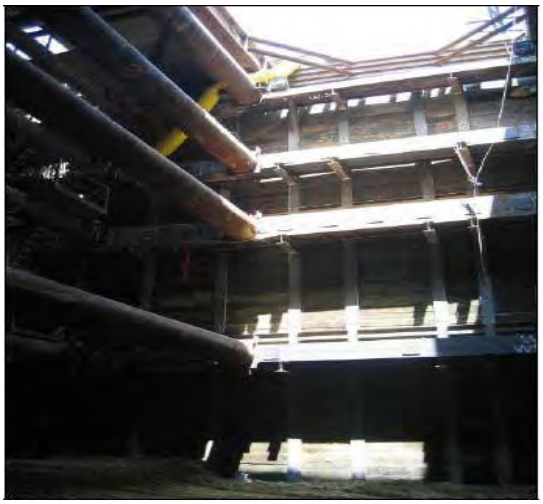


Figure 3-9: Soldier Pile and Lagging

3.2 Tangent Pile or Secant Pile Walls

Tangent pile walls consist of contiguous cast-in-drilled-hole (CIDH) reinforced concrete piles – see figure 3-10. The contiguous wall generally provides a better groundwater seal than the soldier pile and lagging system, but some grouting or dewatering could still be needed to control leakage between piles.

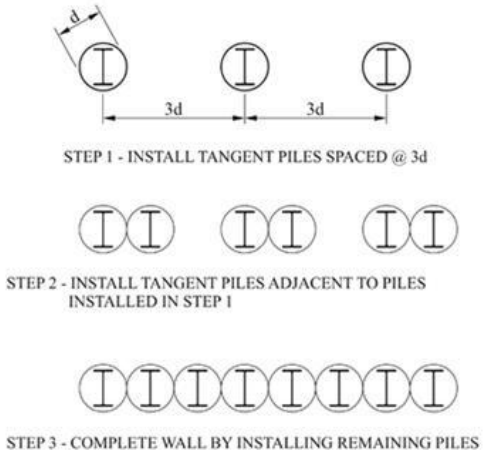


Figure 3-10: Tangent Pile Installation

A secant pile wall system is similar to the tangent pile wall but the piles have some overlap, facilitating better water tightness and rigidity - see figure 3-11. This method consists of boring and concreting the primary piles at centers slightly less than twice the pile diameter. Secondary piles are then bored in between the primary piles, prior to the concrete achieving much of its strength.

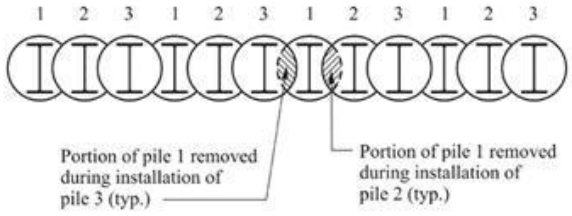


Figure 3-11: Secant Pile Installation

In terms of relative cleanliness, tangent pile and secant pile walls are comparable to one another and both are more difficult to contain than soldier piles and lagging due to the greater amount of pumped concrete and the expected larger diameter of drilled holes. The completed secant pile wall for the Barnsdall Shaft in Hollywood for the Metro Red Line project is shown on Figure 3-12. Secant and Tangent pile shoring systems are slower to construct that soldier pile and lagging and therefore have the disadvantage of requiring longer lane closures on Wilshire while they are being constructed. Furthermore, because of the close spacing of tangent piles, utilities crossing the wall often require relocation whereas a soldier pile system can often be built around the existing utilities. The equipment required for installation of the tangent pile or secant pile walls includes drill rigs, concrete trucks, cranes, and dump trucks.

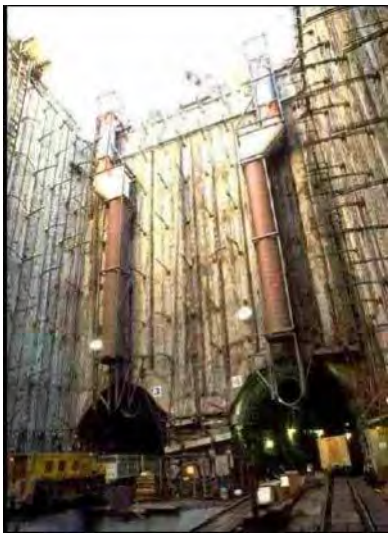


Figure 3-12: Secant Pile Wall at Barnsdall Shaft on Metro Red Line

3.3 Diaphragm/Slurry Walls

Diaphragm walls (commonly known as slurry walls) are structural elements used for retention systems and permanent foundation walls. Use of slurry wall construction can provide a nearly watertight excavation, eliminating the need to dewater. Slurry walls are constructed using deep trenches or panels which are kept open by filling them with a thick bentonite slurry mixture. After the slurry filled trench is excavated to the required depth, structural elements (typically a steel reinforcement cage - see Figure 3-15) are lowered into the trench and concrete is pumped from the bottom of the trench, displacing the slurry. Figure 3-13 and Figure 3-14 illustrate slurry wall excavation equipment.

Figure 3-13: Slurry Wall Construction Equipment

Figure 3-14: Clamshell Digger for Slurry Wall Construction

Tremie concrete is placed in one continuous operation through one or more pipes that extend to the bottom of the trench. The concrete placement pipes are extracted as the concrete fills the trench. Once all the concrete is placed and cured, the result is a structural concrete panel. Grout pipes can be placed within slurry wall panels to be used later in the event that leakage through wall sections, particularly at panel joints, is observed. The slurry that is displaced by the concrete is saved and reused for subsequent panel excavations.

Figure 3-15: Steel Reinforcement Cage for Slurry Wall

Slurry wall construction advances in discontinuous sections such that no two adjacent panels are constructed simultaneously. Stop-end steel members are placed vertically at each end of the primary panel to form joints and guides for adjacent secondary panels. In some cases, these members are withdrawn as the concrete sets. Secondary panels are constructed between the primary panels to create a continuous wall. Panels are usually to full depth and 8 – 20-ft long and vary from 2 – 5-ft wide.

Similar to other shoring systems, slurry wall construction would occur in stages, working on one side of the street at a time. These walls have been constructed in virtually all soil types to provide a watertight support system in addition to greater wall stiffness to control ground movement. Because slurry walls are thicker and more rigid than many other shoring methods, the walls may in some cases be used as the permanent structural wall, although this application is not anticipated for this project. Where slurry walls are used, the thickness of the permanent structural walls can sometimes be reduced, i.e. when compared to wall thicknesses used with a conventional soldier pile and lagging system after removal of internal bracing.

Slurry wall construction materials are the most difficult to contain within the construction site of all the shoring types being considered due to the inherent messy nature of bentonite slurry combined with the operational characteristics of the clamshell digger which will likely be used to excavate large volumes of soil from the wall trench. Slurry walls are generally not adaptable to utility crossings and all utilities crossed by the wall would require temporary or permanent relocation. The equipment required for installation of the slurry walls includes clamshell or rotary head excavators, concrete trucks, slurry mixing equipment, cranes, slurry treatment plant, and dump trucks. The bentonite slurry would require disposal after a number of re-use cycles. Slurry walls are also slow to construct and will be very disruptive to traffic on Wilshire Boulevard.

3.4 Deep Soil Mix Walls

Deep soil mix walls are another type of temporary or permanent shoring system for deep excavation. Mechanical soil mixing is performed using single or multiple shafts of augers and mixing paddles. See Figure 3-16. The auger is rotated into the ground and slurry is pumped through the hollow shaft feeding out at the tip of the auger as the auger advances. Mixing paddles blend the slurry and soil along the shaft above the auger to form a soilcrete mixture with high shear strength, low compressibility, and low permeability. Spoils come to the surface comprised of cement slurry and soil with similar consistency to what remains in the ground. Steel beams are typically inserted in the fresh mix to provide structural reinforcement. A continuous soil mix wall is constructed by overlapping adjacent soil mix elements. Similar to secant pile walls, soil mix elements are constructed in alternating sequence; primary elements are formed first and secondary elements follow once the first have gained sufficient strength.

Deep soil mix wall construction materials are also difficult to contain. Most of the construction process is performed by a single piece of equipment which mixes cement and soil in situ. Cement and soil mixture can be expected to escape beyond the confines of the drilling operation creating problems for traffic and pedestrians. The equipment required for installation of deep soil mix walls includes multi-shaft drill rigs, concrete trucks, cranes, and dump trucks.

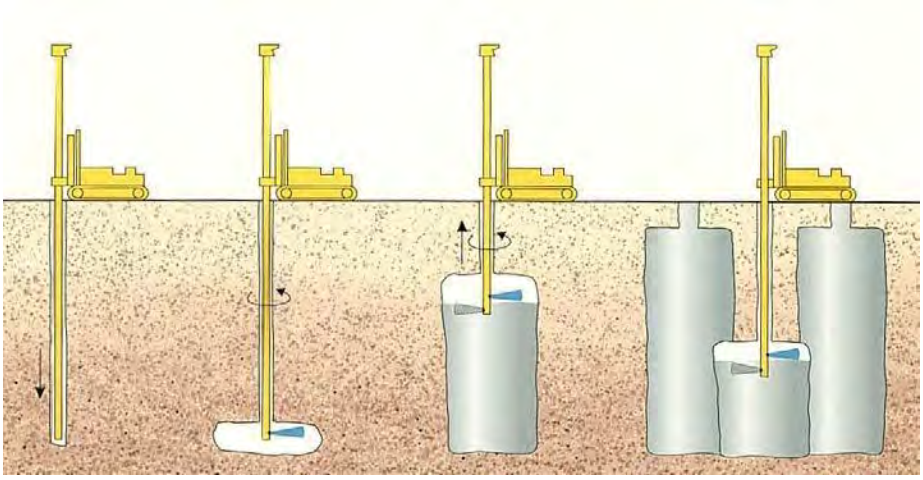


Figure 3-16: Deep Soil Mix Construction

3.5 Comparison of Excavation Support Techniques

Due to the speed of construction, and the ability to work around utilities, soldier piles and lagging is preferred unless site conditions dictate the use of other methods. Soldier piles and lagging is the predominant shoring system used in the Los Angeles area and has been used successfully by Metro on construction of both Red and Gold Line stations. Experience at the LACMA parking garage excavation suggests that soil off-gasses immediately after being exposed but with a short period of time, the off gassing slows to levels acceptable for work. This suggest that the relatively impervious seal achieved by slurry walls, secant piles, and deep soil mix walls may only provide very short term benefits and that gas entering the station box excavation through a soldier pile and lagging system could be controlled with a well designed ventilation system.

Since it is anticipated that gassy soils will be encountered regardless of shoring system type, various methods of providing a safe and hazard free workplace will be implemented in all situations. No matter which type of temporary shoring system is selected; other measures such as, partially open decking, ventilation, gas detection, and Personal Protective Equipment (PPE), will be in use to protect workers from gases that may enter the excavation site.

Table 3-1: Comparison of Excavation Support Types

Shoring Method	Permeability	Installation Duration	Containment Impacts	Noise / Vibration Impacts	Traffic Impacts	Utility Impacts	Business Impacts
Soldier Pile & Lagging	High	concurrent w. excavation	Low	Moderate	Moderate	Moderate	Moderate
Slurry Wall	Low	3 Months	High	Moderate	High	High	High
Secant Pile	Low	3 Months	Moderate	Moderate	High	High	High
Tangent Pile	Moderate	3 Months	Moderate	Moderate	High	High	High
Deep Soil Mix	Low	3 Months	Moderate	Moderate	High	High	High

3.6 Construction Staging

For all types of shoring, the contractor would first occupy one side of the street to install one line of excavation support piles or wall panels. The installation will require extended closures of 2 – 3 traffic lanes on the side of the street where the equipment would be staged. After installation of piles or walls on both sides of the street at the station excavations, piles or walls would then be installed across the street at the station ends. This operation would also require lane closures, and is often done during night-time or weekend periods. The contractor would then proceed with installation of deck beams, installation of the deck panels and excavation and bracing. Deck panels (decking) allow continued traffic and pedestrian circulation since they will typically be installed flush with the existing street or sidewalk levels, though raised decking, which requires less excavation during installation is being discussed with the traffic authority. Raised decking does have particular advantages at Wilshire / Fairfax Station as less excavation during the weekend closures while installing the decking makes it less likely that fossils will be encountered during the decking operation.
Deck installation will require successive full road closures on weekends with traffic detours. The decking would be installed in stages, commensurate with the amount of decking that can be installed during a weekend closure. Typical decking installation rates range from 50 -100 ft / weekend for an installation crew. Multiple crews will be used wherever possible to reduce the number of full road closures

3.7 General Approach to Handling Utilities

Prior to beginning construction of shoring and decking, it will be necessary to relocate, modify or protect in place all utilities and underground structures that would conflict with excavations. The contractor will verify locations through potholing methods and where feasible, the utility will be relocated so as to stay out of station

or other surface structure excavation. Where the utility cannot be relocated outside the excavation footprint, it will be exposed and hung from the supporting structure (deck beams) for the roadway decking over the cut-and-cover structure. See figures 3-17 and 3-18.

Figure 3-17: Utilities Hung from Deck Beams

Figure 3-18: Utilities Hung from Deck Beams (Close Up)

Shallow utilities, such as maintenance holes or pull boxes, which would interfere with excavation work, will require relocation. The utilities alignments will be modified and moved away from the proposed facilities. Utility relocation takes place ahead of station and other underground structure excavation. During this time, it will be necessary to close traffic lanes.

It is possible that in some instances, block-long sections of streets would be closed temporarily for utility relocation and related construction operations. Pedestrian access (sidewalks) would remain open and vehicular traffic would be re-routed. Temporary night sidewalk closures may be necessary in some locations for the delivery of oversized materials. Special facilities, such as handrails, fences, and walkways will be provided for the safety of pedestrians.

Minor cross streets and alleyways may also be temporarily closed but access to adjacent properties will be maintained. Major cross streets would require partial closure, half of the street at a time, while relocating utilities.

Utilities, such as high-pressure water mains and gas lines, which could represent a potential hazard during cut-and-cover and open-cut station construction and that are not to be permanently relocated away from the work site, would be removed from the cut-and-cover or open-cut area temporarily to prevent accidental damage to the utilities, to construction personnel and to the adjoining community. These utilities would be relocated temporarily by the contractor at the early stages of the operations and reset in essentially their original locations during the final backfilling above the constructed station. See Figure 3-19

Figure 3-19: Backfilling Utilities in Final Location beneath Road Surface

4.0 PALEONTOLOGICAL ISSUES

The Wilshire/Fairfax Station is situated within the vicinity of the Hancock Park Rancho La Brea Tar Pits. The San Pedro Sand layer exists beneath the older and younger alluvium deposits near the surface in this region. This formation has a high likelihood for producing significant paleontological resources. Because of the high likelihood of fossil discovery while excavating the Wilshire/Fairfax station box, station construction at Wilshire/Fairfax will be given the maximum time available within the overall project schedule, so that excavation can proceed slowly and carefully and fossils located and removed without schedule pressures.

Before fossil recovery can begin, utility relocation and shoring for the station excavation using one or more of the shoring methods outlined above must occur. Utility relocations, by their nature (narrow trenches beneath paved streets) will make recovery of fossils during this phase of the work unlikely. Then, any fossils that lie within the footprint of the shoring will necessarily be destroyed when the shoring is constructed, as there is no way to remove them in in advance of the shoring. However, shoring will at worst occupy less than 10% of the footprint of the station excavation, leaving 90% of the footprint unaffected and suitable for fossil recovery.

The plan for fossil removal has been based on the methods used by the Page Museum for the removal of fossils from the nearby LACMA parking garage excavation, referred to from here-on by the Page Museum name, Project 23. The ground will be excavated in shallow lifts, with museum staff on land to inspect the excavated surfaces as earth is removed and to mark the locations of fossils when discovered. It is assumed that the fossils will occur in a manner similar to that at Project 23, i.e concentrated in vertical tar "pipes" which, once located, can be boxed in place and then removed from the site for further analysis. As with Project 23, fossils can also be found away from the tar pipes so all excavated surfaces must be inspected, and the contractor's team must be altered to the possibility of finding fossils anywhere with the excavation. Again, using the Project 23 experience as a guide, fossils of most likely to be found between 10 ft bgs and 30 ft bgs, though this may not turn out to be the case at Wilshire/Fairfax.

The Project 23 site was an open excavation, not constrained by a deck at ground level. This made boxing and removal of the fossil boxes a good deal more straight forward than will be the case at Wilshire/Fairfax. Figure 4-1 shows fossils in a pit at the Page Museum, and Figure 4-2 a boxed "pipe" containing fossils being prepared at the

Figure 4-1: Tar Deposit Containing Fossils

Figure 4-2: Fossil Box Construction at Project 23

Project 23 site.

Figure 4-3: Smilodon (Sabre Tooth Cat) Pelvic Bone Figure 4-4: Smilodon Skull in Fossil Box

4.1 Minimize Excavation Done Before Decking Installation

Although the Project 23 experience suggests that fossils will mainly be 10 ft or more below street level, fossils must be anticipated anywhere within undisturbed ground. Using the cut and cover excavation technique, deck beams which support the deck panels are installed in the road bed after the piles or shoring walls are complete. The top of the deck beams sit just below the roadway surface so that the decking is flush with the roadway. The deck beams are approximately 6-ft tall and joined together with cross bracing so a minimum of 7-ft of excavation is required for their installation. On Red line and Gold Line stations, contractors have normally excavated 10 ft deep when installing the deck beams to provide clear space beneath the beams for better access when commencing to dig out from beneath the decking and to expose utilities immediately below the deck beams.

Because the street decking requires a full street closure to install, only limited times are available in which to close the street. Full street closures, especially along Wilshire Boulevard will be limited to approximately 52 hours duration on week-ends, and this will not provide time to carefully remove soil in layers to expose fossils nor to box and remove any fossils found in this initial excavation. Therefore, opportunities fossil recovery from the initial excavation for the street decking will be limited. It therefore requires a construction approach to try and reduce the depth of the initial excavation. Two strategies are being pursued in this regard. One approach is to use raised decking so that the bottoms of the deck beams can be raised up by the same height that the station decking is installed above street level. Metro is in discussions with traffic authorities regarding the acceptability of using raised decking at Fairfax. See appendix 1 for details of raised decking. The other approach is to use shallower deck beams, either for a flush deck system or in conjunction with a raised decking approach. Shallower beams will almost certainly require installing the deck beams at closer centers, probably 7 ft centers instead of the usual 14 ft centers but the shallow beams will reduce the likelihood of finding fossils during decking.

It should be noted that many utilities in the street are much deeper than the bottom of the deck beams, and any fossils would have been destroyed during the construction of such utilities. Utilities already have disturbed a significant percentage of the station excavation footprint, and this will increase with the relocations required

prior to the installation of the shoring and decking. Nevertheless, there will remain areas of undisturbed soil within the 10 ft immediately below street level and fossils therefore could be found in these locations. These areas can be mapped in advance so that they can be excavated carefully.

4.2 Excavation of the topmost layers beneath the street decking

Once the street decking has been installed, excavation beneath the decking will commence. The side access shaft(s) from the contractor's laydown area and from the station portal site will be excavated in shallow lifts, using methods similar to those of Project 23. Any fossils found will be removed. Once the side access shafts are deep enough to allow equipment to commence digging beneath the street decking, equipment will be lowered into then shaft to commence digging. One scenario will be for the contractor to dig the initial lift by scraping down the face, using low headroom equipment such as a Gradall or other equipment acceptable to Metro and to the Page Museum. The working face would be inclined at probably a 2:1 slope and would be accessible for inspection. The excavation would proceed in this manner until the first lift was completely removed. The height of the first lift will be determined by the head room needed by the equipment needed for the subsequent lifts, but probably of the order of 12-14 ft. depending on the equipment selected, subsequent lifts could continue to be inclined or horizontal. Fossils and tar pipes containing fossils would be removed under the supervision of Page Museum staff, probably using the boxing techniques developed for Project 23. Because the Fairfax Station will be decked, handling large boxes beneath the decking will be very difficult. Boxes of not more than 500 cubic ft (approximately 30 tons) are proposed as an upper limit, and smaller boxes for the first lift below the decking may be necessary so that low headroom equipment will be able to carry the boxes back to the side access shaft. Actual box sizes can be determined in the field by the contractor and paleontologists. Figures 4-5 and 4-6 show the proposed excavation sequence.

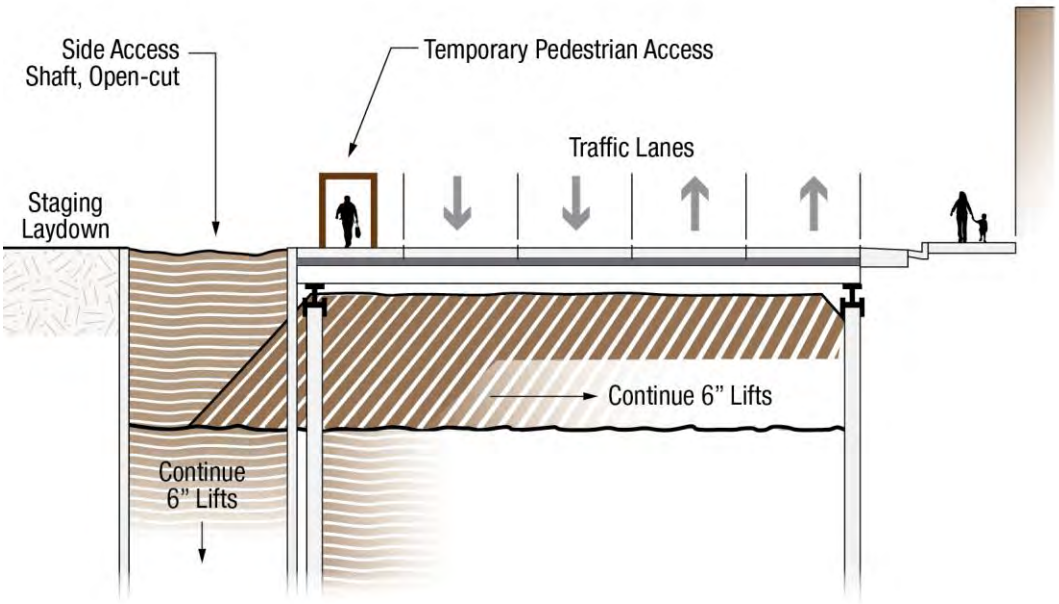


Figure 4-5: Cross Section Showing Excavation Procedure of Shallow Lifts at 2:1 Slope Beginning from the Side Access Shaft

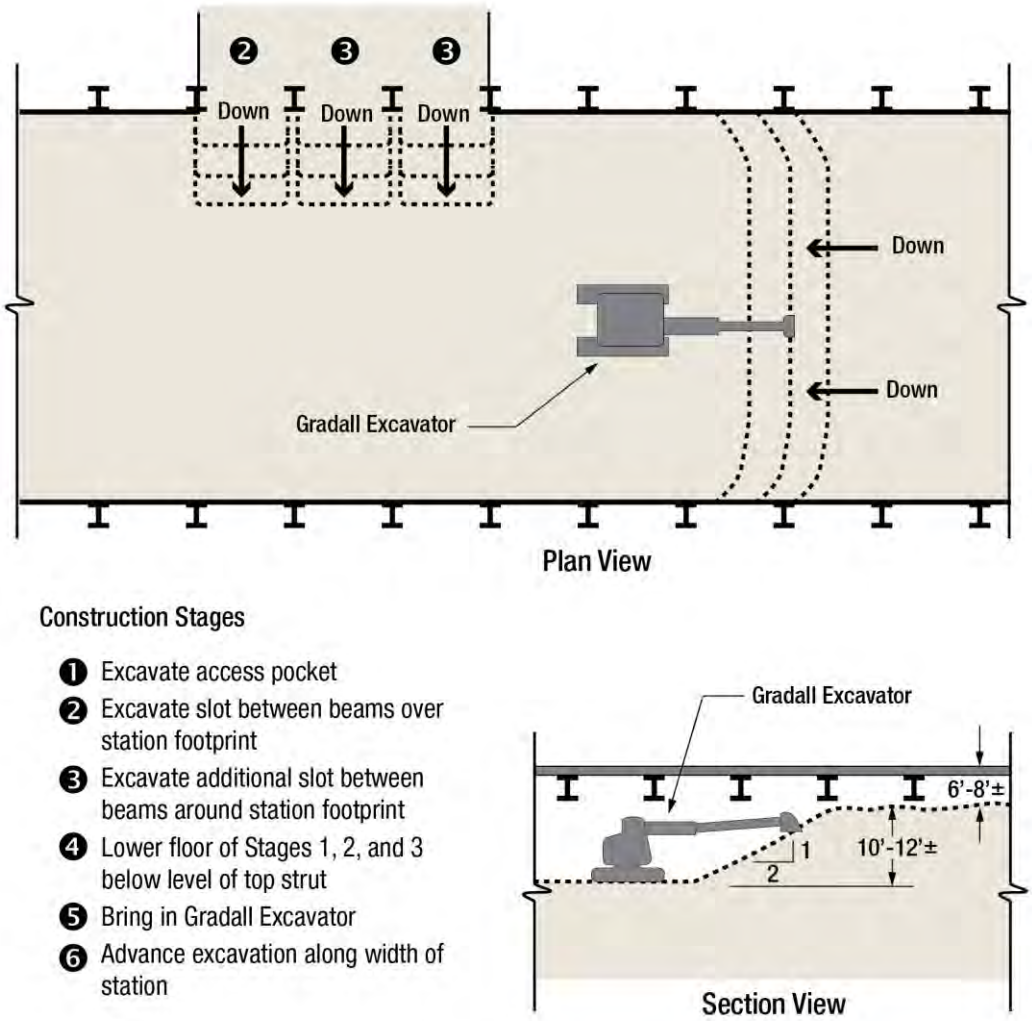


Figure 4-6: Plan Showing Excavation Procedure of Shallow Lifts with Low-Profile Gradall Excavator

Figure 4-7: Open Cut Excavation of Side Access Shaft

Figure 4-8: Tracked Loader Removing Muck from Beneath Struts

Figure 4-9: Compact Track Loader

Figure 4-10: Compact Excavator – 6.75′-Tall/12′-Long/6.5′-Wide

4.3 Excavate in Layers

The station box and side access shafts will be excavated in shallow lifts to carefully expose and locate fossils. The Page Museum is suggesting 6" lifts based on experience at the Los Angeles County Museum of Art (LACMA) parking garage. From previous experience with fossil recovery from tar-laden soils in this region, fossils generally, though not always, reside in tar deposits only. Other soil types should be generally free of fossils and can be removed with less concern for damage to fossils, though non-tarry areas will also require continuous surveillance.

Compact track loaders and compact excavators are likely necessary for initial soil removal directly beneath the deck beams due to their low vertical clearance, and relatively small bucket size capable of excavating precise lifts. Continuous tracks improve vehicle traction on soft and sticky terrain and reduce the amount of pressure exerted on the soil below. A pressurized cab would increase protection from gas intrusion although this may not be an option due to tight clearances and proper ventilation will still be needed regardless. If soil conditions permit, a rubber tire vehicle like skid steer loaders or equipment

fitted with floatation tires may be used instead of compact track loaders. Gradalls operate a bucket at the end of a telescopic arm in a linear motion. The linear shoveling motion enhances depth control improving the ability to cut in precise shallow lifts. These should be considered as well. Track loaders, wheeled dozers and hydraulic excavators should be employed to remove the bulk of the soils in order to maintain efficiency in excavating. Excavation with these tools will require careful observation to identify the location of tar deposits. When tar deposits are located, smaller equipment should step in to avoid damaging fossil resources with heavier machines.

Figure 4-11: Hydraulic Excavator between Struts

Figure 4-12: Track Loader beneath Struts

It is possible that the discovery and removal of fossils could lead to schedule delays and the station box structure would not be completed in time to precede the TBM breakthrough. As long as station box excavation has not breached a reasonable depth above where the top of the tunnel liner will be so that it would compromise the operation of the TBM, then the TBM drive should continue through the station box location and station excavation would work its way down and eventually break through the tunnel liner.

It may be possible to use an imaging technique to locate fossils ahead of excavating operations thus allowing the pace of excavation to accelerate beyond the recommended 6" lift limit. If the imaging technique produces a reliable indication, the boxing of fossils can be pre-planned. Some techniques of scanning for objects below the surface that should be considered are Ground Penetrating Radar (GPR), HAARP Detection using ELF and VLF radio waves, electrical resistivity imaging, and geophysical diffraction tomography.

If an Early Work Authorization is obtained, construction can begin on an exploratory shaft to test the effectiveness of the anticipated geophysical methods. The shaft could be located within the limits of a side access shaft and would ideally reach full station depth in order to learn as much as possible from this process. The length and width of the shaft should be a minimum size to allow a variety of the equipment under consideration to perform excavation operations during the exploration process. Construction methods will be tested to determine the best techniques and tools for station box

excavation. Shoring types will be tested to determine the effectiveness of the planned shoring in the soils present in the area. Gas levels will be measured to gauge the specifics of the ventilation scheme.

Figure 4-13: Skid Steer Loader

Figure 4-14: Compact Track Loader

Figure 4-15: Gradall with Large Bucket

4.4 Fossil Box Size

As layers of soil are removed, tar-laden sand deposits containing fossils are likely to be uncovered. When this happens, work is halted within proximity of the fossil to allow the paleontologists on site to assess the discovery and begin preparations for boxing and removal of the deposit. The technique of boxing and removing fossil deposits to an off-site facility for additional paleontological work is an efficient process that was first implemented during the construction of Project 23.

Figure 4-16: Fossil Boxes at Project 23

Figure 4-17: Fossil Boxes with Worker Donning Oxygen Respirator at Project 23

The box construction technique used on Project 23 is similar to that which is used for boxing palm trees for transport. See figure 4-16. First, the paleontologist defines the location of the fossil deposit. Next, trenches are dug around the sides and excavation continues by removing sterile soil from around the fossil zone with heavy equipment leaving an island where the deposit sits. The bottom of the box is most challenging. After the box is supported by blocks and shims at each of the four corners, workers must crawl beneath the box and dig by hand while inserting the timber boards which make up the base of the box (Figure 4-18). An alternative approach to creating the bottom of the box which would improve worker safety and expedite the excavation process would require an auger to drill holes in the island beneath the fossil deposit. Timbers would be inserted through the auger holes, thus beginning to form the base of the box. The auger would then remove the balance of soil between the timbers allowing completion of the box and freeing the deposit from the soil below. See Figure 4-19. During the excavation of Project 23, sixteen tar deposits were discovered. From the sixteen deposits, twenty-three boxes were recovered, thus giving the parking garage project its name. The boxes range in size from 5x5x5-ft (weighing 3 tons) to 12x15x10-ft (weighing 56 tons).

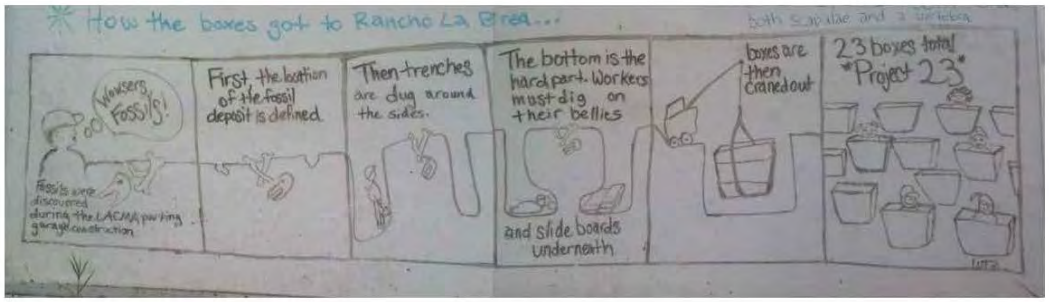


Figure 4-18: Fossil Relocation Process. (From Page Museum Whiteboard)

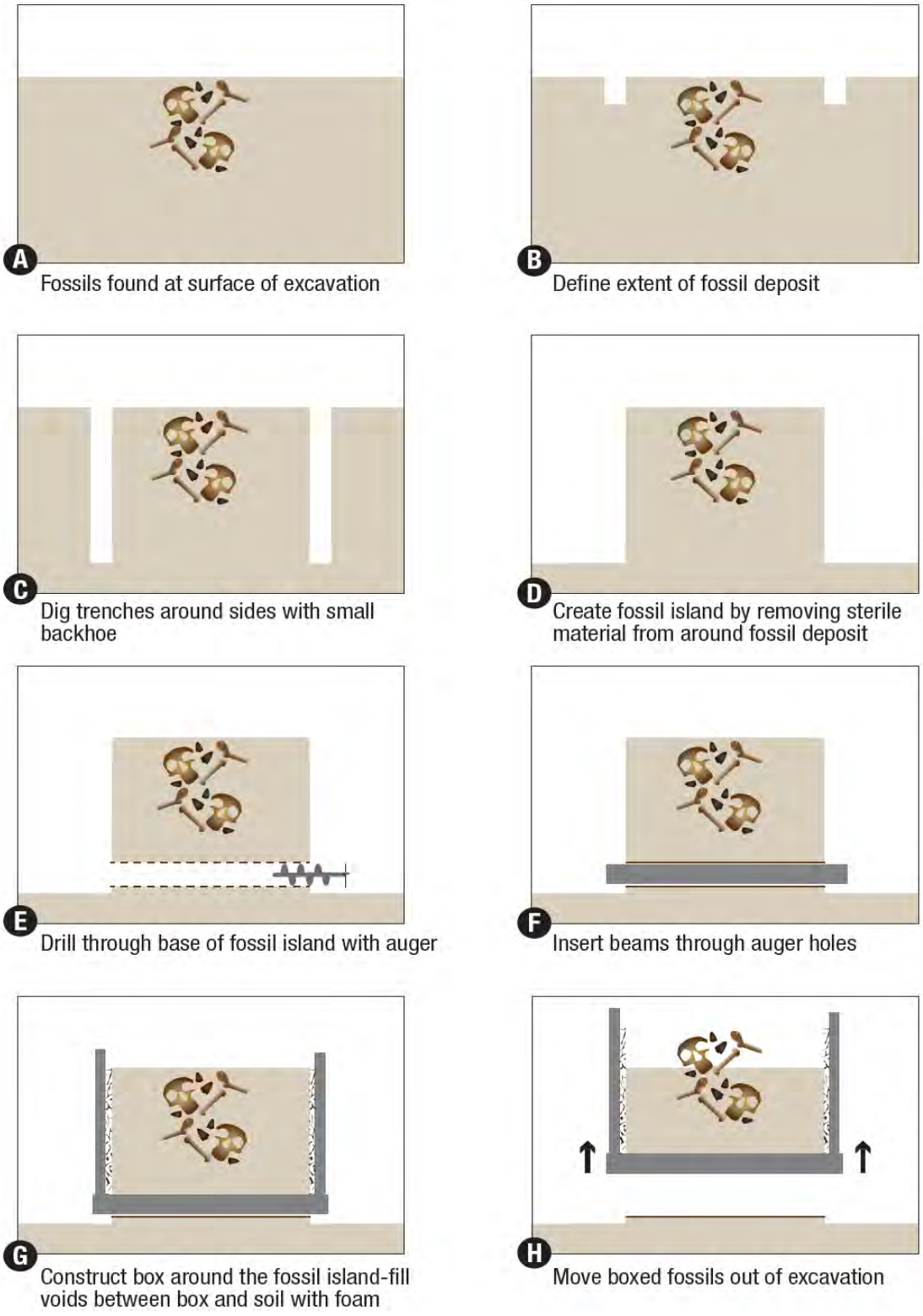


Figure 4-19: Alternative Boxing Technique Using Auger for Floor Construction

Depending on the size and weight of each box, fossils located beneath deck panels may be lifted in place by crane through temporary openings in the decking. However, this may prove to be impossible if street closure are not possible or the crane cannot be positioned on the street decking in a way to perform the lift. It is proposed to limit the size of fossil boxes to about 30 tons, i.e 500 cubic feet which will make boxes easier to lift or to move around below the decking with low headroom equipment or with a system of skids and temporary tracks constructed within the station box. Once positioned adjacent to the side access shaft, fossil boxes can be lifted by mobile cranes positioned on "terra firma". The crane would lift the box out through the access shaft and load it on a truck which will transport the tar and fossils either to the Page Museum site where paleontologists can continue their work or to the contractor's laydown area at South Orange Grove/ Ogden for storage and processing. Offsite processing is preferred as there is less potential for damage by heavy equipment that will be operating at the South Orange Grove/Ogden laydown area.

4.5 Construction Issues in Tar-Laden Soils

The asphaltic sands have unique properties and the engineering characteristics are not as well documented as compared to other soils. However, contrary to common expectations, it is proven that these sands possess shear strength. Design parameters for excavation support systems in asphaltic sands will need to consider some additional pressure due to the makeup of these soils. There are

numerous cases of successful experience in construction of deep basements and underground parking structures in the Wilshire/Fairfax area soils, such as construction of underground structures at LACMA. Similar design elements, construction techniques and operating methods and procedures can be applied to the planned excavations.

Figure 4-20: Aerial View of Project 23 Excavation with Dark Tar Seeps

4.6 Potential Impacts to Construction Methods from Anticipated Tar-Laden Soils

When excavating in tar-laden soil, efforts will be undertaken to avoid excessive disturbance. Excavation methods will be closely controlled to minimize over-excavation or vibrations. When grade is achieved within these soils, a mud slab could be applied to minimize disturbance. In some cases, a layer of gravel may be placed over the asphaltic sands to increase traction and reduce the amount of soil compaction caused by construction traffic. The contractor can also apply various other materials on top of the tar such as cement, lime, or other additives to prevent it from fouling the tracked equipment. Wide tracked machinery can be used to reduce the pressure exerted on the soils below. Timber mats can make a sturdy foundation to drive equipment on. Rubber tire vehicles are considerably lighter than their tracked counterparts and could be operated with floatation tires specifically designed to minimize the amount of soil compaction caused by heavy equipment. Because the tar is rather sticky or tacky in some areas, it is anticipated that the equipment's tracks, axles, or buckets could become fouled and would require occasional cleaning. Steam cleaners would handle the task well, by heating the tar to a less viscous consistency.

4.7 Handling Gas Intrusions during Construction Operations

Previous projects in the Methane Risk Zone have been successfully and safely excavated. Multiple underground parking garages have been constructed in this area. For example, LACMA built a two-level subterranean parking structure in the Methane Risk Zone, previously referred to as Project 23. During the excavation, H2S (above safe working levels) was encountered on several occasions. Workers donned PPE to protect against exposure during these events. Further investigation of operating underground

structures will be undertaken during future design phases to assess effectiveness of barrier systems and detection equipment used.

Since the majority of gas is expected to enter the excavation through the excavation surface, the release of gases may be constricted by applying a ground cover to all areas except the area where current excavation operations are taking place. An impervious membrane of Visqueen plastic sheeting or geotextile fabric may serve this purpose.

In areas of potential H2S exposure, there are a number of techniques that can be used to lower the risk of H2S release or exposure. Because station excavations are less confined than tunnels, gas exposure issues are anticipated to be less significant. Although pre-treatment of the ground water prior to excavation, with additives such as hydrogen peroxide or copper-zinc, is an option, it is not expected to be required. If released, H2S will not naturally dissipate because it is heavier than air, hence it would build up around the bottom of the excavation. The first line of defense is dewatering since H2S occurs in a dissolved state in ground water. Dewatering will remove any contaminated water from the excavation area. At the surface, a sealed tank would capture the water and treat the air for H2S off-gassing before discharging it to the surrounding environment. Additionally, a ventilation system will be used to introduce fresh air in the workspace. Fans will be used to circulate the air while a gas detection system monitors levels of hazardous gas. A suction system fitted with scrubbers may be required to collect H2S from the bottom of the excavation and treat the air before discharging clean air at the street surface.

CH4 is a hazard in confined spaces. As such, it is essential that workers be sufficiently protected, and thus detection and monitoring equipment would be required. Fans similar to those used to dilute H2S concentrations would also dilute CH4 concentrations in the station box. Once above-ground, CH4 dissipates rapidly in the atmosphere and would not be a health hazard.

4.8 Ventilation Schemes

Ventilation is required to combat harmful or dangerous gasses when present in underground construction. Cal OSHA classifies subterranean work areas as “gassy”, “potentially gassy”, “non-gassy”, or “extra hazardous”. Excavation equipment in “gassy” spaces must be manufactured to resist accidental sparks and either be sealed or of explosion proof design.

Since CH4 and H2S gases are expected to be encountered during the excavation of Wilshire/Fairfax station, adequate ventilation and continuous air quality monitoring will be in use throughout construction. In addition to maintaining acceptable levels of CH4 and H2S in the air supply, the ventilation system must maintain a certain level airflow for workers present in the work space. The size of the system is dependent on the number of persons and the size of diesel equipment underground. The air supply shall not be less than 200 CFM (cubic feet per minute) per person underground, plus 100 CFM per diesel horse brake power.

Figure 45: Underground Ventilation Ducts

Use of perforated deck panels, either perforated steel or concrete integrated with steel could be used in place of concrete only deck panels to allow the free flow of air between the excavation area and the surface, especially if full decking is required across the entire station box.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The project is committed to recover fossils and to work closely with the Page Museum to minimize the loss of fossils due to the construction of a station at Wilshire/Fairfax.

The project plans to use the same recovery methods that have been proven at Project 23, and with the corporation of Page Museum staff will seek to customize and improve on these methods to tailor them for the site conditions at Wilshire / Fairfax.

Further studies are on-going to find ways to raise the height of the beams used for street decking, which in turn, will leave more soil beneath the beams for controlled excavation and fossil recovery.

The fastest and lowest cost shoring method is preferred. This means that a soldier pile and lagging system will be employed provided that continuing geotechnical investigation do not find ground conditions that preclude this system. Soldier pile and lagging shoring has the added advantage of disturbing less of the station excavation footprint than other methods, mimimizing the loss of fossils in this phase.

Gases will be controlled by installing adequate ventilation within the excavation, and by designing the street decking system with gaps for natural ventilation and elimination of pockets where gases could accumulate.

Attachment C: Fairfax Exception Memo

cogstone
PALEONTOLOGY - ARCHAEOLOGY - HISTORY

October 21, 2013 Cogstone 2604

To: Steven Sabo, WEST Construction Manager
From: Sherri Gust, WEST Principal Paleontologist

RE: Special Exception for Cut and Cover Work at Fairfax Station

PB Engineer Amanda Elioff relayed to me the concerns of the proposers for the Design Build in regard to use of 6 inch excavation lifts for the initial 10 feet of cut due to the extremely limited time frame available to install the decking and supports (about 53 hours). I have discussed the situation with Dr. John Harris of the Page Museum this morning.

Dr. Harris and I agree that regular excavation lifts may be used for these initial 10 feet only due to the logistics of the situation. Monitors are not necessary for any work in fill but due to the use of regular excavation lifts, any work in native sediments will require use of two paleontological monitors.

The 6 inch lift requirement was only for Fairfax Station as no asphaltic matrix was observed in any geotechnical borings at Western, La Brea or La Cienega Avenues. Regular excavation lifts may be used for all work at these stations in conjunction with paleontological monitoring.

1518 West Taft Avenue
Orange, CA 92865
Office (714) 974-8300

Field Offices
San Diego • Riverside • Canyon Country
• Morro Bay • West Sacramento

cogstone.com
Toll free (888) 497-0700

Federal Certifications 8(a), SDB, 8(m) WOSB
State Certifications DBE, WBE, SBE, UDBE

Los Angeles County
Metropolitan Transportation Authority

March 2012

Westside Subway Extension

Final Environmental Impact Statement/Environmental Impact Report—Volume 4

APPENDIX G: *Memorandum of Understanding for Paleontological Resources*

Metro®

U.S. Department of Transportation
Federal Transit Administration

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Memorandum of Understanding

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MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING ("MOU") is entered into as of this 2nd day of November 2011 by and between the Los Angeles County Metropolitan Transportation Authority ("MTA") and the Los Angeles County Museum of Natural History, including the Page Museum at the La Brea Tar Pits ("Museum") (collectively, "the Parties"), for the preservation of paleontological and archaeological resources associated with the Wilshire/Fairfax Station and other portions of the Westside Subway Extension Project alignment within two miles of the Wilshire/Fairfax Station.

BACKGROUND

WHEREAS, the MTA has the responsibility under Federal and State law to recover and preserve for future scientific and educational use paleontological, archaeological, and historical resources that may be impacted by the Westside Subway Extension Project and associated records; and

WHEREAS, the Museum has established expertise in recovery, management, curation and research of paleontological resources and is willing to permanently curate paleontological and asphalt-related archaeological resources recovered from the Westside Subway Extension Project in asphaltic deposits associated with the Wilshire/Fairfax Station and other portions of the Westside Subway Extension Project alignment within two miles of the Wilshire/Fairfax Station and recognizes the benefits which will accrue to it, the public and scientific interests by housing and maintaining the Paleontological Resources and Records Collection for study and other educational purposes; and

WHEREAS, the Parties hereto recognize the mutual benefits to be derived by having paleontological and archaeological resources suitably housed and maintained by Museum;

NOW, THEREFORE, in consideration of the terms, conditions, covenants and performances herein contained, and other consideration the receipt and sufficiency of which is hereby acknowledged, and with the intent to be legally bound hereby, the Parties agree to incorporate the above recitals into this MOU and further contract, promise and agree as follows:

1. **MTA shall:**

a. Retain a qualified principal paleontologist (minimum of graduate degree, ten years of experience as a principal paleontologist and having demonstrated expertise in vertebrate paleontology) approved by the Museum to plan, implement and supervise paleontological monitoring, preservation, fossil recovery, fossil preparation, fossil documentation and reporting of significant paleontological resources within the areas of disturbance for the Wilshire/Fairfax Station or other portions of the Westside Subway Extension Project alignment within two miles of the Wilshire/Fairfax Station. The principal paleontologist will be responsible to ensure that all subordinate personnel are appropriately qualified.

b. Require the principal paleontologist to prepare a mitigation plan, subject to approval by the MTA and Museum, to address monitoring, preservation and, recovery of any paleontological resources. The mitigation plan shall be consistent with best practices guidelines for both field and laboratory work on project paleontological resources to meet state and federal laws and guidelines and Museum standards (Attachments 1 and 2).

c. Require the principal paleontologist to monitor all ground-disturbing activities where sub-surface soils are exposed. The areas to be examined will be determined based on project plans and in consultation with construction staff and the qualified paleontologist during pre-construction meetings and as needed throughout the construction process.

d. Ensure that if subsurface paleontological resources are identified by the principal paleontologist during construction, all construction activities in the area of identified paleontological resources will be temporarily halted so that the resources may be documented and recovered. All resources shall be documented on appropriate forms approved by the Museum and these will be placed on file in the Museum.

e. Ensure that any paleontological resources, including asphaltic deposits containing fossils and/or archaeological objects, will be recovered in accordance with best practices outlined by the Museum (Attachment 1).

f. Require that the principal paleontologist have designated and secure space sufficient to store and, if necessary, analyze and process boxed or individual fossil deposits for preparation [but see section 2.c].

g. Require that the principal paleontologist record all data and, if necessary, perform excavation of boxed deposits or individual fossils, prepare fossils and store fossils prior to curation in accordance with best practices outlined by the Museum (Attachment 2).

h. Require that the principal paleontologist provide periodic progress reports including copies of all field notes to the MTA and Museum in addition to a comprehensive final report meeting all state and federal standards. The original copies of the field notes will be archived in the Page Museum at the time that the fossils are transferred to its jurisdiction.

i. Provide funding for required fossil recovery, cleaning, preservation, curation and storage and any other fossil-related Museum activities specified in Paragraph 2 based on a cost per amount recovered to be agreed upon by the MTA and Museum in a subsequent detailed Agreement to be signed between the MTA and Museum during further Project Design. Such agreement will be based in part on the Museum's cost for processing and storage of its Project 23 materials, taking into account the possible variation in the density of fossils and in the matrix in which the fossils are found. Such agreement should include contribution to cost of permanent storage premises in the event that significant quantities of fossils are recovered. Such agreement shall prevent unreasonable payment if few fossils are found, but assure payment for vital effort.

j. Allow the Museum to be involved, in an oversight capacity, for all field and laboratory work to ensure that Museum standards are being maintained.

k. Require that paleontological resources be removed expeditiously to allow Project completion according to schedule, but in compliance with Museum standards as recently demonstrated in the construction of the new LACMA Underground Garage and corresponding Project 23 Paleontological Project.

l. Retain responsibility for compliance with all legal and regulatory provisions related to monitoring, reporting, consultation, and repatriation of Native American remains and related material, including under NAGPRA and California law.

m. Assign an MTA Representative to make any further revisions or adjustments to this document necessary in the course of the project, in cooperation with the Museum.

n. Designate the Museum as the sole source for the scientific description of fossils and artifacts recovered from the Westside Subway Extension Project in asphaltic deposits associated with the Wilshire/Fairfax Station and other portions of the Westside Subway Extension Project alignment within two miles of the Wilshire/Fairfax Station. Publicity concerning the discovery of such fossils and artifacts shall be jointly undertaken by MTA and the Natural History Museum of Los Angeles County.

2. **Museum shall:**

a. Make available Museum personnel to provide oversight for the qualified principal paleontologist's preparation of a mitigation plan, subject to approval by the Agency, to address monitoring, preservation and, recovery of paleontological resources. The mitigation plan shall be consistent with best practices guidelines for both field and laboratory work on project paleontological resources to meet state and federal laws and guidelines and Museum standards (Attachments 1 and 2).

b. Make available Museum personnel to provide oversight of all field and laboratory work on paleontological resources for the duration of the project to ensure that Museum standards are being maintained.

c. Provide an option, dependent upon the volume and number of fossils recovered, that the Museum will directly house boxed fossil deposits and internally perform excavation and preparation of those deposits for compensation comparable to that offered to the principal paleontologist for similar services.

d. Provide for the professional care and management of the curated paleontological resources associated with the Wilshire/Fairfax Station and other portions of the Westside Subway Extension Project alignment within two miles of the Wilshire/Fairfax Station.

e. Ensure that personnel assigned responsibilities related to the Westside Subway Extension Project are qualified museum professionals whose expertise is appropriate to the nature and content of the paleontological resources recovered.

f. Provide and maintain a repository facility having requisite equipment, space and adequate safeguards for the physical security and controlled environment for the paleontological resources (but see 1.i).

g. Perform those conservation treatments necessary to ensure the physical stability and integrity of the paleontological resources prepared by the principal paleontologist.

h. Curate the paleontological resources to ensure adequate scientific documentation of the circumstances of their recovery.

i. Credit the MTA when the Collection or portions thereof are exhibited, photographed or otherwise reproduced and studied in accordance with the terms and conditions of Museum policy with the statement: "In Cooperation with the Federal Transit Administration and Los Angeles County Metropolitan Transportation Authority". The Museum agrees to provide the Agency with copies of any resulting publications.

3. **Paleontological Advisory Board**

The Parties agree to mutually appoint a three person Paleontological Advisory Board comprised of appropriately qualified paleontologists to help guide this effort as previously agreed by the Parties in their Paleontological MOU for this site in 1983.

4. **Amendment**

This MOU may be revised by issuance of a written amendment signed and dated by both parties.

5. **Donation of Paleontological and asphalt-related Archaeological Resources**

Agency agrees to donate title to all paleontological and asphalt-related archaeological resources to the Museum.

IN WITNESS WHEREOF, the Parties hereto have executed this MOU.

Jane S. Pisano — 10/25/11

Dr. Jane Pisano
President and Director
Los Angeles County Museum of Natural History

Date

Arthur T. Leahy — 11-02-11

Arthur T. Leahy
Chief Executive Officer
Los Angeles County Metropolitan Transportation Authority

Date

ATTACHMENTS

Attachment 1. Paleontological Methods for Mitigation of Fossils in the Vicinity of Hancock Park

Attachment 2. Techniques for Excavation, Preparation and Curation of Fossils from the Project 23 Salvage at Rancho La Brea

Attachment 3. Wilshire/Fairfax Station Construction Methodology

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Attachment 1—Paleontological Methods for Mitigation of Fossils in the Vicinity of Hancock Park

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ATTACHMENT 1

Paleontological Methods for Mitigation of Fossils in the Vicinity of Hancock Park

Paleontological methods for mitigation of fossils in the vicinity of Hancock Park.

© George C. Page Museum of La Brea Discoveries

Images courtesy of ArchaeoPaleo Resource Management, Inc.

2011

TABLE OF CONTENTS

Introduction

Rancho La Brea is the world's richest Ice Age fossil locality, yielding well over 3 million fossils and representing more than 600 species of animals and plants that lived in the Los Angeles Basin between 11,000 and 50,000 years ago. The asphaltic fossil deposits generally occur in randomly distributed inverted cone-shaped masses between 10 to 35 feet in depth. The sizes of the accumulations vary considerably from less than 5 cubic feet to more than 20 cubic feet. Flat tabular deposits such as that recovered during the construction of the Page Museum are rare. Ideally, the fossil accumulations should be carefully excavated as they are discovered. The fall back position is to remove the deposit intact, preserving it for excavation at a later date. This methodology, developed during the mitigation of the LACMA underground parking structure, preserves stratigraphic integrity, permits less hurried excavation under more optimum conditions, maximizes fossil and information retrieval, and enhances opportunities for major discoveries and new scientific contributions. All data pertaining to the location and condition of newly discovered fossil deposits must be recorded and photographed as outlined later in this document.

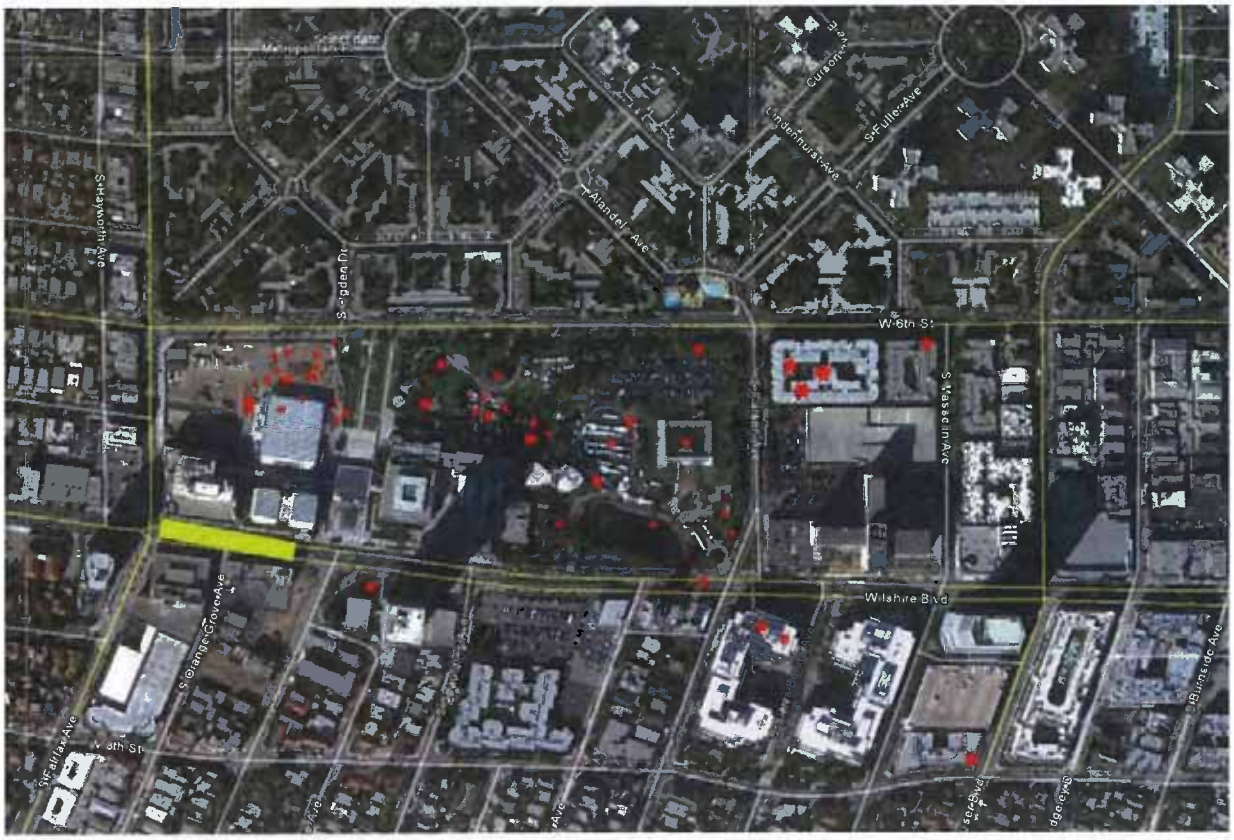

Fig 1: Map of Hancock Park and vicinity with known asphalt preserved fossil localities (red stars) and the approximate location of the proposed MTA subway station (yellow rectangle)

Fig 2: Monitoring

All excavation activity must be carefully monitored. In areas of asphaltic sediment or other areas where fossils have been discovered, sediment should be removed in 4-6" levels while paleontologists monitor closely. The monitors are empowered to halt the process as soon as fossils are located.

Fig 3: Fossils are discovered

After a fossil deposit has been located the surrounding area must be roped off so that paleontologists can determine the extent of the deposit or if it is an isolated fossil. In the case of an accumulation deposit this may range from 5 feet to 20 or more feet across. Construction work in the immediate vicinity of the fossil deposit must be halted temporarily but may proceed normally elsewhere in the construction site. Asphalt saturated conical shaped deposits and isolated fossil mitigation are described separately below.

Taking Field notes

Whether an accumulation of fossils are discovered or an isolated fossil is found, detailed field notes must be taken. The precise locality of each fossil deposit must be recorded with a resource-grade GPS device, its extent clearly described, mapped, and photographed on site using conventional field data collection methods, and its context including represented lithologies and depositional environments must be described. Types of geologic information to be collected should include: the nature of bounding contacts (erosional, sharp, gradational), thickness, geometry, grain size, shape, and sorting, color (fresh and weathered, use a color chart), sedimentary structures (physical and biogenic), cement type, pedogenic features (rooting, nodules, slickensides, etc.), halos, mineral crusts, microstructures around bio-clasts, and other fossils. Types of taphonomic information to be collected should include: taxonomic

representation, skeletal articulation and association, scale and geometry of assemblage, density, and orientation of bones. Bone modification information to be collected should include: weathering, polishing, abrasion, scratch/tooth marks, root traces, borings, fragmentation/breakage, and distortion. Each isolated fossil and each individual fossil deposit must be given an individual field number. This number should be written in permanent ink on individual fossils and clearly marked in permanent marker or paint on the box containing a deposit.

Asphalt saturated conical shaped deposits

Fig 4: Pedestal a deposit

Once the extent of the fossil accumulation has been determined, the sediment surrounding the fossiliferous deposit is carefully removed, isolating the accumulation on a pedestal. It may be necessary for monitors to wear a SCBA, as in this image, because of the high concentrations of hydrogen sulfide.

Fig 5: View of east end of LACMA construction site

It is possible that there will be a number of fossil deposits within the construction site. Work may continue at non-fossiliferous locations while the deposits are being salvaged.

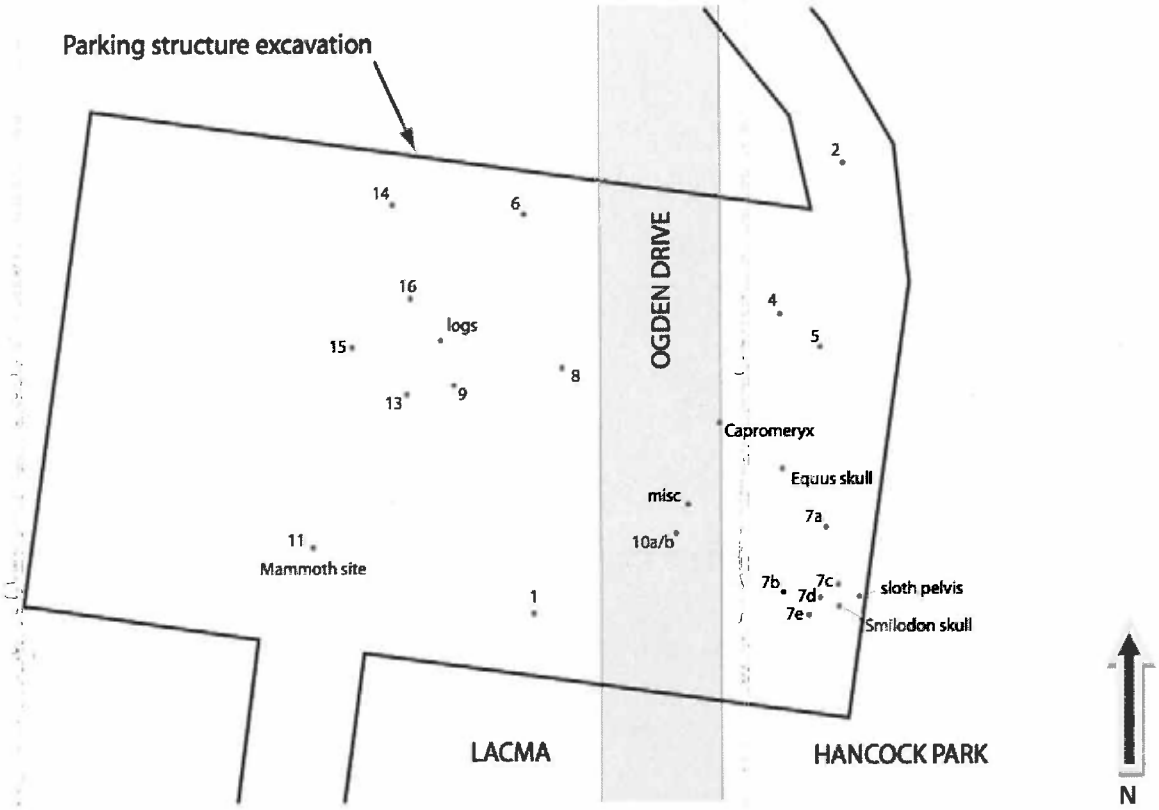

Fig 6: Map of fossil localities from LACMA parking garage

These were mostly asphaltic fossiliferous masses but included some occurrences of isolated bones, trees, and other fossils.

Fig 7: Fossil accumulation pedestals before tree box

After the deposit has been isolated it will be surrounded by metal bands to conserve its integrity before the box is built and a brightly colored strong plastic or a tarp to keep the deposit dirt separated from the 'fill' dirt.

Fig 8: Building a tree box around a fossil deposit

A custom sized box is then built around each deposit by a 'tree boxing' company. Valley Crest was used on the LACMA project. Any space between the plastic-wrapped deposit and the edge of the box must be filled with polyurethane foam, distinctly different sediment or gravel to preserve the integrity of the deposit and to prevent its deformation during subsequent transportation and storage. It is important that the 'fill' sediment be easily recognizable from the matrix during later excavation of the deposit.

Fig 9: Secure the tree box with metal bands

After the sides of the box are nailed into place, metal bands are added to secure and strengthen the sides of the box.

Fig 10: Tunnel under the tree box

After the sides of the box are secured and banded, the sediment beneath the box is removed by tunneling so that the box floor can be constructed. The field number and locality data must be clearly written on the outside of the box in permanent marker or paint. The orientation of the box and the depth below datum of the top and bottom of the deposit must also be clearly and permanently marked on the box, as well as added to the field notes for that deposit.

Figs 11, 12 & 13: Relocating the tree boxes by crane and truck

A crane is used to lift the completed boxes, load them onto a flat bed truck, and to relocate them to the place where their excavation will take place.

Isolated fossils

In addition to conical and flat tabular asphaltic accumulations, construction activities may encounter isolated fossils in non-asphaltic or asphaltic sediments such as the trees, mammoth skeleton, and bison and horse skulls that were discovered during the recent construction of the LACMA's underground parking structure. Similar procedures pertain. The area must be roped off in order for the monitors to determine the extent of the fossil occurrence, which may then be removed using conventional paleontological field techniques. Large or fragile bones must be pedestaled (with sediments immediately surrounding the fossil) and covered in a plaster and burlap jacket. The type of plaster used determines the time it takes to dry. Once the plaster is dry, it is flipped over and the other side is covered with plaster and burlap and left to dry completely. In the meantime paleontologists need to determine the extent of other isolated fossils in the area looking in particular for other elements of the skeleton of the jacketed specimen or sediments in which microfossils such as rodent, bird and reptile remains may occur.

It is crucial; that all isolated fossil occurrences be given a field number, their location recorded with a resource-grade GPS device, and these data entered into the field notes together with a map and description of the fossil, its orientation and its locality including description of the lithology in which the fossil was preserved. Standard guides such as Munsell Soil Color Charts should be used. The field number should be clearly and permanently affixed to the fossil and written on its container or jacket as appropriate. Maps must have a legend and scale to the show the orientation and depths of each fossil as well as a datum point. In addition to the field number, plaster jackets should also be marked "field side up" on the appropriate surface.

Fig 14: Excavating isolated fossils

Paleontologists need to excavate around large bones with hand tools before covering them with a protective plaster jacket for later removal and transport.

Fig 15: Mammoth discovered

This image show the mammoth locality in the context of the construction site during the LACMA underground parking garage.

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Attachment 2—Techniques for Excavation, Preparation and Curation of Fossils from the Project 23 Salvage at Rancho La Brea

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ATTACHMENT 2

Techniques for Excavation, Preparation and Curation of Fossils from the Project 23 Salvage at Rancho La Brea

Techniques for excavation, preparation and curation of fossils from the Project 23 salvage at Rancho La Brea.

A MANUAL FOR THE RESEARCH AND COLLECTIONS STAFF OF THE GEORGE C. PAGE MUSEUM

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2011

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Introduction

This document was compiled mid project to record and codify best practices for excavation, preparation and curation of specimens from Project 23 and other Rancho La Brea localities that are housed in the George C. Page Museum. Some of the techniques are similar to Pit 91 excavations that were reported by Shaw (1982) and others that are unique to Project 23 because of the nature of the salvage. This provides guidelines for possible future salvage efforts. Documents discussing the nature of the mitigation are available elsewhere.

Excavation Techniques for Project 23

Excavation of Project 23 deposits began in August, 2008. The measuring techniques used to determine and record data for *in situ* specimens follow those of Shaw (1982) for Pit 91 with some modifications described here (for instance, the imperial measurement system was used prior to Project 23). New excavation procedures have also been devised as a result of the removal of the deposits from their original location due to construction.

In Project 23, a custom-sized wooden box was built around each isolated plastic-wrapped deposit by a 'tree boxing' company (Valley Crest was used for this particular project). Any space between the deposit and the edge of the box was filled with either polyurethane foam or sediment to preserve the integrity of the deposit and to prevent its deformation during subsequent transportation and storage.

Because the deposits are no longer *in situ*, all excavation grids are oriented with respect to the deposits' original north orientation. Where feasible, box walls may be removed in part or in their entirety to allow excavation from the side of the deposit rather than from the top. Each "tree box" from Project 23 is treated differently depending on the type of deposit, size of the box and integrity of the sediments in the box. Refer to paleo mitigation protocol and ArchaeoPaleo report documents for descriptions on how the 'tree boxes' were constructed.

Preparing a tree box for excavation

First read all the field notes pertinent to that particular deposit. In a field notebook or deposit logbook document the nature of the "box" size, construction, fill, plastic, etc. If the box is taller than 5 feet, erect scaffolding for excavators to safely access the box. Depending on the size of

the tree box it may be necessary to construct a safety railing extending upward from the sides of the box. After the top of the box is safe to access, remove the metal bands that are strapped across the top of box. Use specific snips if recommended by the tree boxing company. Remove supportive fill dirt, foam and plastic to reveal deposit surface, taking care to maintain an appropriate area for excavators to work safely.

Depending on box stability and size, board walls or portions of board walls may be removed to enable excavation from the side of the deposit. Smaller boxes containing deposits with cohesive sediments may allow the removal of all sidewalls. For larger boxes, removal of one wall or a small "window" cut into a sidewall may be feasible.

Before any asphaltic sediment is removed, set up a gas monitor close to where work will be conducted. The Solaris Multigas Detector is an economical, 4-gas instrument providing simultaneous detection of CO, O2, H2S and combustible gas and costs ~$600 from Safety Tek Industries.

Grid layout

Determine the deposit's north side from field data and data written on the box.

Establish a datum point near the top of the box and record it based on field data. The datum point should not be removed during excavation.

Lay out grids into 1m x 1m squares with origin in the SE corner of the box using an alphanumeric system (N/S = A-Z; W/E = 1, 2, 3). Gridlines can be marked with string, spray paint or chalk and need to be refurbished and maintained periodically. A map of the box showing the grid lines and a north arrow should be drawn for reference.

Excavation and Documentation

After grids are established, clean surface to remove fill dirt, to determine sediment type and to locate fossils if exposed. Note nature and location of fossils (bones, shells, plant remains, etc.)

Excavate grids in 25 cm spits (i.e. Level 1=0cm-25cm, L2=25cm-50cm, etc). If multiple grids are worked on at the same time, ensure that this doesn't compromise the mapping of each spit wall and floor. If a deposit has been exposed from the side, the spits in any one grid may be excavated sequentially from the top to the base of the deposit.

Depending on degree of consolidation, use small hand tools (hammers, chisels, and screwdrivers as required) on non-fossiliferous areas. Pneumatic or electric hammers can be used on areas with hard matrix where there are no fossils. Use dental picks and small screwdrivers to expose and extract fossils. Hard asphaltic matrix can be softened with clamp lamps or loosened with a small amount of solvent. Measure exposed fossils *in situ* (see below) within each grid and record their data in field notes before extracting them.

Note: Clamp lamps should be placed at least 8" away from the specimens and always monitored. Never leave lamps unattended. If the sediments start to smoke immediately turn off the lamp. 150 watt incandescent unfrosted bulbs should be used.

Save all of the surrounding sediments but separate them based on sediment type into 5 gallon metal buckets with lids. The pre-designated sediment types are A= asphaltic sand, B=brown silts and C=clay. Mark each bucket with box #, grid and level data as well as the sediment type (A, B or C). Note the number of buckets of each sediment type from each grid on an inventory list kept by the lead excavator. This is important because it determines how each bucket is processed later (see matrix processing section).

Keep daily documentation in field notes of who is excavating, a list of the grid or grids being excavated and describe the type of matrix being removed, what is being found within each grid, and any challenges encountered with the excavation. Geologic and paleobiological data should be recorded in field notes for later use to constrain and further refine taphonomic, paleoenvironmental, and paleobiological interpretations. A description of each lithology (soil type) should include color (fresh and weathered), lithologic composition, grain size, sorting and shape, sedimentary structures, induration, type of cement, fossil content, and pedogenic features (rooting, nodules, slickensides, etc.). As excavation proceeds note unit thickness, nature of the bounding contacts (erosional, sharp, gradational), and inferred depositional setting. Note nature and location of fossils (bones, shells, plant remains, etc.). Any visible modifications to the bones (weathering, polish, abrasion, scratch/tooth marks, root traces, borings, pitwear, breakage, distortion) and gross orientation should be recorded. Features of the matrix surrounding the bones, such as alteration halos, mineral crusts, micro-structures, fine root traces (small burrows or borings), and localized invertebrate bioturbation should be noted. The degree and nature of articulated, semi-articulated, associated, and dissociated skeletal elements should be described. Notes should also be taken on the general geometry of the fossil deposit (vertical pipe, tabular, etc.) drawings and/or photographs should be taken when appropriate.

Measurement system

The most common types of macrofossils recovered from asphaltic deposits are isolated bones. The following measurement system has been devised for capturing data for individual bones.

See the Special Cases section for the treatment of associated skeletons, dermal ossicles, plant masses, etc.

In situ measurements are taken from specific anatomical points on each bone (see Table 1 and 2 Appendix A) to define its spatial orientation with reference to its depth below an established datum point (BD), its distance north (N) of the southern grid line and its distance west (W) of the east grid line using the metric system (see Fig 1. of Shaw (1982) but note this uses the imperial measurement system). Recording this data at the time of excavation will facilitate studies of stream current energy and direction, deposition, and taphonomy.

All identifiable bones from 1 cm to 2 cm in size should be measured *in situ* as a 1-point measurement before being excavated. Each Standard Measurement (BD, N, W) is taken to the center point of the longest dimension (Fig. 3)

Bones larger than 2cm in minimum length or diameter should be measured as either a 2-point or a 3-point measurement. The 3-point measurement is used on all bones in which three predetermined identifiable anatomical points are visible. The 2-point measurement is used if the bone lacks three distinct reference points and records the orientation of the long axis of the specimen (proximal-distal, anterior-posterior, medial-lateral, etc.). Detailed instructions for measuring out specimens are provided by Shaw (1982), which also lists the elements that generally fall into each of these categories.

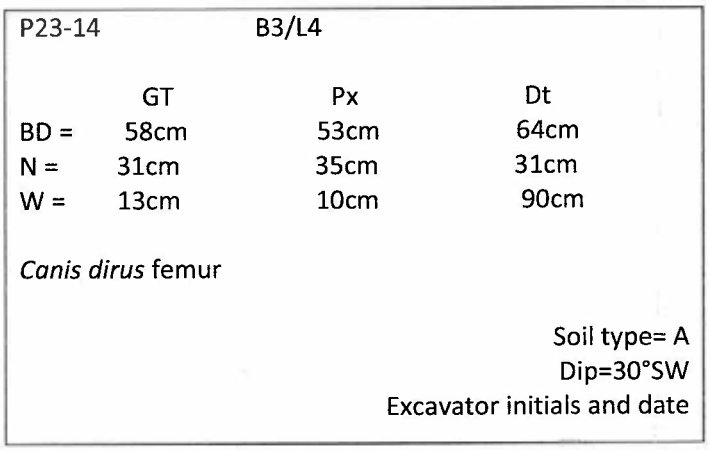
All the data pertinent to the specimen should be recorded in the field notebook and should also accompany the specimen until its preparation and curation have been completed. One method of doing this is to duplicate the field notebook entries onto a 3" x 5" card using carbon paper (Fig 1, 2 and 3 below). This card then accompanies the specimen throughout its preparation, curation, and final cataloging. Only when the data have been recorded in the catalog are they separated.

In addition to measurements on individual bones, the dip of all limb bones and skulls should be recorded with a Brunton compass. Recording these data at the time of excavation will assist with interpretation of stream current energy and direction, and taphonomy which may include possible vertical movement in a vent, trampling, etc.

The soil type surrounding each measured bone should also be noted on the 3" x 5" card by a letter using a pre-designated lettering system. The pre-designated sediment types are A= asphaltic sand, B=brown silts and C=clay.

After a bone has been measured *in situ*, it is placed in an appropriate sized clear plastic bag. The 3" x 5" data card is placed in its own small clear plastic bag for safety and then placed in the bag with the bone.

Fig 1: Example of excavation data for a 3-point measurement in a field notebook and transcribed onto a 3" x 5" card template.

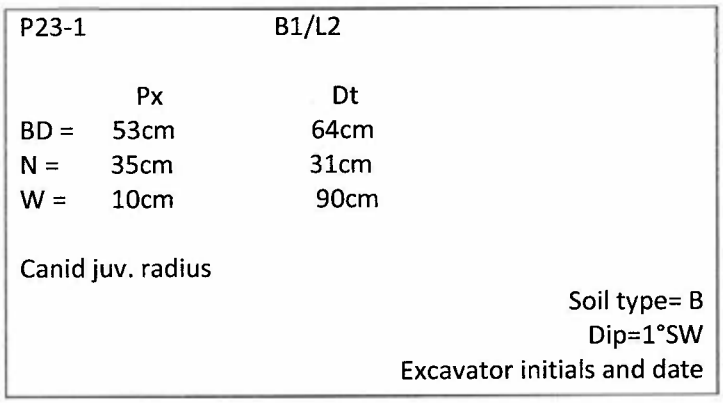


P23-14 = Project 23-Box 14
B3/L4 = grid B3/level 75cm-100cm

GT = Greater Trochanter is 58cm below datum, 31cm from the south grid axis and 13cm for the east axis
Px = Proximal end is 53cm below datum, 35cm from the south grid axis and 10cm from the east axis
Dt = Distal end is 64cm below datum, 31cm from the south axis and 90cm from the east axis

Soil type A= asphaltic sand

Fig 2: Excavation data for a 2-point measurement in a field notebook and transcribed onto a 3" x 5" card template.

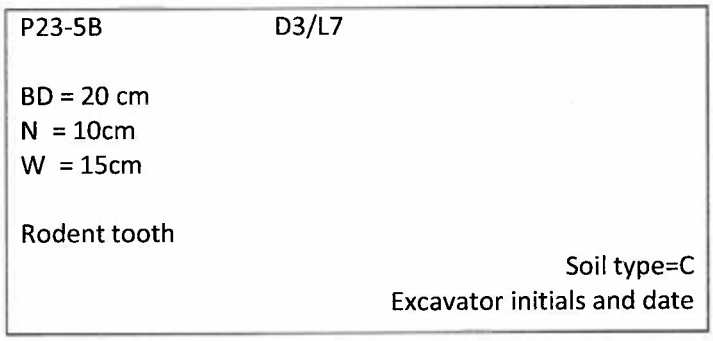


P23-1 = Project 23-Box 1
B1/L2 = grid B1/level 25cm-50cm

Px = Proximal end is 53cm below datum, 35cm from the south grid axis and 10cm from the east axis
Dt = Distal end is 64cm below datum, 31cm from the south axis and 90cm from the east axis

Soil type B= brown silt

Fig 3: Excavation data for a 1-point measurement in a field notebook and transcribed onto a 3" x 5" card template.



P23-5B = Project 23-Box 5B
D3/L7 = grid D3/level 150cm-175cm

20cm below datum
10cm from south gridline
15cm from east gridline

Soil type=clay

Specimens smaller than 1 cm, fragments, or unidentifiable smaller bones are placed into "bulk matrix bags" together with field data cards (P23-deposit # and grid/level information, excavator initials and date). Because they are known to contain fossils, the bulk matrix bags will be processed before the rest of the matrix samples. Keep associated fragments together in capsules or envelopes within the bag. Be sure to always place delicate bones into snap cap vials first and then into a clear plastic bag with their data. If a fossil is not in place, identify it and label it "not *in situ*"

Special cases

Each special case requires consultation by lab and collections staff to assess the best way of documenting each potentially unique occurrence.

- An articulated or associated skeleton should be extensively photographed. If, after consultation with Lab and collection staff this is removed as a small block, be sure to place a white pin in the top surface along the northern middle portion of the block so that it can be oriented later. Draw and annotate a diagram of the block and the elements that are visible on each surface before it is removed. Measure out the block as a 2-point measurement. Elements within the block that can be identified and measured without compromising the specimens should be also noted and can be measured using the 1 or 2-point measurement system but should not be removed from the block. Labeled copies of all photographs should be placed in the bag with the specimen. This is additional to downloading the photographs to the archive computer (see photography section). Articulated or semi-articulated specimens should be extracted in articulation and the sediments around the specimens stabilized to conserve the maximum amount of information derivable from the specimen.

- Bone masses with poorly preserved specimens (fragmented and/or less asphalt-impregnated) are more difficult to measure out individually. Measure out the extent of the mass with the 2-point system rather than the constituent bones. Place a white pin in the top surface along the northern middle portion of the block so that it can be oriented later. Photograph in situ specimens, print and label images and place them in the bag with the specimens.

- As instructed by Lab and collections staff, and depending on their nature and frequency, dermal ossicles and pockets of plant, shell or insect material should either be measured out as a small block with a 2-point measurement (same as above) or placed in pre-labeled bags with locality information for a specific 10cm square within the 1m x 1m grid.

Geologic Samples

Collect 15 cm by 15 cm soil samples of each sediment type from each grid and level for geologic analysis of composition, weathering, and grain size at a later date. Document each sample in your notebook and measure each one *in situ* as a block using the 2-point measurement system used for fossils and described above. Each sample should have a white pin placed on the upper surface in the northern middle portion of the sample so that later the sample can be oriented. Transcribe all data onto a 3" x 5" card and place in a clear plastic bag with the soil sample. A list of soil samples taken should be kept by the lead excavator for each grid and deposit.

When spits are completed, photograph and map each exposed wall and the floor.

Floor and Wall mapping

When mapping a wall or floor (Fig. 4, 5 and 6)

- Draw maps on graph paper with a scale of 3 squares = 10 cm.
- Keep the origin point (0, 0) in the southeast corner.
- Mark north arrow.
- Draw in empty spaces and the edge of the box when present.
- Mark asphalt and sediment contacts.
- Use standardized symbols for lithologies and other known sedimentary features. Also
- Indicate where fossils, cobbles, bone, shells and plants masses are located (Fig 4).

Figure 4: Standard symbols used in mapping each grid's floor and wall

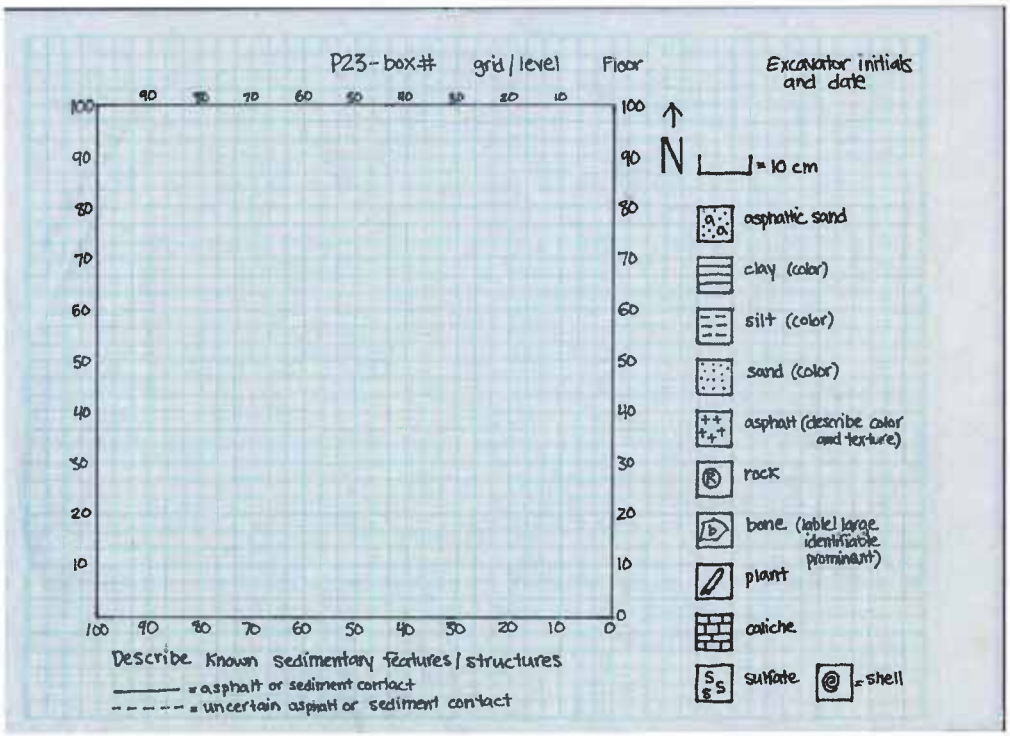


Figure 5: Sample drawing of the floor of grid C3/L3 of box 14

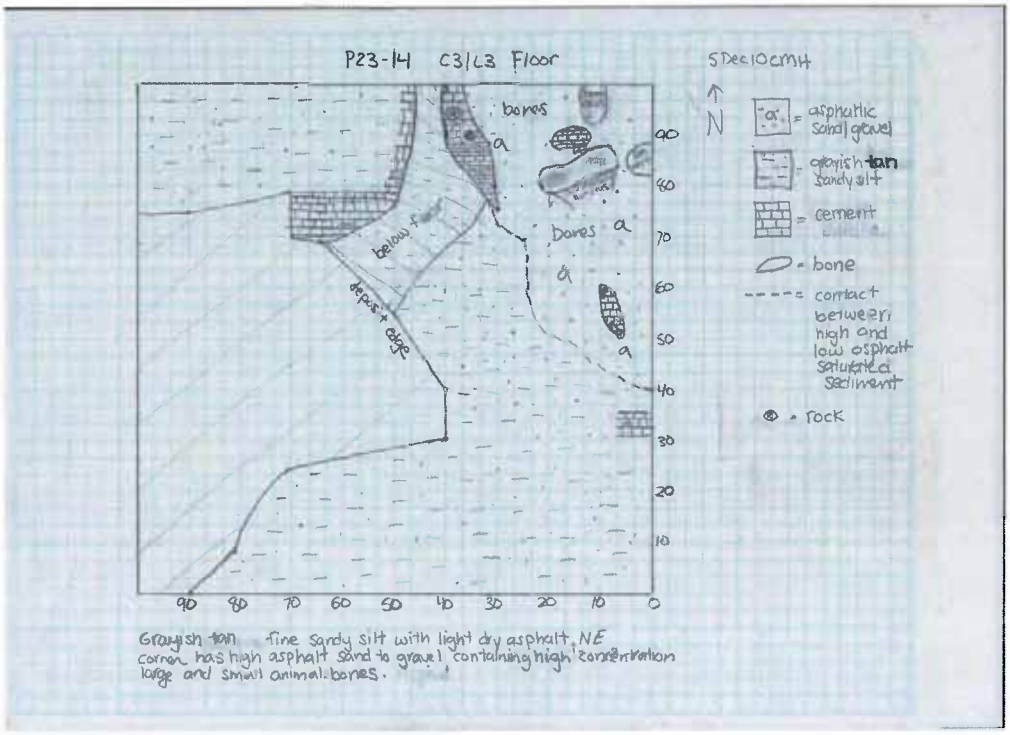
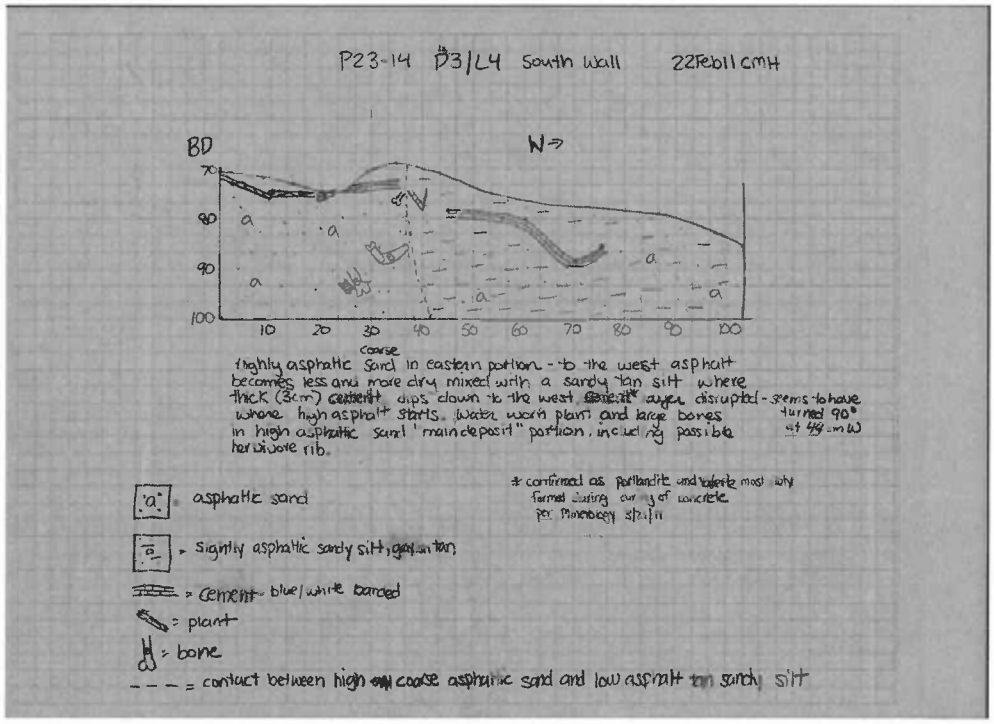


Figure 6: sample drawing of the south wall of grid D3/L4 of box 14



Photography

Photo documentation and the labeling of downloaded images are very important. In the field photo logbook provided, record all the images that you take. This is shared by everyone and has columns for name of photographer, date, box #, grid and level, orientation of image, file number and special notes. Take a photograph whenever it might be useful for lab staff and researchers to see how a specimen was oriented in the ground, broken in a certain way or for any other unusual circumstance. Always photograph the floor and each wall of a grid before starting a new one.

When photographing a specimen:

Write the project name, box #, grid and level #'s, orientation, description of what you are photographing, the date and excavator initials on a 3"x 5" card with a black sharpie and place next to the object you are photographing.

For example:

P23-14 C3/L3

Skull , ventral view ↑

N

Excavator initials and date

Print the photo as soon as possible and place it in the bag with the specimen. This may not be necessary for all the images of *in situ* specimens, so make a judgment call here.

When photographing a floor or wall:

- Write the project name, box #, grid and level #'s, orientation, the date and excavator initials on a 3"x 5" card with a black sharpie.

For example:

P23-14 C3/L3

South Wall ↑

Excavator initials and date N

- Place meter sticks in north and west orientation.
- Take a picture of each exposed wall and floor with the card and meter sticks in frame so as not to cover up any significant features and so the information on the card can be used to tag the photograph in the database.

Download all photographic images to the archive computer and place in the folder "to be sorted" under My Pictures\Project23 under the project 23 login. Rename your files appropriately so that they can be retrieved, tagged in Adobe Bridge and added to the EMu database. This is where the photo logbook will be useful. Each image should be named with the following conventions in order to be searchable in the database:

1. If it is a photo of a grid and a level then name it P23-1 B1 L2 where P23-1 refers to the Box number, B1 refers to the grid and L2 refers to the level. Notice a space between P23-1 and B1 and also between B1 and L2. This is on purpose and helps the database find the files. If there is no level just enter the information that you have.
2. If it is just an image of several grids just name it with the box number e.g. P23-14.

3. If it is a photo of a possible associated skeleton or a specimen in the ground include some more information such as what it might be e.g. P23-1 B1 L2 bird skeleton

Data entry of field notes

Write field notes in pre-bound notebooks. For each day compile a daily journal that includes notes on the weather, who was working, general work done that day, grids being worked on, etc. as well as geological information on open grids and specimen measurements. On a weekly basis all excavation notes, photographs and grid drawings will be captured electronically.

- Type journal entries into word documents with each day saved as a new file. The naming convention of the file should be "project yearmonthday initials" (e.g. P23 20090201 ABF). Within the word doc file at the top of the page type the initials of the excavator and the date. This serves as a search tool for the database. Save these to the flash drive that is provided. The Collections Manager will import these data into the database.

- Type specimen measurement data into a pre-prepared Excel spreadsheet and save to the flash drive provided. The Collections Manager will import these data into the database.

- The floor and wall drawings and photographs for each grid must be scanned and downloaded onto the archive computer at the Page Museum.

Matrix processing

There are two different ways that matrix from the excavation is processed. All asphaltic matrix from or adjacent to asphaltic bone concentrations needs to be processed with solvent in a vapor degreaser in order to release small bones and other plant, insect, invertebrate and vertebrate remains from the asphalt. After degreasing, the matrix is dried and dry screened to remove the clay-to-silt fraction. The remaining concentrate is sorted for microfossils under a microscope.

Samples of other (apparently non-fossiliferous) non-asphaltic sediments are screen-washed in water on 20 mesh screens and the concentrates are sorted for microfossils under a microscope. If there is no evidence of microfossils in the sample, the remaining material from that facies of that grid may be discarded (except for the 15 cm archival cube that was collected during excavation of the grid).

Laboratory Protocols

All material sent to the Lab for cleaning is triaged to resolve appropriate methodology, account for the skill level of available lab workers, and for research and collection priorities. An n-propyl bromide solvent is used to remove asphalt from the bones. Trade names for this solvent include Lenium, GenTech and EcoMax. Elmers white glue is used to repair broken bones and Acryloid (Paraloid) B-72 (Ethyl methacrylate copolymer) is occasionally used to consolidate dry bones.

Prioritize new specimens

1. For cleaning method
    - Sort and store by locality, grid, depth.
    - Sub-sort by best cleaning method: ultrasonic, soaking, or hand prep.
2. For significance
    - Rareness of taxon
    - Incomplete section of previously excavated specimen
    - New element of known individual skeleton from that locality
    - Unrecognizable to element or taxon.

Ultrasonic cleaning

Ultrasonic cleaning can be used for the following types of specimens:

- Complete or sturdy bones measured in individually (examples include *Smilodon* or *Canis dirus* carpals, tarsals, phalanges)
- Complete or mostly intact avian bones. The feasibility of processing other fragile bones, including broken small bones, should be assessed by the person who will be re-assembling them.
- Shells, insects, and concentrations of mollusks or insects from within known locality with measurements.

Steps to be followed

1. Place each specimen or sample in a baby food-sized jar with all contents of envelope.
2. With pencil, number the envelope and the top of the jar (on masking tape).
3. Prepare six jars as above.
4. Fill with solvent to an equal level in all jars.
5. Place in ultrasonic tank and fill with water up to the level of solvent in jars.
6. Buzz for fifteen minutes.
7. Strain contents of jar through 20 mesh screen on top of pitcher.
8. Rinse with clean solvent.
9. Check specimen or sample for matrix, detail with brush or skewer as needed.
10. Place each specimen or sample on separate paper tray, with flipped out matrix, data, and masking tape number from jar top.
11. Let dry over night, polish, and sort matrix.
12. Solvent that was strained into pitcher can be reused for setting up next batch of six jars if not too dirty.

Pre-soaking

- Large bone masses: If there is no single identifiable bone, put it in a large jar or a bucket with more solvent than volume of mass. Mass may require a second rinse if solvent becomes too thick with asphalt.
- Unusually hard matrix: Put all of the specimen and loose matrix in jar with data taped to lid.
- Broken *in situ* specimens: If matrix is in internal structure of bone, soak and rinse.

Hand preparation

- Individual specimens with positional data include vertebrae, ribs, long bones, etc. that are relatively complete.

Steps to be followed

1. Rubber stamp, date, and write the signature of preparator on back of data card.
2. Empty all contents of plastic bag or envelope into stainless steel pan.
3. Wet specimen with solvent from squirt bottle.
4. Scrub with tooth brush, dipped in small jar of solvent (n-propyl bromide)
5. DISOLVE MATRIX, DO NOT PUSH OFF WITH BRUSH OR OTHER TOOL.
6. Wood skewers or sticks can be used to loosen or nudge matrix off (If the stick breaks, the matrix is not soft enough yet)
7. When specimens appear clean, rinse thoroughly with solvent and immediately hold in front of vent for quick dry. Matrix still adhering to specimen will be black or darker than bone.
8. DENTAL TOOLS ARE TO BE USED FOR THE REMOVAL OF VISIBLE ROCKS ONLY!
9. When the entire matrix has been removed, place specimen, data card and jarred contents of metal pan matrix on paper tray lined with paper towels to dry.
10. DO NOT GLUE UNTIL ALL MATRIX IS SORTED.

- Multiple pieces of one specimen.

1. Should be prepared by one person but treated as separate projects.
2. Finished elements held until all parts are done.
3. If glued, the part that goes with which data should be recorded in pencil on back of data card.

- Possibly associated elements of one individual

1. Treat as above but can be cleaned by multiple preparators.
2. Label for possible association with a known skeleton or a single other element. [more specific].

- Skulls

1. External surfaces should be freed of larger associated specimens and gross matrix clumps using toothbrushes and solvent.
2. DO NOT POKE IN EARS, NOSE OR BRAIN CASE.
3. At the end of session, immerse in solvent in sealable bucket with copy of data on lid.
4. Soak for two or three days.
5. Hold skull over bucket and flush with clean solvent to remove loose matrix.
6. Working in metal tray, nudge with skewers to loosen softened matrix and rinse off.
7. Add removed matrix back into bucket.
8. Replace skull in bucket at end of session.
9. If the tympanic bulla is intact, nudge and rinse ear region over metal pan and process matrix separately for ear ossicles.
10. When brain case and nasal region are mostly free of matrix, skull will not need to continue to soak and can dry between sessions.
11. Strain contents of bucket.

Polishing

- When specimen has dried overnight, go over small sections of solid bone with a dampened **soft cloth**, then go over the same space with a dry cloth. Exposed cancellous tissue should be blotted with a damp rag. Not rubbed!
- If there are small spaces that cannot be reached with a rag use a pipe cleaner or Q-tip. Dip it in solvent and blot off some liquid before applying. IF THE SPECIMEN GETS DARKER OR BEGINS TO LEAK ASPHALT, IT IS TOO WET. Put aside for a day and begin again.

Processing Matrix from Individual specimens

- Processing sediment that has been soaked in solvent. (most common situation)

1. Pour contents through 20 mesh screen sitting on funnel into carboy.
2. Rinse with clean solvent.
3. With one motion, flip contents onto paper toweling on a paper tray.
4. Make sure everything is out of jar and out of screen.
5. Place tray near vent to dry.
6. When completely dry, sift and put in appropriate sized jar for later sorting.
7. If matrix appears clumpy after sifting, re-soak in solvent.
8. If matrix appears dirty with clay or silt after sifting, soak in hot water with a small amount (1 tsp) of detergent)

- Processing soaked in water sediment.
  1. Pour contents of jar through 20 mesh screen in a basin in the sink.
  2. Agitate the screen in clean warm water.
  3. Flip contents onto newspaper and leave screen on top to thoroughly dry.

Microfossil sorting

When the matrix from an individual specimen is clean and dry it is ready for microfossil sorting.

Take the entire project (specimen, data and matrix) to a sorting station.

Do not pour out more matrix than you have time to sort. Only 1½ to 2 Tbs. may take several hours.

1. Sifting
   - Always sift matrix before sorting even if it was sifted before putting in a jar.
   - Sift through a designated 20 mesh screen with 2 inch sides.
   - Shake back and forth, (not up and down) over a paper towel.

- Empty contents of screen onto a clean piece of white sorting paper and shape matrix into a pile.
- Discard the fine soil that went through the sifter.

2. Sorting
   - Examine matrix, several grains at a time, by moving it across the paper with a fine paintbrush.
   - Create a "discard pile" for sediment and oxidized asphalt.
   - Move bone, plant, shell and insect fossils into distinct piles on one side of the paper.
   - Create a "questions" pile for indeterminate fossils.
   - When the entire matrix has been categorized, review fossils and "discard pile".
   - Have a staff person double check sorting.
   - It may be necessary to examine some specimens under the microscope.
3. Temporary packaging of categories
   a. <u>If all of the matrix of a individual project is sorted</u>
      - Review bone and separate into three categories:
      - 1. Broken pieces of the main bone (put aside for possible gluing);
      - 2. Identifiable bones (put into individual capsules or plastic containers);
      - 3. Unidentifiable bone fragments (put into one capsule or larger container).
      - Review plant material (separate seeds and put into capsule) and put into glass vial.
      - Review insect and put into one capsule.
      - Review shell and put into one capsule.

   b. <u>If only a portion of the matrix is sorted</u>
      - Place complete identifiable bones in capsules.
      - Place all bone fragments, plant, insect and shell into their own labeled containers.

When a large project is complete, all of the bone fragments must be reviewed and sorted to the above categories. It will be necessary to look at the small bone fragments under the microscope to determine the final number of Identifiable bones.

Gluing

DO NOT GLUE UNTIL ALL MATRIX REMOVAL, POLISHING AND MATRIX SORTING IS DONE.

Use white glue for reconstructing most bones because it is reversible with warm water.

If a specimen is shattered, first reconstruct it holding the pieces together with masking tape. Do not glue until all of the fragments have been tested in available holes. Determine where all the major fragments go first and then glue from one direction. Have small strips of masking tape cut before the glue is applied. Apply glue with stick or dental pick in small amounts to the broken edges. Tape glued pieces in place and/or balance in sandbox for drying. Allow large pieces to dry overnight.

Envelopes for finished projects

A copy of the original data must be made for every identifiable bone and one copy each for vial containing plant, insect, shell and unidentifiable bone. A rubber stamp template for "Found in assoc. w/" data is stamped on the face of a #5 ½ coin envelope. An exact copy of the original is then filled in. Note: Do not change the tentative field identification that is part of the original data even if it is wrong. The back of the envelope is stamped with a template for the scientific identification. If an "assoc. w/ bone "or the plant fragment is too large to fit inside an envelope, it should be put in a small plastic bag with an envelope. The envelopes are stapled shut and the entire project is put in one large plastic bag.

The finished bag should include the main bone, fragments of the main bone that could not be glued on, the original data and all the "associated with" specimens.

Pre-Curation

After the specimens have been cleaned, the microfossils sorted and put into individual capsules and individual envelopes have been made for each specimen with all of the provenance data written on each envelope (see laboratory procedures) they are sent to the curation station. Identification of all of the fossils takes place near the comparative collection in the lab in order to facilitate identification. The principal measured out specimen with its original 3"x 5" field data card is identified first. The card is stamped on the back with a custom stamp with Scientific Name, Element, Identifier, and Notes. The specimen is identified as much as possible but identifications necessarily range from class identification such as Aves to genus and species. The identifier also describes the element according to an established list of bone terminology. Then each of the microfossils associated with that main bone are also identified in the same manner. After all of the microfossils that accompany that main specimen are identified, they are placed in a clear plastic bag with a twist tie and sent to the cataloging station. Below are detailed step-by-step instructions on how to identify specimens.

For each specimen follow the steps below in the order given.

1. Choose a specimen from the 'to be identified' box. If several envelopes are fastened together you must keep them together and complete the work on all of them.
2. Check the bone to see if it is clean and that all broken pieces have been glued if possible. If the bone is not clean then do not proceed with that one and send it back to the lab
3. Identify the bone using the reference collection and write the identification on the back of the envelope or card in pencil. Only use paperclips to join envelopes together.
4. Check to see if the main identified bone is in the original envelope or with the original 3" x 5" card.
5. Send identified specimen to be cataloged

- Always put the comparative bone back in the box it came from!
- if you find a 'found in association with' envelope which is not still with its original envelope, find the original envelope and fasten them together
- put all tools away and empty bags and containers

Associated groups

If there is more than one specimen in an envelope the principal bone for which the measurements were recorded should remain in the original envelope. The other specimens should be treated as follows;

- all plants in one envelope
- all insects in one envelope
- all shells in one envelope
- each identifiable bone in a separate envelope, along with any of its broken pieces
- all unidentifiable bone in one envelope
- all difficult to identify bones in one envelope

Use envelopes stamped "Found in Association with" and make a complete copy of the information from the original envelope on each one.

Identifiable and Unidentifiable Specimens

Identifiable bone characteristics:

- presence of an articular surface
- cross-sectional shape
- foramina
- distinctive curves
- relative size combined with other features

Bones are rated in three different grades of how easy they are to identify

- identifiable
- difficult to identify
- unidentifiable

Double check all identifications

Identification of Specimens

The back of each envelope is marked with a custom stamp (stamp in bold below). Identifications are printed in pencil. An example below

- **Scientific name:** *Smilodon* (use both genus and species if more than one species)
- **Element:** prox. rt. tibia
- **Special Notes:** Pathology
- **Identifier:** ABF

1. Avoid using terms such as "frag" or "portion". Use prox. or dist. if appropriate.
2. You must not abbreviate scientific names but you may use abbreviations for the elements as long as they are the ones listed in this manual.
3. When identifying skulls and mandibles always list the teeth that are present and if they are erupting, fully erupted or worn.
4. The format of the identification is very important. Do not invert the word sequence e.g. prox. rt. rib is correct but rib, rt. prox. is not.
5. For incomplete bones name both the bone e.g. XIII thoracic vert and either the represented part e.g. centrum or the missing portion, e.g., w/o right transverse process. Make sure that the identity of the bone and its qualifier are both listed.
6. Be specific about the identity of any represented epiphysis, e.g., proximal or distal epiphysis of a limb bone, or head epiph of lt femur or ant cent epiph of thoracic vert.

7. Ordinal numbers of ribs, vertebrae, metapodials and digits are written in Roman numerals e.g. rt. II rib or XII thoracic vert

8. Number of phalanges and teeth are written in Arabic numerals e.g. 2nd phalanx or rt. M1. Note that abbreviations for upper molars are written in upper case letters (I, C, P, M) whereas those for lower teeth are written in lower case (i, c, p, m). For clarity of handwritten entries, put a line below the number for upper teeth (e.g. P4/) and a line above the number for lower teeth (e.g. m/1).

9. The side, either left or right comes before a number e.g. rt. II metatarsal

10. There are two special cases:

    - Phalanges that can be precisely named include sloth phalanges, carnivore 'thumb' phalanges and bird carpal phalanges e.g. rt. 1st carpal phalanx, digit I

    - Teeth which can be specifically named e.g. lt. p2

11. Skull fragments: if the facial or cranial region of the skull is mostly intact this can be recorded as 'ant' or 'post' skull. However if there are only a few fragments the individual bones are named e.g. basisphenoid, occipital and rt. temporal or indicate if some parts are missing, e.g. post. skull w/o rt. occipital.

12. Juvenile specimens: it is important to note if an epiphysis is missing as the order of ephiphyseal fusion is used to detect the age of an animal. Also mark "juv." in the special notes section of the identification.

Abbreviations chart for elements

Left: lt.	Posterior: post.	With: w/
Right: rt.	Ventral: vent.	Without: w/o
Proximal: prox.	Dorsal: dors.	Juvenile: juv.
Distal: dist.	Medial: med.	Pathological: path.
Anterior: ant.	Lateral: lat.	Unidentifiable: unid.

Difficult to identify: diff.

Zygomatic: zygo.

Epiphysis: epiph.

Diaphysis: diaph.

Tuberosity: tub.

Trochanter: troch.

Articular: artic.

Vertebra: vert.

Transverse: trans.

Process: proc.

Centrum: cent.

Prezygapophysis: prezyg.

Postzygapophysis: postzyg.

Incisor: I (upper) or i (lower)

Canine: C (upper) or c (lower)

Premolar: P (upper) or p (lower)

Molar: M (upper) or m (lower)

Deciduous: D

Dental formulae for Rancho La Brea fauna

Dental formulae are a short hand way of indicating the number and kind of teeth that are present. The upper jaw is indicated first and the teeth are in order: incisor, canine, premolar, molar.

Ruminant artiodactyls

0,0,3,3 / 3,1,3,3

(Antilocapra, Bison, Capromeryx, Odocoileus)

Camelids

Camelops: 1,1,2,3 / 3,1,1,3

Hemiauchenia: 1,1,2,3 / 3,1,1-3,3

Peccaries

Platygonus: 3,1,4,3 / 3,1,4,3

Horses

Equus: 3,1,3,3 / 3,1,3,3

Tapirs

Tapirus: 3,1,4,3 / 3,1,4,3

Dogs and bears

3,1,4,2 / 3,1,4,3

(Arctodus, Canis dirus, Canis latrans, Urocyon, Ursus)

Cats

3,1,3,1 / 3,1,2,1

(Felis atrox: Felis concolor: Lynx)

Sabertoothed cats

Smilodon: 3,1,2,1 / 3,1,1,1

Skunks, weasels, & badgers

3,1,3,1 / 3,1,3,2

- Tympanic bulla
- Vomer

Auditory ossicles

- Malleus
- Incus
- Stapes

Mandible

- Angular process
- Coronoid
- Articular condyle
- Symphysis

Hyoid

- Basihyal
- Epihyal
- Thyrohyal
- Ceratohyal
- Stylohyal

Teeth

- Permanent upper and lower. Upper denoted by upper case abbreviation and lower by lower case abbreviation.
    - Incisor – I (upper) or i (lower)
    - Canine – C (upper) or c (lower
    - Premolar – P (upper) or p (lower)
    - Molar – M (upper) or m (lower)
- Deciduous upper and lower. Upper denoted by upper case abbreviation and lower by lower case abbreviation.
    - Incisor – DI (upper) or di (lower)
    - Canine – DC (upper or dc (lower)
    - Premolar –DP (upper) or dp (lower)

Vertebra (e)

- Atlas
- Axis
- Caudal
- Centrum
- Cervical
- Lumbar
- Neural spine
- Odontoid process
- Postzygapophysis
- Prezygapohysis
- Sacral
- Sacrum
- Thoracic
- Transverse process
- Wing

Ribs

- Capitulum
- Shaft
- Tuberculum

Sternum

- Manubrium
- Sternebra
- Xiphisternum

Scapula

- Acromium process
- Coracoid process
- Glenoid fossa
- Metacromion
- Spine
- Vertebral border

Humerus

- Deltoid tuberosity
- Entepicondylar foramen
- Greater tuberosity
- Head
- Lateral condyle
- Lateral epicondyle
- Lesser tuberosity
- Medial condyle
- Medial epicondyle

Radius

- Styloid process
- Radial tuberosity

Ulna

- Coronoid process
- Olecranon
- Semilunar notch
- Styloid process
- Radial notch

Carpals

- Cuneiform
- Trapezium
- Lunar
- Magnum
- Trapezoid
- Central
- Pisiform
- Unciform
- Radial sesamoid
- Scapholunar
- Scaphoid

Metacarpal

- Plantar tubercle

Sesamoids

- Proximal sesamoid
- Distal sesamoid

Phalanges

- 1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th}
- Carpal
- Tarsal

Inominate

- Acetabulum
- Iliac crest
- Ilium

- Ischial tuberosity
- Ischium
- Pubic symphysis
- Pubis

Fabella

- Lateral
- Medial

Femur

- Greater trochanter
- Head
- Lateral condyle
- Lateral epicondyle
- Lesser trochanter
- Medial condyle
- Medial epicondyle
- Neck
- Patellar track
- Third trochanter

Patella

Tibia

- Lateral condyle
- Medial condyle
- Medial malleolus
- Tibial tuberosity

Fibula

- Head
- Lateral malleolus
- Distal fibula (herbivore)

Tarsals

- Astragalus
- Calcaneum
- Cuboid
- Ectocuneiform
- Entocuneiform
- Mesocuneiform
- Navicular
- Sustentaculum
- Naviculocuboid

- Mesoectocuneiform

Metatarsal

- Plantar tubercle

Non-articulating bones

- Baculum (male)
- Dermal ossicle (sloth)
- Sclerotic ossicles (birds and lizards)
- Falciform (sloth)
- Tracheal ring (birds)
- Dermal scale (lizard)

Variations for juveniles

- Diaphysis – shaft of juvenile long bone
- Epiphysis – the unfused articular surfaces of juvenile bone

Numbers

- Ribs – roman numerals
- Metapodials – roman numerals
- Digits – roman numerals
- Phalanges – Arabic numerals—1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th}, terminal

Curation

In order to curate specimens into the collections of the George C. Page Museum, all of the above-mentioned steps for excavation, preparation, and identification must be followed. The field number, orientation measurements, and pertinent field notes and photographs are all integral parts of the specimen information and must be readily available. Each specimen will receive an individual catalog number that is first recorded in an archival catalog book and then entered into the electronic database EMu, which is stored on the Natural History Museum's server. Once cataloged, each specimen is stored taxonomically in the collections. Specimens are housed in metal or wooden drawers within standard metal Lane cabinets. On average each drawer holds about seventy five specimens and each cabinet contains nine drawers.

Based on a typical deposit for Project 23, a 1m X 1m x 25cm grid yields approximately 1000 macro-vertebrate specimens per one (1) cubic meter. Additionally each cubic meter can have up to 2000 micro-vertebrate fossils. A typical conical shaped deposit can be up to 30 cubic meters.

Appendix A

Table 1. Anatomical codes used for orienting specimens in the 2- and 3-point measurement system.

A -- Anterior	Px -- Proximal
P -- Posterior	Dt -- Distal
M -- Medial	Lt -- Left
L -- Lateral	Rt -- Right
D -- Dorsal	R -- Root
V -- Ventral	C -- Crown

Table 2. Anatomical codes of osteologic points used for orienting specimens in the 3-point measurement system.

MAMMALS

Skull:
- AP - Anterior Premaxillae
- OC - Occipital Condyles
- POP- Postorbital Process (Rt or Lt)

Vertebra:
- AC - Anterior Centrum
- ANS- Anterior Neural Spine
- NS - Neural Spine
- PC - Posterior Centrum
- TP - Transverse Process (Rt and Lt)

Scapula:
- AP - Acromion Process
- CP - Coracoid Process
- D - Dorsal
- PA - Posterior Angle
- V - Ventral

Radius:
- Dt - Distal
- Px - Proximal
- RT - Radial Tuberosity

Innominate:
- IC - Iliac Crest
- IS - Ischial Tuberosity
- PU - Anterior Pubic Symphysis

Tibia:
- Dt - Distal
- Px - Proximal
- TT - Tibial Tuberosity

Calcaneus:
- Dt - Distal
- Px - Proximal
- S - Sustentaculum

Mandible;
- A - Anterior
- CP - Coronoid Process
- P - Posterior

Rib:
- Dt - Distal
- GC - Greatest Curve
- Px - Proximal
- Tub- Tuberculum

Humerus;
- Dt - Distal
- LEP- Lateral Epicondyle
- MEP- Medial Epicondyle
- Px - Proximal

Ulna:
- CP - Coronoid Process
- Dt - Distal
- Px - Proximal

Femur:
- Dt - Distal
- FC - Fovea Capitis
- Px - Proximal

Fibula;
- Dt - Distal
- LM - Lateral Malleolus
- Px - Proximal

Metapodial:
- Dt - Distal
- PT - Plantar Tubercle
- Px - Proximal

BIRDS

Skull:
- Same as Mammals

Vertebra:
- NS - Neural Spine
- TP - Transverse Process (Rt and Lt)

Mandible:
- Same as Mammals

Sternum:
- A - Anterior
- CA - Carinal Apex
- P - Posterior

Attachment 3—Wilshire/Fairfax Station Construction. Paleontological Resources Extraction

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WESTSIDE SUBWAY EXTENSION PROJECT

Wilshire/Fairfax Station Construction. Paleontological Resources Extraction.

Metro

December 2011

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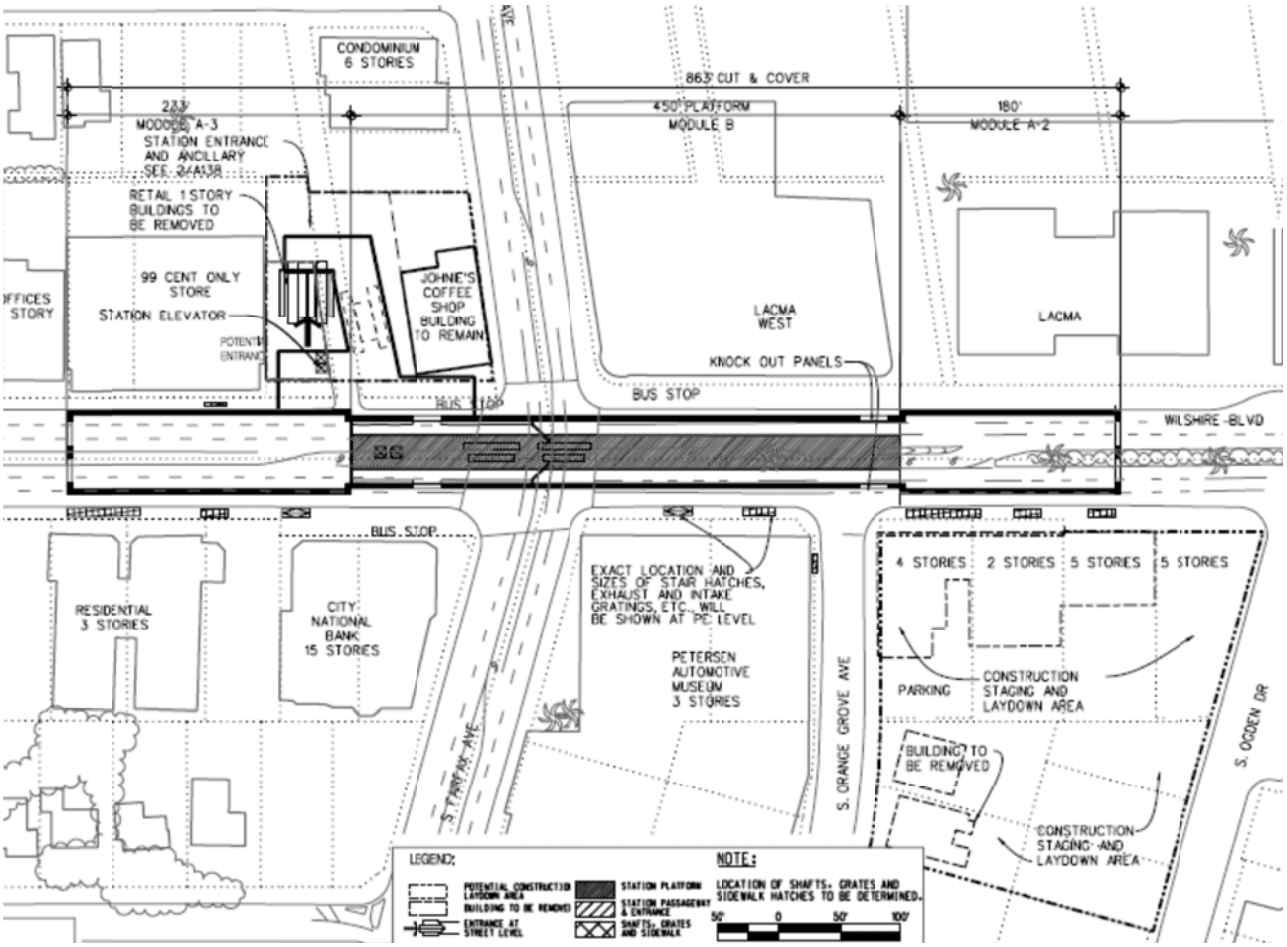
Appendix

1.0 BACKGROUND

The Wilshire/Fairfax station box excavation will be approximately 860-ft long, 70-ft wide, and 60 to 70-ft below street level. The station extends beneath the intersection of Wilshire Boulevard and Fairfax Avenue - see Figure 1-1. The station entrance is planned to be located near the northwest corner of Wilshire and Fairfax between the 99 Cent Only Store and Johnie's Coffee Shop. Two alternative entrances under consideration; the south side of Wilshire between South Orange Grove Avenue and South Ogden Drive and; within the LACMA building at the north east corner of Fairfax Avenue and Wilshire Boulevard (May Company). A construction staging and materials laydown area is planned for the south side of Wilshire between South Orange Grove Avenue and South Ogden drive. Side access shafts will be located at the construction staging and materials laydown area and at the location selected for the station portal. The side access shafts will be excavated to the full depth of the station. The station box will be excavated by the cut and cover method and most probably use a temporary shoring system to support the excavation and decking system during construction, though a permanent shoring system that would be integrated into the permanent station structure could also be used. The side access shafts will be excavated by the open cut method and would most probably use the same type of shoring system that is used on the station box.

Figure 1-1: Wilshire/Fairfax Station Box



2.0 GEOLOGIC CONDITIONS

The geologic conditions in this region consist of soft alluvium deposits of sands, silty sand, clayey sand, gravely sand, silty clay, clayey silt, shell fragments, soil saturated with crude oil, and asphaltic (tar) sands. Several borings were taken within the station area; see Figure 2-1 through Figure 2-4. Core G-118 (Figure 2-1) was taken east of the station box between La Brea and Fairfax, the sample at 82-ft below ground surface (bgs) consists of silty clay/clayey silt with traces of crude oil. The portion of ring sample G-123 shown in Figure 2-2 is located just east of Fairfax at 60-ft bgs and consists of predominantly fine grained soil with channels of medium grained sand saturated with crude oil. Heavy tar was reported in G-123 from 38 – 110-ft bgs. Core sample G-124 (Figure 2-3 and Figure 2-4) was obtained just west of Fairfax by the Standard Penetration Test (SPT). The sample pictured was taken from 80-ft bgs and consists of medium to coarse grained sand saturated with tar. Heavy tar was reported in G-124 from 45 – 105-ft bgs. The consistency of tar in this region ranges from dry and hard to wet and oozing. This reach is also known to contain pockets of pressurized gases and dissolved gases in groundwater. The groundwater conditions are measured to have a water table depth of 74-ft bgs, and zones of perched water between 10 – 50-ft bgs. Since the station box invert depth will be located between 60 – 70-ft bgs, perched water can be anticipated during excavation.

Figure 2-1: Core Sample G-118

Figure 2-2: Core Sample G-123

Figure 2-3: Core Sample G-124 (1 of 2)

Figure 2-4: Core Sample G-124 (2 of 2)

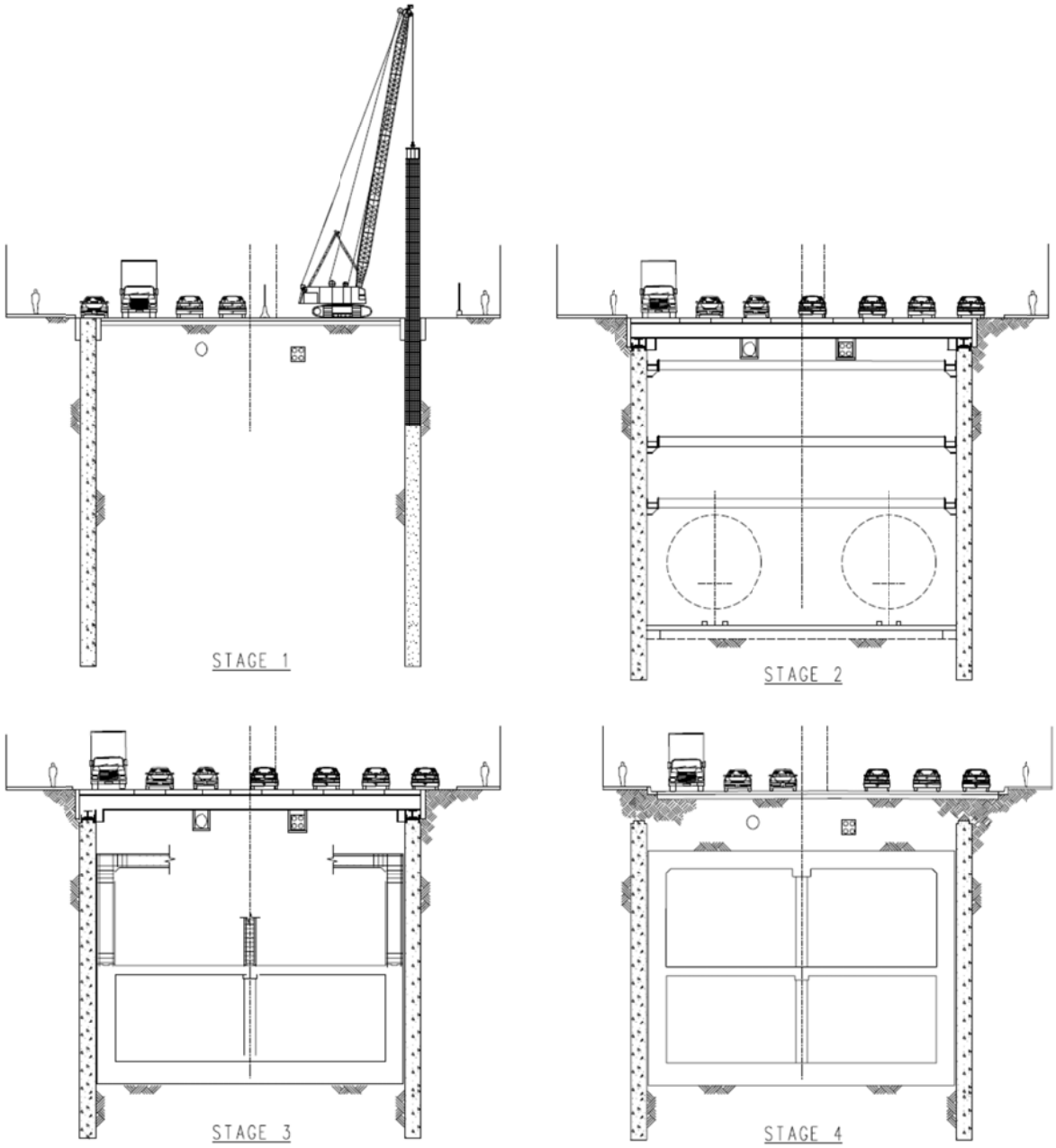
2.1 Gassy Ground Conditions

The gases present in the soils of this region are methane (CH_4) and hydrogen sulfide (H_2S). They are likely to occur in pressurized pockets as well as in a dissolved state in groundwater. These gases can seep into tunnels and other excavations through soil and also through discontinuities (fractures, faults, etc.) in bedrock. CH_4 and H_2S are considered hazardous gases due to their explosive properties. H_2S is also highly toxic. Being heavier than air, it tends to accumulate at the bottom of poorly ventilated spaces. Although very pungent at first, it quickly deadens the sense of smell, so potential victims may be unaware of its presence. CH_4 is extremely flammable and may form explosive mixtures with air. It is odorless and lighter than air, and it dissipates quickly once at the surface causing no threat of explosion. However, in 1985 an explosion occurred at the Ross Dress-for-Less in the Fairfax area which resulted in injuries requiring hospital treatment of twenty-three people. The explosion took place in a poorly ventilated ancillary room of the building where CH_4 gas had accumulated. There was no gas detection equipment at this location.

3.0 EXCAVATION SUPPORT TECHNIQUES

Cut and cover excavation is the preferred technique to excavate the station box structure, although cut and cover still leads to lengthy occupation of streets with noise disturbances and interrupted access (see Figure 3-1). Traffic interruptions can be mitigated by performing most excavation below a temporary decking system constructed at an early stage (See Figure 3-2 through Figure 3-6).

Figure 3-1: Open Cut Excavation



Shoring the excavation walls and providing structural support beneath the decking system can be accomplished through a variety of excavation support techniques. The following sections describe several excavation support methods, including: soldier pile and lagging, slurry walls, tangent piles, secant piles, and deep soil mix walls.

Figure 3-2: Initial Excavation at Soto Station

Figure 3-3: Precast Concrete Decking

Figure 3-4: Installation of Decking (1 of 2)

Figure 3-5: Installation of Decking (2 of 2)

Figure 3-6: Roadway Operations Restored on Temporary Decking System

3.1 Soldier Piles and Lagging

Soldier pile and lagging walls are a type of shoring system typically constructed along the perimeter of excavation areas to hold back the soil around the excavation. This support system consists of installing soldier piles (vertical structural steel members) at regular intervals and placing lagging in between the piles to form the retaining structure. Pre-augering is necessary for installation of the soldier piles. Pre-augering involves drilling holes for each pile from the street surface to eliminate the need for pile driving equipment and thereby reduces project noise and vibration levels that would otherwise occur while pile driving. Pre-augering also provides better accuracy of location than pile driving. The lagging, which spans and retains the soil between the piles, is typically timber or shotcrete (sprayed-on concrete) and is installed in a continuous downward operation taking place concurrently with excavation. The installation of soldier piles and lagging is a relatively clean process. The majority of construction materials, such as, drilled earth spoils, concrete, backfill, and H-piles are easy to contain within the construction site. The soldier piles and deck beams are installed first with excavation and lagging installation taking place from beneath the street decking. A soldier piles and lagging earth retention system is shown in Figure 3-7 through Figure 3-9. The equipment required for installation of the soldier piles includes drill rigs, concrete trucks, cranes, and dump trucks.

Soldier piles and lagging are generally used where groundwater inflow is not a consideration, or where grouting, or lowering of the groundwater level (dewatering) can be used to mitigate water leakage between piles. Based on findings from core samples, the geologic conditions in this area consist of soils containing deposits of oil and tar. Where these deposits occur along the excavation perimeter, oil or tar may tend to seep between the joints in the lagging. This is not considered to be a hazard to workers, although some cleanup may be necessary. Alternatives to soldier pile and lagging walls being considered for this station include tangent pile or secant pile walls, slurry walls, and deep soil mix walls (see next sections below).

Figure 3-7: Pre-augering for Soldier Pile

Figure 3-8: Cut and Cover with Soldier Pile and Lagging

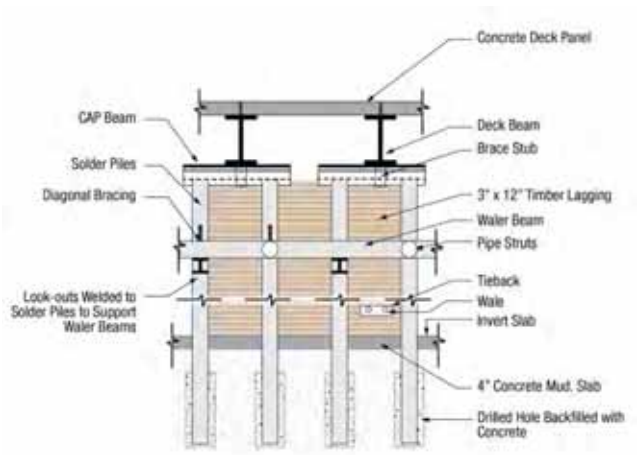
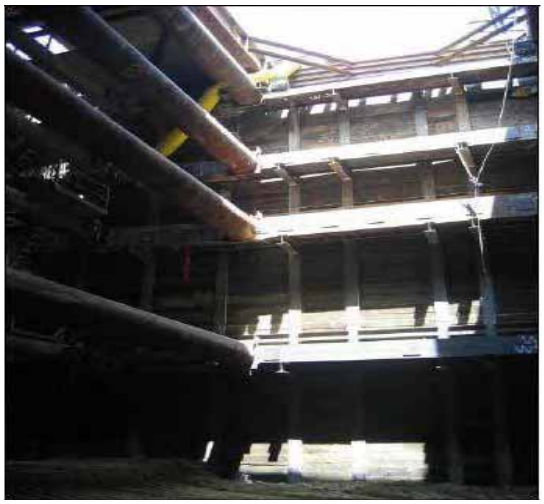


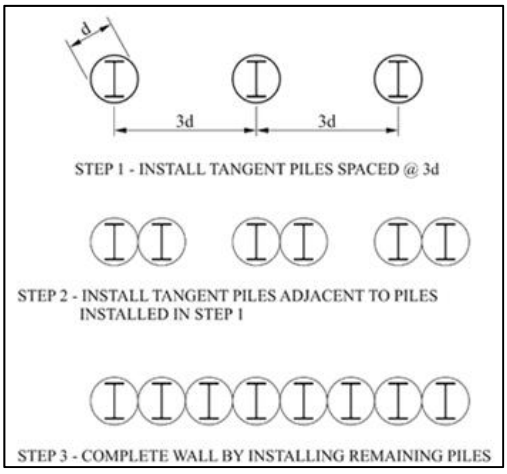
Figure 3-9: Soldier Pile and Lagging



3.2 Tangent Pile or Secant Pile Walls

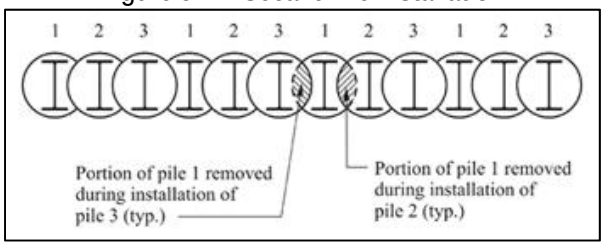
Tangent pile walls consist of contiguous cast-in-drilled-hole (CIDH) reinforced concrete piles – see Figure 3-10. The contiguous wall generally provides a better groundwater seal than the soldier pile and lagging system, but some grouting or dewatering could still be needed to control leakage between piles.

Figure 3-10: Tangent Pile Installation



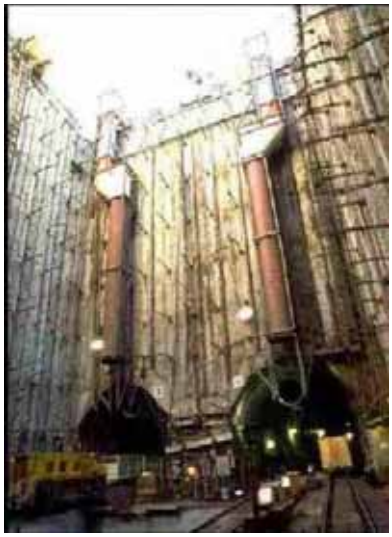
A secant pile wall system is similar to the tangent pile wall but the piles have some overlap, facilitating better water tightness and rigidity - see Figure 3-11. This method consists of boring and concreting the primary piles at centers slightly less than twice the pile diameter. Secondary piles are then bored in between the primary piles, prior to the concrete achieving much of its strength.

Figure 3-11: Secant Pile Installation



In terms of relative cleanliness, tangent pile and secant pile walls are comparable to one another and both are more difficult to contain than soldier piles and lagging due to the greater amount of pumped concrete and the expected larger diameter of drilled holes. The completed secant pile wall for the Barnsdall Shaft in Hollywood for the Metro Red Line project is shown on Figure 3-12. Secant and Tangent pile shoring systems are slower to construct that soldier pile and lagging and therefore have the disadvantage of requiring longer lane closures on Wilshire while they are being constructed. Furthermore, because of the close spacing of tangent piles, utilities crossing the wall often require relocation whereas a soldier pile system can often be built around the existing utilities. The equipment required for installation of the tangent pile or secant pile walls includes drill rigs, concrete trucks, cranes, and dump trucks.

Figure 3-12: Secant Pile Wall at Barnsdall Shaft on Metro Red Line



3.3 Diaphragm/Slurry Walls

Diaphragm walls (commonly known as slurry walls) are structural elements used for retention systems and permanent foundation walls. Use of slurry wall construction can provide a nearly watertight excavation, eliminating the need to dewater. Slurry walls are constructed using deep trenches or panels which are kept open by filling them with a thick bentonite slurry mixture. After the slurry filled trench is excavated to the required depth, structural elements (typically a steel reinforcement cage - see Figure 3-13) are lowered into the trench and concrete is pumped from the bottom of the trench, displacing the slurry. Figure 3-14 and Figure 3-15 illustrate slurry wall excavation equipment.

Tremie concrete is placed in one continuous operation through one or more pipes that extend to the bottom of the trench. The concrete placement pipes are extracted as the concrete fills the trench. Once all the concrete is placed and cured, the result is a structural concrete panel. Grout pipes can be placed within slurry wall panels to be used later in the event that leakage through wall sections, particularly at panel joints, is observed. The slurry that is displaced by the concrete is saved and reused for subsequent panel excavations.

Figure 3-13: Steel Reinforcement Cage for Slurry Wall

Slurry wall construction advances in discontinuous sections such that no two adjacent panels are constructed simultaneously. Stop-end steel members are placed vertically at each end of the primary panel to form joints and guides for adjacent secondary panels. In some cases, these members are withdrawn as the concrete sets. Secondary panels are constructed between the primary panels to create a continuous wall. Panels are usually to full depth and 8 – 20-ft long and vary from 2 – 5-ft wide.

Figure 3-14: Slurry Wall Construction Equipment

Figure 3-15: Clamshell Digger for Slurry Wall Construction

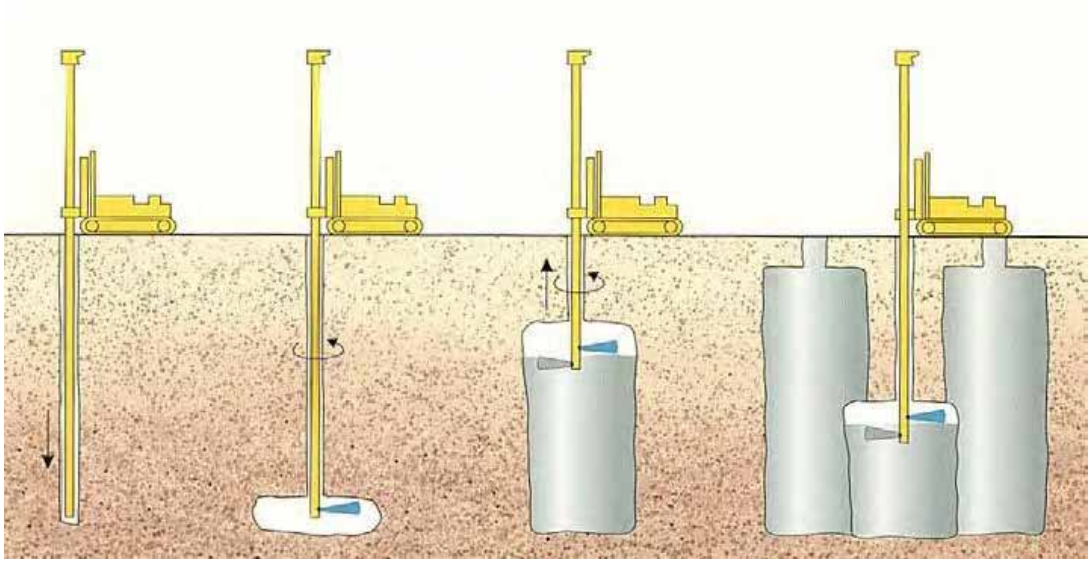
Similar to other shoring systems, slurry wall construction would occur in stages, working on one side of the street at a time. These walls have been constructed in virtually all soil types to provide a watertight support system in addition to greater wall stiffness to control ground movement. Because slurry walls are thicker and more rigid than many other shoring methods, the walls may in some cases be used as the permanent structural wall, although this application is not anticipated for this project. Where slurry walls are used, the thickness of the permanent structural walls can sometimes be reduced, i.e. when compared to wall thicknesses used with a conventional soldier pile and lagging system after removal of internal bracing.

Slurry wall construction materials are the most difficult to contain within the construction site of all the shoring types being considered due to the inherent messy nature of bentonite slurry combined with the operational characteristics of the clamshell digger which will likely be used to excavate large volumes of soil from the wall trench. Slurry walls are generally not adaptable to utility crossings and all utilities crossed by the wall would require temporary or permanent relocation. The equipment required for installation of the slurry walls includes clamshell or rotary head excavators, concrete trucks, slurry mixing equipment, cranes, slurry treatment plant, and dump trucks. The bentonite slurry would require disposal after a number of re-use cycles. Slurry walls are also slow to construct and will be very disruptive to traffic on Wilshire Boulevard.

3.4 Deep Soil Mix Walls

Deep soil mix walls are another type of temporary or permanent shoring system for deep excavation. Mechanical soil mixing is performed using single or multiple shafts of augers and mixing paddles. See Figure 3-16. The auger is rotated into the ground and slurry is pumped through the hollow shaft feeding out at the tip of the auger as the auger advances. Mixing paddles blend the slurry and soil along the shaft above the auger to form a soilcrete mixture with high shear strength, low compressibility, and low permeability. Spoils come to the surface comprised of cement slurry and soil with similar consistency to what remains in the ground. Steel beams are typically inserted in the fresh mix to provide structural reinforcement. A continuous soil mix wall is constructed by overlapping adjacent soil mix elements. Similar to secant pile walls, soil mix elements are constructed in alternating sequence; primary elements are formed first and secondary elements follow once the first have gained sufficient strength.

Figure 3-16: Deep Soil Mix Construction



Deep soil mix wall construction materials are also difficult to contain. Most of the construction process is performed by a single piece of equipment which mixes cement and soil in situ. Cement and soil mixture can be expected to escape beyond the confines of the drilling operation creating problems for traffic and pedestrians. The equipment required for installation of deep soil mix walls includes multi-shaft drill rigs, concrete trucks, cranes, and dump trucks.

3.5 Comparison of Excavation Support Techniques

Due to the speed of construction, and the ability to work around utilities, soldier piles and lagging is preferred unless site conditions dictate the use of other methods. See Table 3-1 for a comparison of excavation support methods. Soldier piles and lagging is the predominant shoring system used in the Los Angeles area and has been used successfully by Metro on construction of both Red and Gold Line stations. Experience at the LACMA parking garage excavation suggests that soil off-gasses immediately after being exposed but with a short period of time, the off gassing slows to levels acceptable for work. This suggest that the relatively impervious seal achieved by slurry walls, secant piles, and deep soil mix walls may only provide very short term benefits and that gas entering the station box excavation through a soldier pile and lagging system could be controlled with a well designed ventilation system.

Since it is anticipated that gassy soils will be encountered regardless of shoring system type, various methods of providing a safe and hazard free workplace will be implemented in all situations. No matter which type of temporary shoring system is selected; other measures such as, partially open decking, ventilation, gas detection, and Personal Protective Equipment (PPE), will be in use to protect workers from gases that may enter the excavation site.

Table 3-1: Comparison of Excavation Support Types

Shoring Method	Permeability	Installation Duration	Containment Impacts	Noise / Vibration Impacts	Traffic Impacts	Utility Impacts	Business Impacts
Soldier Pile & Lagging	High	concurrent w. excavation	Low	Moderate	Moderate	Moderate	Moderate
Slurry Wall	Low	3 Months	High	Moderate	High	High	High
Secant Pile	Low	3 Months	Moderate	Moderate	High	High	High
Tangent Pile	Moderate	3 Months	Moderate	Moderate	High	High	High
Deep Soil Mix	Low	3 Months	Moderate	Moderate	High	High	High

3.6 Construction Staging

For all types of shoring, the contractor would first occupy one side of the street to install one line of excavation support piles or wall panels. The installation will require extended closures of 2 – 3 traffic lanes on the side of the street where the equipment would be staged. After installation of piles or walls on both sides of the street at the station excavations, piles or walls would then be installed across the street at the station ends. This operation would also require lane closures, and is often done during night-time or weekend periods. The contractor would then proceed with installation of deck beams, installation of the deck panels and excavation and bracing. Deck panels (decking) allow continued traffic and pedestrian circulation since they will typically be installed flush with the existing street or sidewalk levels though raised decking, which requires less excavation during installation is being discussed with the traffic authority. Raised decking does have particular advantages at Wilshire / Fairfax Station as less excavation during the weekend closures while installing the decking makes it less likely that fossils will be encountered during the decking operation.

Deck installation will require successive full road closures on weekends with traffic detours. The decking would be installed in stages, commensurate with the amount of decking that can be installed during a weekend closure. Typical decking installation rates range from 50 -100 ft / weekend for an installation crew. Multiple crews will be used wherever possible to reduce the number of full road closures

3.7 General Approach to Handling Utilities

Prior to beginning construction of shoring and decking, it will be necessary to relocate, modify or protect in place all utilities and underground structures that would conflict with excavations. The contractor will verify locations through potholing methods and where feasible, the utility will be relocated so as to stay out of station or other surface structure excavation. Where the utility cannot be relocated outside the excavation footprint, it will be exposed and hung from the supporting structure (deck beams) for the roadway decking over the cut-and-cover structure. See Figure 3-17 and Figure 3-18.

Figure 3-17: Utilities Hung from Deck Beams

Figure 3-18: Utilities Hung from Deck Beams (Close Up)

Shallow utilities, such as maintenance holes or pull boxes, which would interfere with excavation work, will require relocation. The utilities alignments will be modified and moved away from the proposed facilities. Utility relocation takes place ahead of station and other underground structure excavation. During this time, it will be necessary to close traffic lanes.

It is possible that in some instances, block-long sections of streets would be closed temporarily for utility relocation and related construction operations. Pedestrian access (sidewalks) would remain open and vehicular traffic would be re-routed. Temporary night sidewalk closures may be necessary in some locations for the delivery of oversized materials. Special facilities, such as handrails, fences, and walkways will be provided for the safety of pedestrians.

Minor cross streets and alleyways may also be temporarily closed but access to adjacent properties will be maintained. Major cross streets would require partial closure, half of the street at a time, while relocating utilities.

Figure 3-19: Backfilling Utilities in Final Location beneath Road Surface

Utilities, such as high-pressure water mains and gas lines, which could represent a potential hazard during cut-and-cover and open-cut station construction and that are not to be permanently relocated away from the work site, would be removed from the cut-and-cover or open-cut area temporarily to prevent accidental damage to the utilities, to construction personnel and to the adjoining community. These utilities would be relocated temporarily by the contractor at the early stages of the operations and reset in essentially their original locations during the final backfilling above the constructed station. See Figure 3-19

4.0 PALEONTOLOGICAL ISSUES

The Wilshire/Fairfax Station is situated within the vicinity of the Hancock Park Rancho La Brea Tar Pits. The San Pedro Sand layer exists beneath the older and younger alluvium deposits near the surface in this region. This formation has a high likelihood for producing significant paleontological resources. The existing La Brea Tar Pits immediately adjoining the Wilshire/Fairfax Station site is the largest collection of fossils of extinct mammals in the entire world. Because of the high likelihood of fossil discovery while excavating the Wilshire/Fairfax station box, station construction at Wilshire/Fairfax will be given the maximum time available within the overall project schedule, so that excavation can proceed slowly and carefully and fossils located and removed without schedule pressures.

Before fossil recovery can begin, utility relocation and shoring for the station excavation using one or more of the shoring methods outlined above must occur. Utility relocations, by their nature (narrow trenches beneath paved streets) will make recovery of fossils during this phase of the work unlikely. Then, any fossils that lie within the footprint of the shoring will necessarily be destroyed when the shoring is constructed, as there is no way to remove them in advance of the shoring. However, shoring will at worst occupy less than 10% of the footprint of the station excavation, leaving 90% of the footprint unaffected and suitable for fossil recovery.

The plan for fossil removal has been based on the methods used by the Page Museum for the removal of fossils from the nearby LACMA parking garage excavation, referred to from here-on by the Page Museum name, Project 23. The ground will be excavated in shallow lifts, with museum staff on land to inspect the excavated surfaces as earth is removed and to mark the locations of fossils when discovered. It is assumed that the fossils will occur in a manner similar to that at Project 23, i.e. concentrated in vertical tar “pipes” which, once located, can be boxed in place and then removed from the site for further analysis. As with Project 23, fossils can also be found away from the tar pipes so all excavated surfaces must be inspected, and the contractor’s team must be alerted to the possibility of finding fossils anywhere with the excavation. The Project 23 site was an open excavation, not constrained by a deck at ground level. This made boxing and removal of the fossil boxes a good deal more straight-forward than will be the case at Wilshire/Fairfax. Figure 4-1 shows fossils in a pit at the Page Museum, and Figure 4-2 a boxed “pipe” containing fossils being prepared at the Project 23 site. Figure 4-3 and Figure 4-4 show examples of fossils recovered from Project 23 after processing.

Figure 4-1: Tar Deposit Containing Fossils

Figure 4-2: Fossil Box Construction at Project 23

Figure 4-3: Smilodon (Sabre Tooth Cat) Pelvic Bone

Figure 4-4: Smilodon Skull in Fossil Box

4.1 Minimize Excavation Done Before Decking Installation

Although the Project 23 experience suggests that fossils will mainly be 10 ft or more below street level, fossils must be anticipated anywhere within undisturbed ground. Using the cut and cover excavation technique, deck beams which support the deck panels are installed in the road bed after the piles or shoring walls are complete. The top of the deck beams sit just below the roadway surface so that the decking is flush with the roadway. The deck beams are approximately 6-ft tall and joined together with cross bracing so a minimum of 7-ft of excavation is required for their installation. On Red line and Gold Line stations, contractors have normally excavated 10 ft deep when installing the deck beams to provide clear space beneath the beams for better access when commencing to dig out from beneath the decking and to expose utilities immediately below the deck beams.

Because the street decking requires a full street closure to install, only limited times are available in which to close the street. Full street closures, especially along Wilshire Boulevard will be limited to approximately 52 hours duration on week-ends, and this will not provide time to carefully remove soil in layers to expose fossils nor to box and remove any fossils found in this initial excavation. Therefore, opportunities for fossil recovery from the initial excavation for the street decking will be limited. It therefore requires a construction approach to try and reduce the depth of the initial excavation. Two strategies are being pursued in this regard. One approach is to use raised decking so that the bottoms of the deck beams can be raised up by the same height that the station decking is installed above street level. Metro is in discussions with traffic authorities regarding the acceptability of using raised decking at Fairfax. See Appendix A for details of raised decking. The other approach is to use shallower deck beams, either for a flush deck system or in conjunction with a raised decking approach. Shallower beams will almost certainly require installing the deck beams at closer centers, probably 7 ft centers instead of the usual 14 ft centers but the shallow beams will reduce the likelihood of finding fossils during decking.

It should be noted that many utilities in the street are much deeper than the bottom of the deck beams, and any fossils would have been destroyed during the construction of such utilities. Utilities already have disturbed a significant percentage of the station excavation footprint, and this will increase with the relocations required prior to the installation of the shoring and decking. Nevertheless, there will remain areas of undisturbed soil within the 10 ft immediately below street level and fossils therefore

could be found in these locations. These areas can be mapped in advance so that they can be excavated carefully.

4.2 Excavation of the topmost layers beneath the street decking

Once the street decking has been installed, excavation beneath the decking will commence. The side access shaft(s) from the contractor's laydown area (see Figure 4-5) and from the station portal site will be excavated in shallow lifts, using methods similar to those of Project 23. Any fossils found will be removed. Once the side access shafts are deep enough to allow equipment to commence digging beneath the street decking, equipment will be lowered into then shaft to commence digging. One scenario will be for the contractor to dig the initial lift by scraping down the face, using low headroom equipment such as a Gradall (see Figure 4-6) or other equipment acceptable to Metro and to the Page Museum. The working face would be inclined at probably a 2:1 slope and would be accessible for inspection (see Figure 4-7). The excavation would proceed in this manner until the first lift was completely removed. The height of the first lift will be determined by the head room needed by the equipment needed for the subsequent lifts, but probably of the order of 12-14 ft. depending on the equipment selected, subsequent lifts could continue to be inclined or horizontal. Fossils and tar pipes containing fossils would be removed under the supervision of Page Museum staff, probably using the boxing techniques developed for Project 23. Because the Fairfax Station will be decked, handling large boxes beneath the decking will be very difficult. Boxes of not more than 500 cubic ft (approximately 30 tons) are proposed as an upper limit, and smaller boxes for the first lift below the decking may be necessary so that low headroom equipment will be able to carry the boxes back to the side access shaft. Actual box sizes can be determined in the field by the contractor and paleontologists. Figure 4-7 and Figure 4-8 show the proposed excavation sequence.

Figure 4-5: Open Cut Excavation of Side Access Shaft

Figure 4-6: Gradall Excavator - East Side Access Project NYC

Figure 4-7: Cross Section Showing Excavation Procedure of Shallow Lifts at 2:1 (Approx) Slope Beginning from the Side Access Shaft

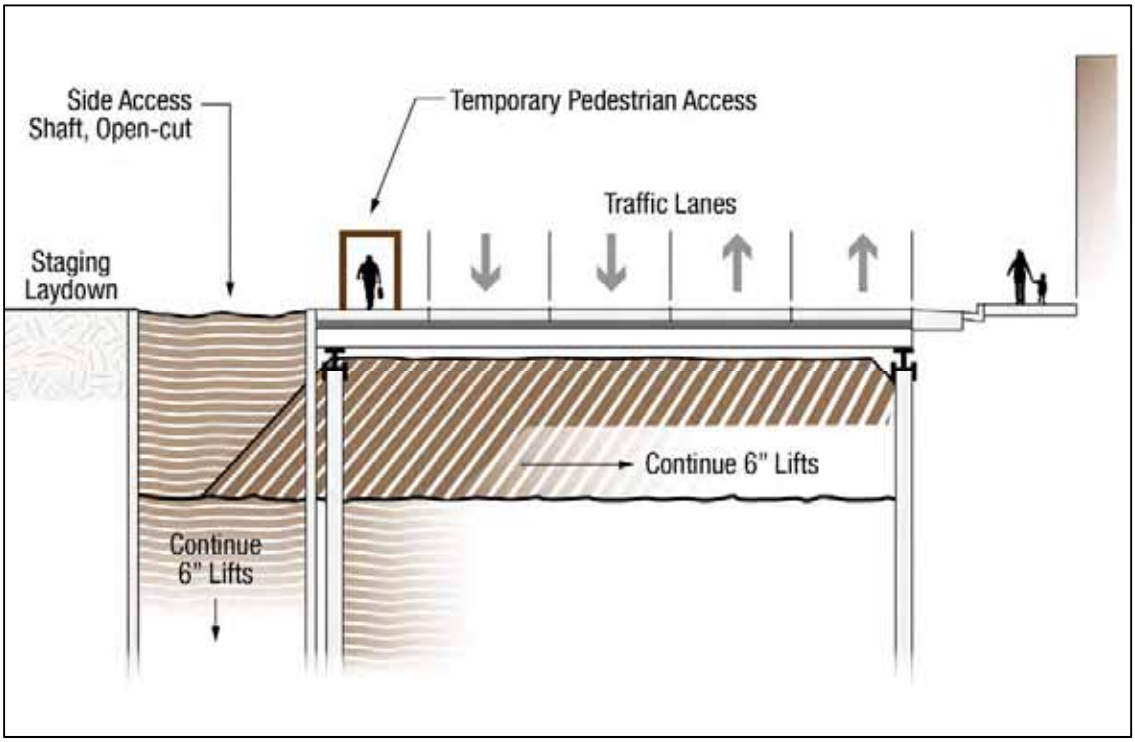
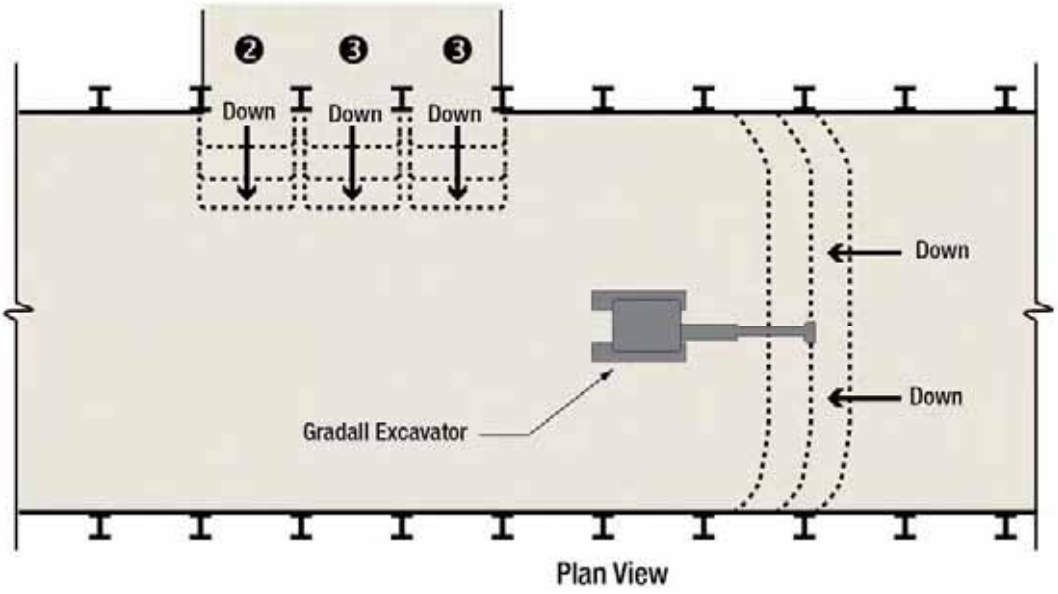
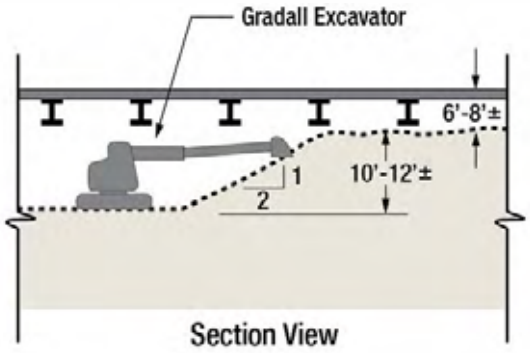


Figure 4-8: Plan Showing Excavation Procedure of Shallow Lifts with Low-Profile Gradall Excavator



Construction Stages

1. Excavate access pocket
2. Excavate slot between beams over station footprint
3. Excavate additional slot between beams around station footprint
4. Lower floor of Stages 1, 2, and 3 below level of top strut
5. Bring in Gradall Excavator
6. Advance excavation along width of station



4.3 Excavate in Layers

The station box and side access shafts will be excavated in shallow lifts to carefully expose and locate fossils. The Page Museum is suggesting 6" lifts based on experience at the Los Angeles County Museum of Art (LACMA) parking garage. As with Project 23, fossils can also be found away from the tar pipes so all excavated surfaces must be inspected, and the contractor's team must be alerted to the possibility of finding fossils anywhere with the excavation.

Compact track loaders and compact excavators (see Figure 4-9 and Figure 4-10) are likely necessary for initial soil removal directly beneath the deck beams due to their low vertical clearance, and relatively small bucket size capable of excavating precise lifts. Continuous tracks improve vehicle traction on soft and sticky terrain and reduce the amount of pressure exerted on the soil below. A pressurized although this may not be an option due to tight clearances and proper ventilation will still be needed regardless. If soil conditions permit, a rubber tire vehicle like skid steer loaders or equipment fitted with floatation tires may be used instead of compact track loaders. Gradalls operate a bucket at the end of a telescopic arm in a linear motion. The linear shoveling motion enhances depth control improving the ability to cut in precise shallow lifts. These will be considered considered as well. Track loaders, wheeled dozers and hydraulic excavators would be employed to remove the bulk of the soils in order to maintain efficiency in excavating (see Figure 4-11 through Figure 4-13. Excavation with these tools will require careful observation to identify the location of tar deposits. When tar deposits are located, smaller equipment should step in to avoid damaging fossil resources with heavier machines.

Figure 4-9: Compact Track Loader

Figure 4-10: Compact Excavator – 6.75'-Tall/12'-Long/6.5'-Wide

It is possible that the discovery and removal of fossils could lead to schedule delays and the station box structure would not be completed in time to precede the TBM breakthrough. As long as station box excavation has not breached a reasonable depth above where the top of the tunnel liner will be so that it would compromise the operation of the TBM, then the TBM drive should continue through the station box location and station excavation would work its way down and eventually break through the tunnel liner.

Figure 4-11: Tracked Loader Removing Muck from Beneath Struts

Figure 4-12: Hydraulic Excavator between Struts

Figure 4-13: Track Loader beneath Struts

It may be possible to use an imaging technique to locate fossils ahead of excavating operations thus allowing the pace of excavation to accelerate beyond the recommended 6" lift limit. If the imaging technique produces a reliable indication, the boxing of fossils can be pre-planned. Some techniques of scanning for objects below the surface that should be considered are Ground Penetrating Radar (GPR), HAARP Detection using ELF and VLF radio waves, electrical resistivity imaging, and geophysical diffraction tomography.

If an Early Work Authorization is obtained, construction can begin on an exploratory shaft to test the effectiveness of the anticipated geophysical methods. The shaft could be located within the limits of a side access shaft and would ideally reach full station depth in order to learn as much as possible from this process. The length and width of the shaft should be a minimum size to allow a variety of the equipment under consideration to perform excavation operations during the exploration process. Construction methods will be tested to determine the best techniques and tools for station box excavation. Shoring types will be tested to determine the effectiveness of the planned shoring in the soils present in the area. Gas levels will be measured to gauge the specifics of the ventilation scheme.

4.4 Fossil Box Size

As layers of soil are removed, tar-laden sand deposits containing fossils are likely to be uncovered. When this happens, work is halted within proximity of the fossil to allow the paleontologists on site to assess the discovery and begin preparations for boxing and removal of the deposit. The technique of boxing and removing fossil deposits to an off-site facility for additional paleontological work is an efficient process that was first implemented at the La Brea Tar Pits in 1915 and more recently during the construction of Project 23. A photo of the 1915 boxing method is contained on Page 8 of Rancho La Brea, Death Trap and Treasure Trove, Edited by John M. Harris, June 2001.

Figure 4-14: Fossil Boxes at Project 23

The box construction technique used on Project 23 is similar to that which is used for boxing palm trees for transport. See Figure 4-14. First, the paleontologist defines the location of the fossil deposit. Next, trenches are dug around the sides and excavation continues by removing sterile soil from around the fossil zone with heavy equipment leaving an island where the deposit sits. The bottom of the box is most challenging. After the box is supported by blocks and shims at each of the four corners, workers must crawl beneath the box and dig by hand while inserting the timber boards which make up the base of the box (Figure 4-15). An alternative approach to creating the bottom of the box which would improve worker safety and expedite the excavation process would require an auger to drill holes in the island beneath the fossil deposit. Timbers would be inserted through the auger holes, thus beginning to form the base of the box. The auger would then remove the balance of soil between the timbers allowing completion of the box and freeing the deposit from the soil below. See Figure 4-16. During the excavation of Project 23, sixteen tar deposits were discovered. From the sixteen deposits, twenty-three boxes were recovered, thus giving the parking garage project its name. The boxes range in size from 5x5x5-ft (weighing 3 tons) to 12x15x10-ft (weighing 56 tons).

Figure 4-15: Fossil Relocation Process. (From Page Museum Whiteboard)

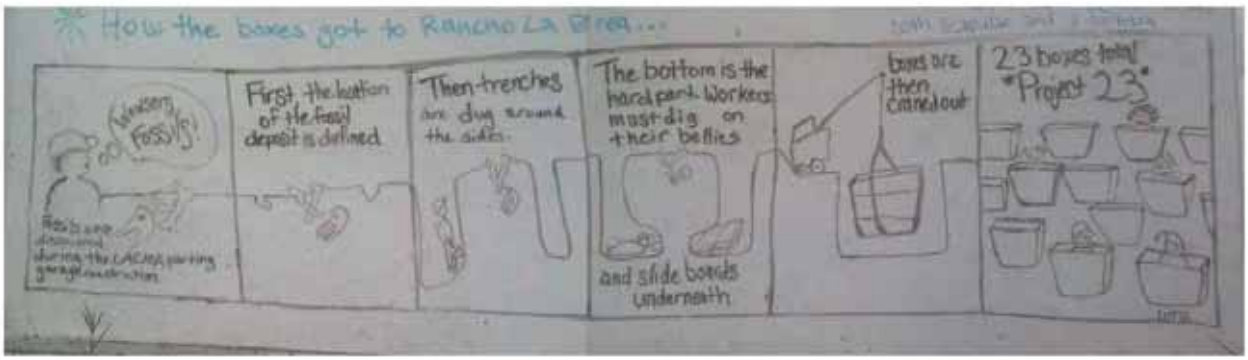
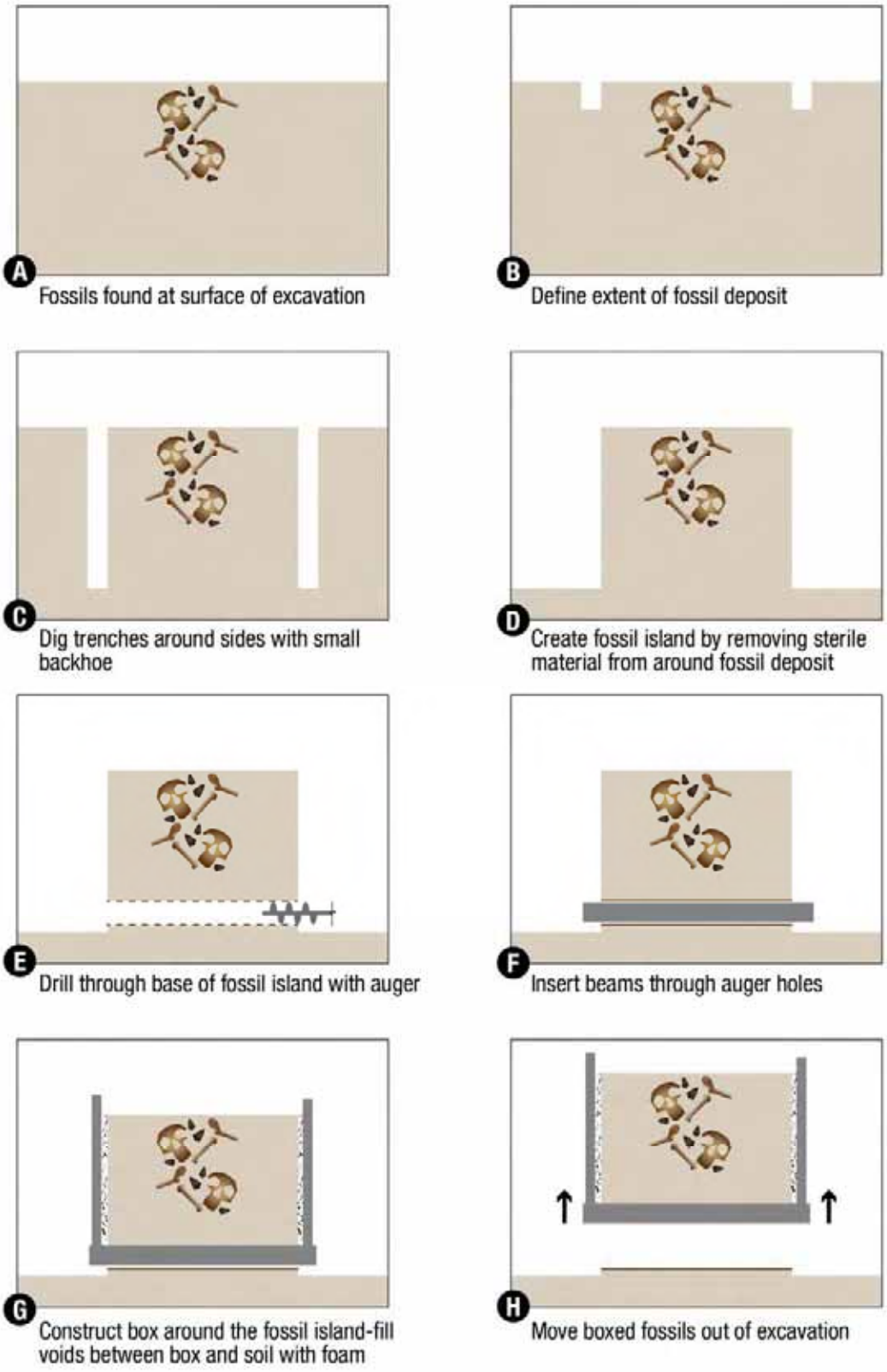


Figure 4-16: Proposed Alternative Boxing Technique Using Auger for Floor Construction



Depending on the size and weight of each box, fossils located beneath deck panels may be lifted in place by crane through temporary openings in the decking. However, this may prove to be impossible if street closure is not possible or the crane cannot be positioned on the street decking in a way to perform the lift. It is proposed to limit the size of fossil boxes to about 30 tons, i.e. 500 cubic feet which will make boxes easier to lift or to move around below the decking with low headroom equipment or with a system of skids and temporary tracks constructed within the station box. Once positioned adjacent to the side access shaft, fossil boxes can be lifted by mobile cranes positioned on "terra firma". The crane would lift the box out through the access shaft and load it on a truck which will transport the tar and fossils either to the Page Museum site where paleontologists can continue their work or to the contractor's laydown area at South Orange Grove/ Ogden for storage and processing. Offsite processing is preferred as there is less potential for damage by heavy equipment that will be operating at the South Orange Grove/Ogden laydown area.

4.5 Construction Issues in Tar-Laden Soils

The asphaltic sands have unique properties and the engineering characteristics are not as well documented as compared to other soils. However, contrary to common expectations, it is proven that these sands possess shear strength. Design parameters for excavation support systems in asphaltic sands will need to consider some additional pressure due to the makeup of these soils. There are numerous cases of successful experience in construction of deep basements and underground parking structures in the Wilshire/Fairfax area soils, such as construction of underground structures at LACMA (see Figure 4-17). Similar design elements, construction techniques and operating methods and procedures can be applied to the planned excavations.

Figure 4-17: Aerial View of Project 23 Excavation with Dark Tar Seeps

4.6 Potential Impacts to Construction Methods from Anticipated Tar-Laden Soils

When excavating in tar-laden soil, efforts will be undertaken to avoid excessive disturbance. Excavation methods will be closely controlled to minimize over-excavation or vibrations. When grade is achieved within these soils, a mud slab could be applied to minimize disturbance. In some cases, a layer of gravel may be placed over the asphaltic sands to increase traction and reduce the amount of soil compaction caused by construction traffic. The contractor can also apply various other materials on top of the tar such as cement, lime, or other additives to prevent it from fouling the tracked equipment. Wide tracked machinery can be used to reduce the pressure exerted on the soils below. Timber mats can make a sturdy foundation to drive equipment on. Rubber tire vehicles are considerably lighter than their tracked counterparts and could be operated with floatation tires specifically designed to minimize the amount

of soil compaction caused by heavy equipment. Because the tar is rather sticky or tacky in some areas, it is anticipated that the equipment's tracks, axles, or buckets could become fouled and would require occasional cleaning. Steam cleaners would handle the task well, by heating the tar to a less viscous consistency.

4.7 Handling Gas Intrusions during Construction Operations

Previous projects in the Methane Risk Zone have been successfully and safely excavated. Multiple underground parking garages have been constructed in this area. For example, LACMA built a two-level subterranean parking structure in the Methane Risk Zone, previously referred to as Project 23. During the excavation, H2S (above safe working levels) was encountered on several occasions. Workers donned PPE to protect against exposure during these events (se Figure 4-18). Further investigation of operating underground structures will be undertaken during future design phases to assess effectiveness of barrier systems and detection equipment used.

Figure 4-18: Fossil Boxes with Worker Donning Oxygen Respirator at Project 23

Since the majority of gas is expected to enter the excavation through the excavation surface, the release of gases may be constricted by applying a ground cover to all areas except the area where current excavation operations are taking place. An impervious membrane of Visqueen plastic sheeting or geotextile fabric may serve this purpose.

In areas of potential H2S exposure, there are a number of techniques that can be used to lower the risk of H2S release or exposure. Because station excavations are less confined than tunnels, gas exposure issues are anticipated to be less significant. Although pre-treatment of the ground water prior to excavation, with additives such as hydrogen peroxide or copper-zinc, is an option, it is not expected to be required. If released, H2S will not naturally dissipate because it is heavier than air, hence it would build up around the bottom of the excavation. The first line of defense is dewatering since H2S occurs in a dissolved state in ground water. Dewatering will remove any contaminated water from the excavation area. At the surface, a sealed tank would capture the water and treat the air for H2S off-gassing before discharging it to the surrounding environment. Additionally, a ventilation system will be used to introduce fresh air in the workspace. Fans will be used to circulate the air while a gas detection system monitors levels of hazardous gas. A suction system fitted with scrubbers may be required to collect H2S from the bottom of the excavation and treat the air before discharging clean air at the street surface.

CH4 is a hazard in confined spaces. As such, it is essential that workers be sufficiently protected, and thus detection and monitoring equipment would be required. Fans similar to those used to dilute H2S

concentrations would also dilute CH4 concentrations in the station box. Once above-ground, CH4 dissipates rapidly in the atmosphere and would not be a health hazard.

4.8 Ventilation Schemes

Ventilation is required to combat harmful or dangerous gasses when present in underground construction. Cal OSHA classifies subterranean work areas as “gassy”, “potentially gassy”, “non-gassy”, or “extra hazardous”. Excavation equipment in “gassy” spaces must be manufactured to resist accidental sparks and either be sealed or of explosion proof design.

Since CH4 and H2S gases are expected to be encountered during the excavation of Wilshire/Fairfax station, adequate ventilation and continuous air quality monitoring will be in use throughout construction. In addition to maintaining acceptable levels of CH4 and H2S in the air supply, the ventilation system must maintain a certain level airflow for workers present in the work space (see Figure 4-19) . The size of the system is dependent on the number of persons and the size of diesel equipment underground. The air supply shall not be less than 200 CFM (cubic feet per minute) per person underground, plus 100 CFM per diesel horse brake power.

Use of perforated deck panels, either perforated steel or concrete integrated with steel could be used in place of concrete only deck panels to allow the free flow of air between the excavation area and the surface, especially if full decking is required across the entire station box.

Figure 4-19: Underground Ventilation Ducts

5.0 CONCLUSIONS AND RECOMMENDATIONS

The project is committed to recover fossils and to work closely with the Page Museum to minimize the loss of fossils due to the construction of a station at Wilshire/Fairfax.

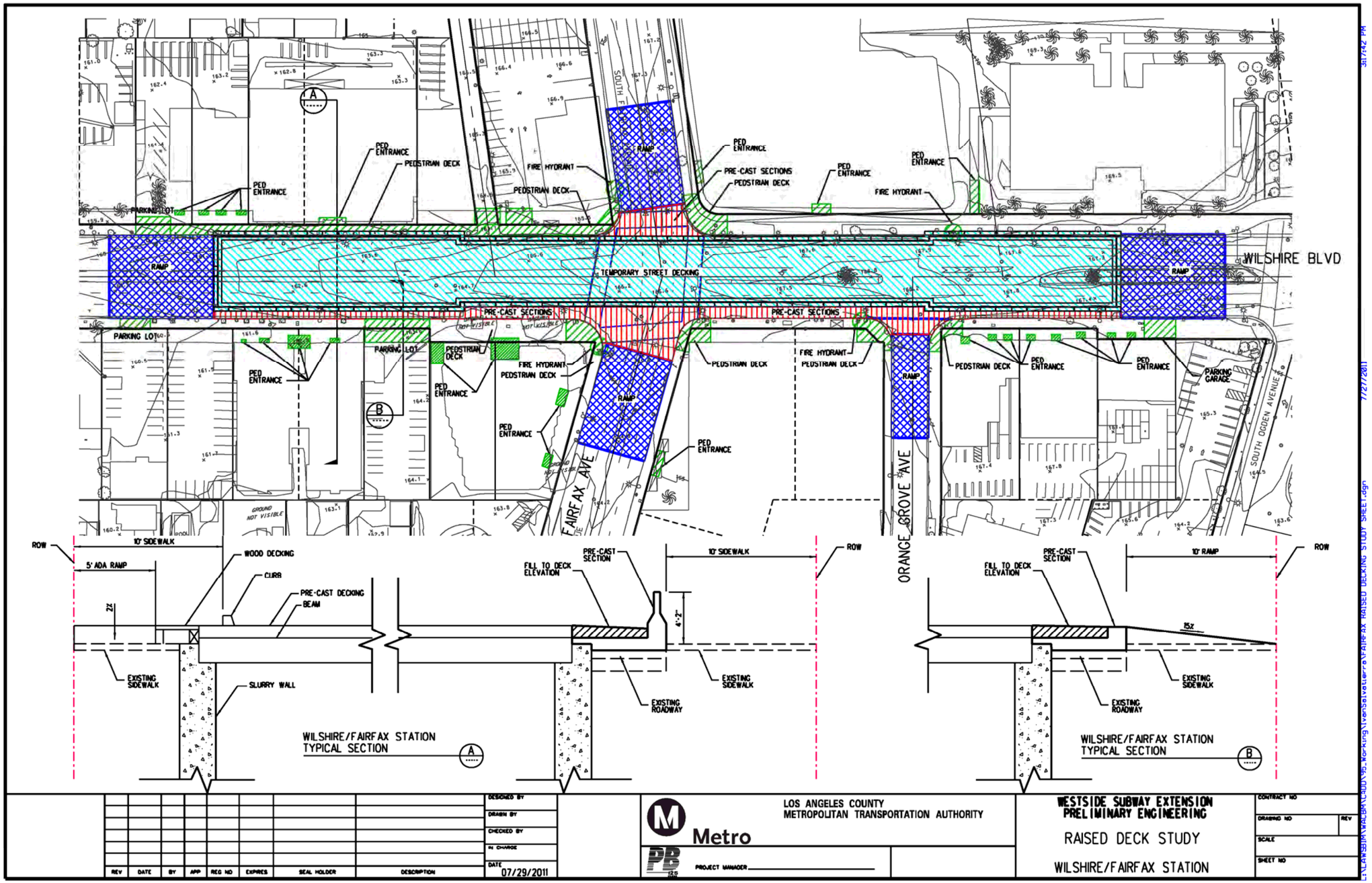
The project plans to use the same recovery methods that have been proven at Project 23, and with the cooperation of Page Museum staff, will seek to customize and improve on these methods to tailor them for the site conditions at Wilshire/Fairfax.

Further studies are on-going to find ways to raise the height of the beams used for street decking, which in turn, will leave more soil beneath the beams for controlled excavation and fossil recovery.

The fastest and lowest cost shoring method is preferred. This means that a soldier pile and lagging system will be employed provided that continuing geotechnical investigation do not find ground conditions that preclude this system. Soldier pile and lagging shoring has the added advantage of disturbing less of the station excavation footprint than other methods, minimizing the loss of fossils in this phase.

Gases will be controlled by installing adequate ventilation within the excavation, and by designing the street decking system with gaps for natural ventilation and elimination of pockets where gases could accumulate.

APPENDIX A EXAMPLE OF RAISED DECKING


WILSHIRE BLVD
FAIRFAX AVE
ORANGE GROVE AVE
SOUTH OGDEN AVENUE
PED ENTRANCE
PEDESTRIAN DECK
FIRE HYDRANT
PRE-CAST SECTIONS
TEMPORARY STREET DECKING
RAMP
PARKING LOT
PARKING GARAGE
GROUND NOT VISIBLE
10' SIDEWALK
ROW
5' ADA RAMP
WOOD DECKING
CURB
PRE-CAST DECKING BEAM
2%
EXISTING SIDEWALK
SLURRY WALL
FILL TO DECK ELEVATION
PRE-CAST SECTION
4'-2"
EXISTING ROADWAY
10' RAMP
15%
WILSHIRE/FAIRFAX STATION TYPICAL SECTION
A
B
DESIGNED BY
DRAWN BY
CHECKED BY
IN CHARGE
DATE 07/29/2011
REV DATE BY APP REG NO EXPIRES SEAL HOLDER DESCRIPTION
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
Metro
PB
PROJECT MANAGER
WESTSIDE SUBWAY EXTENSION
PRELIMINARY ENGINEERING
RAISED DECK STUDY
WILSHIRE/FAIRFAX STATION
CONTRACT NO
DRAWING NO
REV
SCALE
SHEET NO
3:17:42 PM
7/27/2011
L:\LA\SHR\WALBMC\DOCS\...\Working\Investigations\FAIRFAX RAISED DECKING STUDY SHEET.dgn

File #: 2016-0101, **File Type:** Contract **Agenda Number:** 22

CONSTRUCTION COMMITTEE
MAY 19, 2016

SUBJECT: PROGRAM CONTROL MANAGEMENT AND SUPPORT SERVICES

ACTION: EXERCISE CONTRACT OPTION AND AUTHORIZE ADDITIONAL CONTRACT VALUE IN AN AMOUNT NOT TO EXCEED $6,210,946

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to execute:

A. Modification No. 3 to Contract No. PS8610-2879, **with Hill International, Inc. for Program Control Management and Support Services**, to exercise the final one-year option thereby extending the period of performance from June 28, 2016 to June 28, 2017, and increase the total contract not-to-exceed amount $6,210,946 from $18,482,598 to $24,693,544; and

B. individual Contract Work Orders (CWOs) and Contract Modifications within the Board approved not-to-exceed contract value.

ISSUE

On May 24, 2012, the Board authorized the Chief Executive Officer to award a five-year labor-contract to provide Program Control Management and Support Services (PCMS) to support Board adopted capital projects. The Board also authorized individual CWOs be executed for an amount not to exceed $16,071,824 plus a 15% ($2,410,774) contract modification authority of the contract award, for a total not to exceed $18,482,598.

Contract No. PS8610-2879 was executed on June 28, 2012 for a three-year base term plus two one-year options. Since contract inception, Hill International has been responsive in providing the PCMS services to support Metro projects. Primarily due to satisfactorily performance, the first one-year option was exercised, extending the period of performance through June 28, 2016, without any increase to the approved contract value.

Staff has issued CWOs and modifications totaling $17,407,044 to date. Staff is requesting an increase to continue PCMS required to support Metro adopted capital projects through the final option-year period. It has been determined that the previously negotiated rates for the final year with Hill International are fair, reasonable, and are competitive in the current market.

DISCUSSION

The primary role of the PCMS is to provide skilled and qualified staff to perform project-level support activities include enhancing our capabilities in the areas of project controls for project cost and schedule management, cost estimating to establish project budgets and independent cost estimates for contract actions, and configuration management for facilitating document-management and change control requests.

Both Metro and the PMCS consultant staff, in most cases, work side-by-side in integrated project management offices (IPMO). The subject contract allows us to efficiently and effectively augment Metro Program Control staff as required to ensure proper resources needed to manage a project are available to us both in terms of staff availability and technical expertise.

The level of PCMS services are projected to increase significantly in the final one-year contract period. This increase is primarily due to adding support on three (3) major Transit Construction projects (Crenshaw/LAX, Regional Connector, Westside Purple Line Extension Section 1) that are now in full construction phase and to support additional projects, including Westside Purple Line Extension Section 3 Project, Emergency Security Operations Center Phase One Project, Division 20 Portal Widening and Turnback Facility Project, and Airport Metro Connector Project, etc. The contract increase is based on planned level of PCMS services, and the CWOs issued will reflect the actual level of PCMS services required to support the Board-approved projects.

The PCMS contract funds are authorized by issuing separate CWOs for various projects using labor classifications and rates set forth in the contract. This method of contracting results in more efficient cost and schedule management, since CWOs and modifications to existing CWOs are negotiated and issued as additional work is identified.

DETERMINATION OF SAFETY IMPACT

This Board action will not have an impact on established safety standards for Metro's construction projects.

FINANCIAL IMPACT

Funding for these services are included in the approved FY16 Budget for the various Metro projects. The individual CWOs will be funded from the associated life-of-project (LOP) budgets. The project managers and Executive Director, Program Management will be accountable for budgeting the remaining amount in FY17.

Impact to Budget

There is no impact to the FY16 Budget as funds for this action are included in the approved budget for each project. These funds are not eligible for bus and rail operating purposes.

ALTERNATIVES CONSIDERED

The Board may elect to discontinue using Hill International for PCMS services through FY17. Staff does not recommend this alternative as the capital projects the consultant are assigned to are in various degrees of completion and the loss of staff would cause these projects to be significantly impacted. Given that the contract with Hill International will expire in June 2017, staff will issue a new Request for Proposal (RFP) for Program Control Management and Support Services to ensure a new contractor is available before the existing contract expires.

We also considered providing the services through Metro in-house staff. This alternative will require the addition of significant Metro staff and additional time to recruit and hire new staff. This alternative is also not recommended since the intent of the PMCS is to augment Metro staff in terms of technical expertise and availability of personnel. PMCS services are typically required on a periodic or short-term basis to accommodate for peak workloads or specific tasks over the life of the projects. Further, for some projects, the specific technical expertise required may not be available within Metro staff resources, whereas the PMCS contractor can provide the technical expertise on an as-needed basis.

NEXT STEPS

Staff will issue a contract modification and issue contract work orders, as needed. Also, staff will work with Vendor/Contract Management to issue a new RFP to re-solicit the Program Control Management and Support Services.

ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - Contract Work Order/Modification Log
Attachment C - DEOD Summary

Prepared by:

Brian Boudreau, Managing Executive Officer, Program Control (213) 922-2474

Reviewed by:

Ivan Page, Interim Executive Director, Vendor / Contract Management (213) 922-6386

Richard Clarke, Executive Director, Program Management (213) 922-7557

Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY

PROGRAM CONTROL MANAGEMENT AND SUPPORT SERVICES / PS8610-2879

1.	**Contract Number**: PS8610-2879			
2.	**Contractor**: Hill International, Inc.			
3.	**Mod. Work Description**: Exercise final one-year option and increase Contract Value for planned work orders/modifications to support Board approved projects.			
4.	**Work Description**: Project Control Management Support Services			
5.	**The following data is current as of**: April 22, 2016			
6.	**Contract Completion Status**:		**Financial Status**:	
	Award Date:	5/24/12	**Board Approved NTE Amount**:	$16,071,824
	Notice to Proceed (NTP):	6/28/12	**Total Contract Modification Authority (CMA)**:	$2,410,774
	Original Completion Date:	6/28/16	**Value of Task Orders and Mods. Issued to Date (including this action)**:	$24,693,544
	Current Est. Complete Date:	6/28/17	**Remaining Board Approved Amount:**	$1,075,554
7.	**Contract Administrator:** Brian Mahaffey		**Telephone Number:** (213) 922-7327	
8.	**Project Director:** Brian Boudreau		**Telephone Number:** (213) 922-2474	

A. Contract Action Summary

This Board Action is to approve Contract Modification No. 3 to exercise the final one-year option and to increase the not-to-exceed contract value.

All Work Orders and Contract Modifications are handled in accordance with Metro's Acquisition Policy. The contract type is a negotiated labor-hour work order contract.

In May 2012, the Board authorized the CEO to award Program Control Management and Support Services to Hill International, Inc. and execute individual contract work orders within the Board approved not-to-exceed contract value $16,071,824, plus a contract modification authority of $2,410,774 (15% of contract value). In June 2012, Contract No. PS8610-2879 was awarded for a five-year contract term, inclusive of two one-year options to be exercised at the sole discretion of the Authority.

Since contract award, Hill International has performed satisfactorily providing Program Control Management and Support Services on various Metro projects. In June 2015, the first one-year option was exercised to extend the period of performance to June 28, 2016 without any increase to the contract value.

This current recommended action is to:

- Exercise the final contract option year, extending the period of performance from June 28, 2016 to June 28, 2017; and
- Increase the not-to-exceed contract value for contract work orders and modifications required to continue Program Control Management and Support Services through the final one-year option period.

Attachment B shows contract work orders and modifications issued to date, and the additional contract work orders and modifications that are currently planned for the final one-year option period. The actual contract work order and modifications will reflect the PCMS required to support the Board approved projects.

B. Cost/Price Analysis

The price for all future contract work orders and modifications will be determined to be fair and reasonable in accord with Metro's Procurement Policies and Procedures and based on audit by Management Audit Services of the direct labor and annual provisional overhead rates. A cost analysis, technical evaluation, fact finding, and negotiations will be performed on all work orders and any Contract Modifications. It has been determined that the previously negotiated rates for the final year with Hill International are fair, reasonable, and are competitive in the current market.

CONTRACT WORK ORDER / MODIFICATION LOG

PROGRAM CONTROL MANAGEMENT & SUPPORT SERVICES CONTRACT / PS8610-2879

CWO/ Mod	Description	Status	Date	Cost
1	Program Control Management Assistance	Approved	7/20/12	$448,715
2	Project Management Information System (PMIS)	Approved	9/11/12	$615,682
3	Division 13 Document Control Specialist	Approved	7/27/12	$774,310
4	Life Cycle Cost Analysis	Approved	9/6/12	$88,613
5, 26-27, 28, 30, 31-32, 55 56	Highway Program Project Control Support	Approved	10/16/12 7/10/13 7/11/13 8/28/13 9/4/13 6/18/14	$1,189,275
6	Rail Car Rehabilitation Support Services	Approved	11/6/12	$59,239
7	Southwestern Yard Maintenance (SWY) Cost Estimating Support	Approved	1/15/13	$261,916
8	PMIS Highway Support Services	Approved	11/28/12	$359,956
9	ARTI Document Management Support	Approved	5/22/13	$37,987
10	TIGER Grant	Approved	6/6/13	$4,995
11	Universal Bridge Project Control	Approved	1/17/13	$161,302
12, 20-25, 37, 77	Estimating Support and Project Cost Support on Environmental Program	Approved	11/14/12 7/1/13 12/6/13 7/7/15	$1,546,077
13	Division 13 Project Control Support	Approved	11/14/12	$122,245
14	I-405 Sepulveda Pass Project Control Support	Approved	1/23/13	$93,247
15	Universal City Bridge Estimating Services	Approved	2/6/13	$51,135
16	Blue Line Refurbish Estimating Services	Approved	3/28/13	$34,182
17	Regional Connector Estimating Services	Approved	3/28/13	$1,438,089
18	Westside Purple Line Extension (PLE) Section 1 Estimating Services	Approved	4/16/13	$2,014,086
19	Management Succession Planning - Rail Transit	Approved	8/8/13	$11,195
33	Change Management Custom Application	Approved	9/25/13	$226,914
34	Measure R Cost Estimate Review Services	Approved	9/26/13	$117,942
35	Project Management Academy Training	Approved	11/21/13	$271,690
36	PMIS Application	Approved	11/26/13	$2,134
38	Project Control for MRL/MOL N. Hollywood	Approved	1/30/14	$165,915
39	PMIS Expenditure Data Services	Approved	12/19/13	$43,997
40	Crenshaw/LAX Cost Estimating Support	Approved	12/18/13	$1,334,309
41	MRL/MOL N. Hollywood Station Document	Approved	2/5/14	$211,581

CWO/ Mod	Description	Status	Date	Cost
42	Universal City Pedestrian Bridge Document	Approved	2/5/14	$211,581
43	EcoSys Project Control Technical Support	Approved	2/5/14	$235,220
44	PMIS CMI Screen Modification Support	Approved	2/5/14	$7,500
45	Southwestern Yard Project Control Support	Approved	3/5/14	$32,680
46-47	Highway Document Control	Approved	5/13/14	$1,415
48	Patsaouras Plaza Document Control	Approved	5/7/14	$214,850
49	PMIS Cost Engineering Support	Approved	3/13/14	$130,901
50	Blue Line Refurbishment Document Control	Approved	11/14/14	$188,082
51 52 53 54	ARTI Cost Estimating	Approved	4/23/14 4/24/14 4/25/14 4/23/14	$141,951
57	Westside PLE Section 2 Estimating Support	Approved	7/22/14	$238,233
58	Ongoing PMIS Software Support	Approved	8/14/14	$444,135
59	Regional Connector Project Control Support	Approved	9/18/14	$1,453,896
60	PMIS Issue Module	Approved	9/4/14	$13,457
61	PMIS CM14 Migration	Approved	10/13/14	$179,677
62	Security PMO Plan	Approved	8/27/14	$50,964
63	Organization Assessment for Risk	Approved	12/5/14	$88,020
64	WPLE 1 Cost Schedule Support	Approved	9/5/14	$494,304
65	I-405 Cost Estimating Support	Approved	10/31/14	$67,052
66	Potential New Tax Initiatives Estimate Support	Approved	2/11/15	$99,919
67-69,	Rail Operation Capital Project Control Support	Approved	12/5/14	$258,990
74	Pershing Square Escalator Replacement Project Scheduling	Approved	6/29/15	$37,810
76	PMIS Work Order Processing	Approved	4/16/15	$200,773
78-79	Highway Program Project Control Support	Approved	7/9/15	$347,672
80	Rail Operations Sharepoint Development	Approved	8/31/15	$61,005
81	MBL Pedestrian & Swing Gates Installation Project Control Services	Approved	9/18/15	$38,545
82	Estimating Support on Accommodations of Future Metro Airport Station	Approved	10/1/15	$31,236
83	Westside PLE Section 2 Project Control Support Services	Approved	12/1/15	$219,811
84	Major Rail Project Risk Register Prototype Implementation	Approved	11/5/15	$59,496
90	Southwestern Maintenance Yard Project Control Support Services	Approved	4/6/16	$171,142
	CWO/Modification Total:			**$17,407,044**
	Board Authorized NTE & CMA:			**$18,482,598**
	Remaining Contract Modification Authority:			**$1,075,554**

CWO/ Mod	Description	Status	Cost
1	Program Control Management Assistance (100800)	Planned	$99,400
11	Universal City Pedestrian Bridge Project Control (809382)	Planned	$17,300
17	Regional Connector Estimating (860228)	Planned	$377,000
18	Westside Purple Line Extension (WPLE) 1 Estimating (865518)	Planned	$1,090,000
38	MRL/MOL N. Hollywood Station Project Control (204122)	Planned	$22,300
40	Crenshaw Estimating (865512)	Planned	$800,000
41	MRL/MOL North Hollywood Station Document Control (204122)	Planned	$46,000
42	Universal City Pedestrian Bridge Document Control (809382)	Planned	$3,000
43	Ecosys Project Control Technical Support (100800)	Planned	$140,000
48	Patsaouras Plaza Document Control (202317)	Planned	$135,700
57	WPLE 2 Estimating (865522)	Planned	$334,000
58	Ongoing PMIS Software Support (100800)	Planned	$270,200
59	Regional Connector Project Control (860228)	Planned	$418,000
64	WPLE 1 Project Control (865518)	Planned	$186,800
7	SWY Estimating (860003)	Planned	$314,000
74	Pershing Square Escalator Replacement (204133)	Planned	$28,600
77	Project Control & Estimating to Environmental (202211/300012/450001/450002/450003/450004)	Planned	$584,000
78-79	Highway Program Project Control (100055/405522)	Planned	$438,000
81	MBL Pedestrian & Swing Gates Installation Project Control Services (205104)	Planned	$29,000
83	WPLE 2 Project Scheduling (865522)	Planned	$382,000
90	Southwestern Maintenance Yard Project Control (860003)	Planned	$457,000
TBD	Crenshaw Project Control (865512)	Planned	$166,000
TBD	Various Operations Capital Projects (205066/205055/205056/205092/205078/205070/205097/ 211013/204128/211029/205099/205058/205067/205072/ 205079/205083/211030/205102/205040/205093/205101/ 205038/205087/204123/205088/204135/205103/800113)	Planned	$190,200
TBD	96th Street Future Airport Connector (860303)	Planned	$152,000
TBD	Division 20 Turnback Portal Widening (TBD)	Planned	$152,000
TBD	Emergency Security Operations Center Project Control Support Services (212121)	Planned	$28,000
TBD	WPLE 3 Estimating (865523)	Planned	$152,000
TBD	WPLE 3 Project Control (865523)	Planned	$274,000
	FY17 Planned CWO/Modification Total:		**$7,286,500**
	Remaining Contract Modification Authority:		**$1,075,554**
	Additional Contract Authority Increase Request:		**$6,210,946**

DEOD SUMMARY

PROGRAM CONTROL MANAGEMENT AND SUPPORT SERVICES / PS8610-2879

A. Small Business Participation

Hill International made a 20% Disadvantaged Business Enterprise (DBE) commitment. Current DBE participation is 17.80%, a shortfall of 2.20%. This project is 75% complete. According to Hill International, and confirmed by Metro's Project Management, Hill was required to augment its team to provide strong Oracle expertise by adding non-DBE subcontractors, DRMcNatty and EcoSys to perform on-going project management information system (PMIS) services required by the contract scope. Cambria Solutions, a certified DBE, was added to perform policy and organization assessment related work.

Based on the current authorized contract value, Hill International has projected that they will exceed their DBE commitment (21%).

Small Business Commitment	20% DBE	Small Business Participation	17.80% DBE

	DBE Subcontractors	Ethnicity	% Committed	Current Participation[1]
1.	LS Gallegos	Hispanic American	7.93%	6.13%
2.	LKG CMC	Caucasian Female	6.35%	10.03%
3.	Stellar Services	Asian Pacific American	5.72%	0.82%
4.	Cambria Solutions	Hispanic American	Added	0.82%
		Total	**20.00%**	**17.80%**

[1] *Current Participation = Total Actual amount Paid-to-Date to DBE firms ÷Total Actual Amount Paid-to-date to Prime.*

B. Living Wage and Service Contract Worker Retention Policy Applicability

The Living Wage and Service Contract Worker Retention Policy is not applicable to this contract.

C. Prevailing Wage Applicability

Prevailing wage is not applicable to this contract.

D. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to this contract.

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

File #: 2016-0283, **File Type:** Appointment **Agenda Number:** 26

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE
MAY 19, 2016

SUBJECT: MEMBERSHIP ON METRO SERVICE COUNCILS

ACTION: APPROVE NOMINEES FOR APPOINTMENT TO METRO SERVICE COUNCILS

RECOMMENDATION

APPROVE **nominees for membership on Metro's San Fernando Valley, San Gabriel Valley, and Westside Central Service Councils**.

ISSUE

Representatives of the Councils shall be selected to reflect a broad spectrum of the interests and geographic areas of the region over which the Metro Service Council has jurisdiction. Membership on the Council is not transferable or assignable.

The nominating authorities for the San Fernando Valley Service Council consist of City of LA Mayor Eric Garcetti (four seats), Third District Supervisor Sheila Kuehl (one seat) , Fifth District Supervisor Michael Antonovich (one seat), city clusters in the East San Fernando Valley (two seats), and a city cluster in the West San Fernando Valley (one seat).

The nominating authorities for the San Gabriel Valley Service Council consist of LA County First District Supervisor Hilda L. Solis (1 seat), Fifth District Supervisor Michael Antonovich (one seat), the San Gabriel Valley Council of Governments (three seats), and city clusters in the San Gabriel Valley (four seats).

The nominating authorities for the Westside Central Service Council consist of City of LA Mayor Eric Garcetti (4 seats), Second District Supervisor Mark Ridley-Thomas (one seat), Third District Supervisor Sheila Kuehl (one seat), and the Westside Cities Council of Governments (three seats).

DISCUSSION

Metro seeks to appoint Service Council members reflective of the demographics of each respective region. The 2010 Census demographics of the San Gabriel Valley Service Council regions are as follows:

% Sector Total	Hispanic	White	Asian	Black	Other	Total Pop
SGV	50.0%	19.9%	24.9%	3.3%	2.0%	100.0%
SFV	41.0%	42.0%	10.7%	3.4%	2.9%	100.0%
Westside/Central	43.5%	30.7%	13.0%	10.0%	2.8%	100.0%
Service Area Total	48.5%	26.8%	14.0%	8.2%	2.6%	100.0%

The individuals listed below have been nominated to serve by the seats' appointing authorities. If approved by the Board, this appointment will serve the remainder of the seats' terms as indicated. A brief listing of the new nominees' qualifications is provided along with the nomination letters from the nominating authorities:

A. Max Reyes, San Fernando Valley Service Council, New Appointment
Nominated by: Los Angeles Mayor Eric Garcetti
Term Ending: June 30, 2019

The demographic makeup of the San Fernando Valley Service Council with the appointment of this nominee will consist of two (2) White members, six (6) Hispanic members, and one (1) Asian member as self-identified by the members in terms of racial/ethnic identity. The gender breakdown of the Council will be eight(8) men and one (1) woman.

B. Vivian Romero, San Gabriel Valley Service Council, New Appointment
Nominated by: First District Supervisor Hilda L. Solis
Term Ending: June 30, 2018

The demographic makeup of the San Gabriel Valley Service Council with the appointment of this nominee will consist of five (5) White members, two (2) Hispanic members, one (1) Asian member, and one (1) Native/Other member as self-identified by the members in terms of racial/ethnic identity. The gender breakdown of the Council will be eight (8) men and one (1) woman.

C. Ernesto Hidalgo, Westside Central Service Council, New Appointment
Nominated by: Los Angeles Mayor Eric Garcetti
Term Ending: June 30, 2019

The demographic makeup of the Westside Central Service Council with the appointment of this nominee will consist of three (3) Hispanic members, three (3) White members, one (1) Asian member, and two (2) Black members as self-identified by the members in terms of racial/ethnic identity. The gender breakdown of the Council will be six (6) men and three (3) women.

DETERMINATION OF SAFETY IMPACT

Maintaining the full complement of representatives on each Service Council to represent each service area is important. As each representative is to be a regular user of public transit, and each Council is composed of people from diverse areas and backgrounds, this enables each Council to better understand the needs of transit consumers including the need for safe operation of transit service and safe location of bus stops.

FINANCIAL IMPACT

There is no financial impact imparted by approving the recommended action.

ALTERNATIVES CONSIDERED

The alternative to approving this appointment would be for these nominees to not be approved for appointment, for the incumbents to remain in the seats until the end of the seat's term (San Fernando Valley and San Gabriel Council vacancies), and for a seat to remain vacant (Westside Central Council).

NEXT STEPS

Staff will continue to monitor the major contributors to the quality of bus service from the customer's perspective, and share that information with the Service Councils for use in their work to plan, implement, and improve bus service in their areas and the customer experience using our bus service.

ATTACHMENTS

Attachment A - New Appointee Biography and Listing of Qualifications
Attachment B - Appointing Authority Nomination Letter

Prepared by: Jon Hillmer, Executive Officer of Service Development, Scheduling & Analysis, (213) 922-6972

Reviewed by: James T. Gallagher, Chief Operations Officer, (213) 922-4424

Phillip A. Washington
Chief Executive Officer

ATTACHMENT A

NEW APPOINTEES BIOGRAPHIES AND QUALIFICATIONS

Max Reyes, Nominee for San Fernando Valley Service Council

Max Reyes was raised in the San Fernando Valley and remains a proud resident. Prior to being elected President of the San Fernando Valley Young Democrats, he served as the club's Vice President, Treasurer, Communications Director, and Editorial Director. Professionally, Max is the Assistant Director of Government & Community Relations at California State University, Northridge. He previously worked for LA Mayor Eric Garcetti as his point staffer in the West Valley. Mr. Reyes has dedicated his career to public service, having served as the Deputy Campaign Manager to Senator Fran Pavley's successful 2012 re-election campaign and as her Senior Field Representative. He has worked for various state legislators in both their Capitol and district offices, giving him a broad understanding on the functions of government from both policy and community perspectives.

Mr. Reyes graduated with Distinction from the University of California, Berkeley, obtaining a B.A. in Political Science. He got his start in politics as a student government representative working on higher education issues. In college, he served as the UC Berkeley Lobby Corps Director and in Moorpark College as the Director of External Affairs. During his last semester, he was named the Advocate of the Year by the University of California Student Association.

Vivian Romero, Nominee for San Gabriel Valley Service Council

Long-standing Montebello resident Vivian Romero was elected to Montebello's City Council in 2013. Prior to her election, she served as a member of the City's Culture and Recreation Commission from 2011 to 2013.

Ms. Romero's involvement in the Montebello community includes fundraising for renovations to the City's Veteran's Memorial at the Montebello City Park, Montebello American Legion Montebello Post 272, Hook-Up Military Resource Center for Veterans, and a beautification project at Montebello Senior Center. She formed partnerships which helped bring to fruition the staging of special events such as the Annual Montebello Cinco De Mayo 5k /10k Run & Music Festival and an Annual Holiday Toy Drive for residents. She has previously served as a Neighborhood Watch Captain. She has also been proactive in arranging meetings with Caltrans officials to address concerns with noise, SR-60 emissions, deficiencies in scheduled maintenance, a failed Adopt a highway program and public safety issues caused by these conditions.

As Mayor Pro Tem, Ms. Romero's focus is economic development and sustaining city services with emphasis on local police & fire, street maintenance and after school

programs. She currently serves on the City's Street and Transit Ad-Hoc Committee, and has been an active member of the San Gabriel Valley Riverbed Task Force. Ms. Romero is also an accomplished entertainment and music industry professional and has served on the Executive Board of the Independent Cities Association since 2014. The Independent Cities Association is comprised of 48 member cities in Southern California representing over 7 million people, and focuses on education, legislative advocacy, intergovernmental relationships and other major issues that transcend the boundaries of its member cities.

Ernesto Hidalgo, Nominee for Westside Central Service Council

Ernesto Hidalgo has served as the volunteer Government and Community Affairs Representative for The Transit Coalition since 2013. A previous resident of North Hollywood, he served as the Chair of the Neighborhood Council's Planning, Land Use, Housing & Transportation Committee. Mr. Hidalgo recently became a home owner in Boyle Heights. He is currently employed as a Community Development Analyst with the City of Montebello. Mr. Hidalgo holds a BS in Business Administration from California State University of Northridge and is currently a candidate to obtain a Real Estate Investment Certificate and become a California Department of Real Estate Broker through UCLA.

ATTACHMENT B

APPOINTING AUTHORITYY NOMINATION LETTER

ERIC GARCETTI
MAYOR

April 11, 2016

Mr. Gary Spivack
Deputy Executive Officer
Metro Regional Service Councils
One Gateway Plaza MS 99-7-2
Los Angeles, CA 90012

Mr. Spivack,

I hereby submit the nomination of Max Reyes to serve as a representative on the San Fernando Valley Service Council.

I certify that in my opinion Mr. Reyes is qualified for the work that will devolve upon him, and that I make this appointment solely in the interest of the City.

Please let me know if you need any additional information. Thank you for your consideration.

Sincerely,

E. Garcetti

ERIC GARCETTI
Mayor

EG:cl

BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

856 KENNETH HAHN HALL OF ADMINISTRATION / LOS ANGELES, CALIFORNIA 90012
(213) 974-4111 / FAX (213) 613-7339

HILDA L. SOLIS
CHAIR, BOARD OF SUPERVISORS
SUPERVISOR, FIRST DISTRICT

March 7, 2016

Gary Spivack
Deputy Executive Officer, Metro Service Councils
1 Gateway Plaza, MS 99-7-2
Los Angeles, CA 90012

Re: San Gabriel Valley Service Council Appointment

Dear Mr. Spivack,

As the Supervisor for the First District of Los Angeles County, I would like to appoint Montebello Councilmember. Vivian Romero to the San Gabriel Valley Service Council. You may contact her directly to request all necessary documentation.

Vivian Romero
vromeromusic@gmail.com
(213) 337-4466

Given her experience in the San Gabriel Valley, Mrs. Romero offers a balanced approach to achieve regional transportation goals. I have full confidence in her ability to represent the First District. Many thanks in advance.

Sincerely,

Hilda L. Solis
Chair of the Board
Supervisor, First District

ERIC GARCETTI
MAYOR

April 11, 2016

Mr. Gary Spivack
Deputy Executive Officer
Metro Regional Service Councils
One Gateway Plaza MS 99-7-2
Los Angeles, CA 90012

Mr. Spivack,

I hereby submit the nomination of Ernesto Hidalgo to serve as a representative on the Westside/Central Service Council.

I certify that in my opinion Mr. Hidalgo is qualified for the work that will devolve upon him, and that I make this appointment solely in the interest of the City.

Please let me know if you need any additional information. Thank you for your consideration.

Sincerely,

ERIC GARCETTI
Mayor

EG:cl

200 N. SPRING STREET, ROOM 303 LOS ANGELES, CA 90012 (213) 978-0600
MAYOR.LACITY.ORG

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

Metro

Board Report

File #: 2016-0357, **File Type:** Contract **Agenda Number:** 30

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITEE
MAY 19, 2016

SUBJECT: BLUE LINE BACK-UP POWER SYSTEM

ACTION: AWARD CONTRACT

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to award a firm fixed price Contract No. OP4978800, a sole source procurement, to **American Power Systems, LLC. (APS), in the amount of $1,003,974, to furnish and install a replacement back-up power system for the Blue Line.**

ISSUE

There were three recent Metro Blue Line (MBL) incidents where the service interruptions were a result of a power failure. In the event of a power outage from the utility provider, the power control system has a secondary battery system that activates to provide uninterrupted supervisory control of the substations. During each incident the battery back-up system failed to provide power to the control devices, resulting in service delays.

These systems are located in twenty-one Communications and Signal Rooms (CSR) along the MBL. The batteries are expired and need replacement in all CSR's. The current system cannot be relied upon to function as intended.

DISCUSSION

The MBL back-up power system is a vital part of ensuring safe and uninterrupted service. This procurement is for a replacement of the current back-up battery power system along the alignment. The contract allows APS to furnish and install the battery kits and all required hardware and software. They will also provide and maintain a warranty for the battery system as the sole authorized representative. The life expectancy of the new batteries is 20 years, and will require minimal maintenance. The installation for the entire MBL will be completed within six months of contract award.

Sole Source Justification

The significance of this sole source procurement is to ensure continued safe operational ability of the back-up power system. The current back-up power system was provided by C&D Technologies.

powered by Legistar™

Metro has used the C&D battery systems throughout all of the rail communications sites for the last 25 years. From an operational and technical standpoint, it is imperative to acquire the same type of battery kits for the communications equipment compatibility and standardization system-wide. APS is the only authorized manufacturer's representative for C&D Technologies in the State of California and the only company authorized to install for warranty purposes. Another type of battery kit would require re-engineering of the existing communications equipment which is cost-prohibitive and unreasonable. The procurement was conducted in accordance with current policy on sole source procurements.

DETERMINATION OF SAFETY IMPACT

The back-up battery power system needs to be replaced in order to maintain a safe and reliable system. In the event that the utility company has a power failure and the back-up battery system does not work, there is a potential of a multi-hour service disruption. Passengers will need to exit the train wherever they are stopped along the right of way, and this is a safety risk for everyone on the train.

FINANCIAL IMPACT

Funding is included under Project 211029 for the Blue Line Communications and Signal Building Rehabilitation Project. Funds are allocated in cost center 3960 - Rail Transit Engineering, account 53102 - Acquisition of Equipment, task 04.001 - Parts and Materials.

Impact to Budget

The source of funding for this project will come from Prop A 35% which are eligible for bus and rail Operating and Capital Projects. This funding source will maximize the use of funds for these activities.

ALTERNATIVES CONSIDERED

One alternative is to not award this Contract and leave the expired batteries in the back-up system. This alternative is not recommended as it will leave Metro susceptible to system delays and additional operational expenses.

A second alternative is to only replace some of the back-up system, instead of the entirety of the line. This alternative is not recommended as power failures along the Blue Line cannot be predicted, and thus would still leave the line vulnerable to system delays.

NEXT STEPS

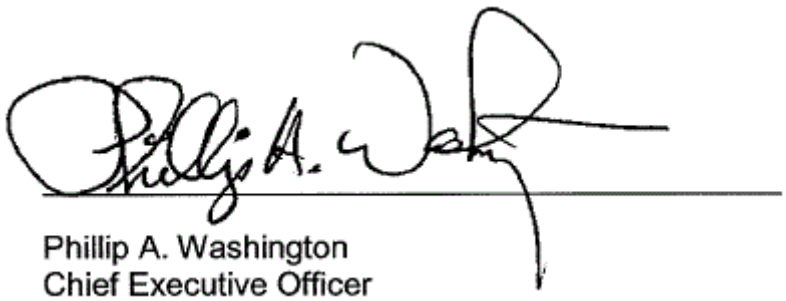
Upon Board approval, staff will execute Contract No. OP4978800 to American Power Systems and issue a Notice-to-Proceed to start working on this project.

ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - DEOD Summary

Prepared by: Aderemi Omotayo, Director, Wayside Systems, (213) 922-3243
Chris Reyes, Transportation Planning Manager, (213) 922-4808

Reviewed by: Ivan Page, Interim Executive Director, Vendor/Contract Management, (213) 922-6383
James T. Gallagher, Chief Operations Officer, (213) 922-4424



Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY

BLUE LINE BACK-UP POWER SYSTEM /OP4978800

1.	**Contract Number**: OP4978800	
2.	**Recommended Vendor**: American Power Systems, LLC	
3.	**Type of Procurement (check one):** ☐ **IFB** ☐ **RFP** ☐ **RFP–A&E** ☒ **Non-Competitive** ☐ **Modification** ☐ **Task Order**	
4.	**Procurement Dates**:	
	A. Issued: April 13, 2016	
	B. Advertised/Publicized: N/A	
	C. Pre-Proposal/Pre-Bid Conference: N/A	
	D. Proposals/Bids Due: April 20, 2016	
	E. Pre-Qualification Completed: April 22, 2016	
	F. Conflict of Interest Form Submitted to Ethics: April 20, 2016	
	G. Protest Period End Date: N/A	
5.	**Solicitations Picked up/Downloaded**: N/A – Sole Source	**Bids/Proposals Received**: 1 – Sole Source
6.	**Contract Administrator**: Victor Zepeda	**Telephone Number**: (213) 922-1458
7.	**Project Manager**: Roger Largaespada	**Telephone Number**: (213) 613-2115

A. Procurement Background

This Board Action is to approve Contract No. OP4978800 to American Power Systems, LLC (APS) in support of Metro's Rail Communications Back-Up Power System at 21 Blue Line Stations. The Metro Blue Line Back-Up Power System has been in service for over 27 years. In the event a Back-Up Power System fails, public transportation will have to be shutdown.

The RFP was issued in accordance with Metro's Acquisition Policy and the contract type is a firm fixed price.

No amendments were issued during the solicitation phase of this RFP:

The proposal was received on April 20, 2016. This was a sole source procurement because, APS, is the only authorized manufacturer's representative in the entire State of California for C&D Batteries and Uni Power Rectifiers, the type of batteries and rectifiers used on Metro Blue Line, including the installation verification and warranty claim processing company.

B. Evaluation of Proposals/Bids

The proposal was evaluated in accordance, and complies with, Metro's Acquisition Policy for a sole source procurement.

APS was determined to be responsive, responsible and qualified to perform the required services based on the technical evaluation by the Project Manager.

C. Cost/Price Analysis

The recommended price for the contract is fair and reasonable based on comparable listed prices on GSA, independent cost estimate, and technical evaluation.

BIDDER	AMOUNT	METRO ICE	AWARD AMOUNT
American Power Supply	$1,003,974	$1,002,383	$1,003,974

D. Background on Recommended Contractor

The recommended firm, APS, located in Irvine, CA, has been in business for 22 years and is a leader in the field of DC (direct current) power and uninterrupted power systems. APS is the only authorized distributor in California for C&D Technologies and Uni Power Rectifiers (the system chosen by Metro for the Blue Line).

APS is the sole distributor for the battery plant system, and is the only authorized installation verification and warranty processing company in the State of California.

In 2014, APS was awarded a contract to provide new batteries and power plant at the Green Line Maintenance Yard. Their performance has been satisfactory.

DEOD SUMMARY

BLUE LINE BACK-UP POWER SYSTEM / OP4978800

A. Small Business Participation

The Diversity and Economic Opportunity Department (DEOD) did not establish a Small Business Enterprise (SBE) goal for this sole-source non-competitive procurement based on the lack of subcontracting opportunities. The proposed Contractor, American Power Systems, is the exclusive representative of C & D batteries and Uni Power Rectifiers in Southern California. As confirmed by the Project Manager, American Power Systems is the only authorized dealer that can install and validate the Metro Blue Line Battery Plants, and will perform the work with its own workforces.

B. Prevailing Wage Applicability

Prevailing wage is not applicable to this contract

C. Living Wage /Service Contract Worker Retention Policy Applicability

The Living Wage and Service Contract Worker Retention Policy is not applicable to this contract.

D. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to this contract.

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

Metro

Board Report

File #: 2015-1785, **File Type:** Contract **Agenda Number:** 31

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE
MAY 19, 2016

SUBJECT: COMMERCIAL AND INDUSTRIAL DOOR REPAIR AND PREVENTIVE MAINTENANCE SERVICES

ACTION: APPROVE CONTRACT AWARD

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to award a firm fixed unit rate Contract No. OP4260900 for **commercial and industrial door repair and preventive maintenance services with Specialty Doors + Automation**, for a not-to-exceed amount of $1,116,405 for the three-year base period, $372,135 for the first option year, and $372,135 for the second option year, for a combined total of $1,860,675, effective July 1, 2016, through June 30, 2021.

ISSUE

This new contract will provide agency wide as-needed repair and semi-annual inspections and preventive maintenance services for Metro's commercial and industrial doors. It will also provide as-needed refurbishment or replacement of damaged or aging doors.

Preventive maintenance of commercial and industrial doors is necessary to extend their useful life and provide safe and reliable service system-wide.

The existing contract with Specialty Doors + Automation, OP33442634, will expire on June 30, 2016. To ensure service continuity along with safe and timely operations, a new contract award is required effective July 1, 2016.

DISCUSSION

There are over 935 doors throughout Metro bus and rail facilities. This includes steel roll-up doors, glass doors, bi-fold doors, roll-up grills, sectional doors, fire doors, and counter shutters.

This contract will provide semi-annual inspections, preventive maintenance services, and as-needed repairs to damaged or malfunctioning doors. Timely repairs of damaged or malfunctioning doors or grills are necessary to avoid negative impact to bus roll-outs and train operations.

DETERMINATION OF SAFETY IMPACT

The approval of this item will ensure safe, timely, and quality commercial and industrial door repair and preventive maintenance services throughout Metro bus and rail facilities.

FINANCIAL IMPACT

The funding of $372,135 for this is contract is included in the FY17 budget in cost centers 3367 - Facilities Property Maintenance, under multiple operating projects.

Since this is a multi-year contract, the cost center manager and project managers will ensure that the balance of funds are budgeted in future years.

Impact to Budget

The source of funds for this procurement will come from state and local funding sources that are eligible for Bus and Rail Operating or Capital Projects. These funding sources will maximize the use of funds for these activities.

ALTERNATIVES CONSIDERED

Staff considered providing this service with in-house staff. This would require the hiring and training of additional personnel, purchase of additional equipment, vehicles, and supplies to support the expanded responsibility. Staff's assessment indicates this is not a cost-effective option for Metro.

NEXT STEPS

Upon approval by the Board, staff will execute Contract No. OP4260900 to Specialty Doors + Automation, to provide commercial and industrial door repair and preventive maintenance services throughout Metro bus and rail facilities effective July 1, 2016.

ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - DEOD Summary

Prepared by:
Prepared by: Brady Branstetter, Director, Facilities Maintenance, (213) 922-6767
Lena Babayan, Facilities Maintenance Manager, (213) 922-6765

Reviewed by: James T. Gallagher, Chief Operations Officer, (213) 922-4424
Ivan Page, Interim Executive Director, Vendor/Contract Management, (213) 922-6383

Phillip A. Washington
Chief Executive Officer

ATTACHMENT A

PROCUREMENT SUMMARY

COMMERCIAL AND INDUSTRIAL DOOR REPAIR AND PREVENTIVE MAINTENANCE SERVICES / OP4260900

1.	**Contract Number:** OP4260900	
2.	**Recommended Vendor**: Specialty Doors + Automation	
3.	**Type of Procurement (check one):** ☐ **RFP** ☒ **IFB** ☐ **IFB–A&E** ☐ **Non-Competitive** ☐ **Modification** ☐ **Task Order**	
4.	**Procurement Dates**:	
	A. Issued: September 10, 2015	
	B. Advertised/Publicized: September 10, 2015	
	C. Pre-Proposal/Pre-Bid Conference: September 17, 2015	
	D. Proposals/Bids Due: October 27, 2015	
	E. Pre-Qualification Completed: December 28, 2015	
	F. Conflict of Interest Form Submitted to Ethics: November 19, 2015	
	G. Protest Period End Date: May 24, 2016	
5.	**Solicitations Picked up/Downloaded**: 8	**Bids/Proposals Received**: 2
6.	**Contract Administrator**: Rommel Hilario	**Telephone Number**: **(**213) 922-4654
7.	**Project Manager**: Carlos Martinez	**Telephone Number**: **(**213) 922-6761

A. Procurement Background

This Board Action is to approve a contract award in support of Facilities Maintenance to provide the installation, automation and repair services for rollup and hinged fire doors, hinged single and double glass/aluminum doors, steel roll-up doors/grilles and all other types of doors throughout Metro bus and rail facilities as outlined in Invitation for Bid (IFB) No. OP182553367348920.

The IFB was issued as a competitive procurement in accordance with Metro's Acquisition Policy. The contract type is firm fixed unit price.

Three amendments were issued during the solicitation phase of this IFB:

- Amendment No. 1, issued on September 25, 2015, provided pre-bid conference material including sign-in sheets, planholders' list, and prevailing wage information;
- Amendment No. 2, issued on October 14, 2015, changed submittal requirements and extended the bid due date;
- Amendment No. 3, issued on October 19, 2015, deleted the bid bond and performance bond requirements.

A pre-bid conference was held on September 17, 2015. A total of two bids were received on October 27, 2015.

B. Evaluation of Bids

This procurement was conducted in accordance, and complies with, standard acquisition policy for a competitive sealed bid. A total of two bids were received from Specialty Doors + Automation and Southern California Overhead Door Company, Inc. Both firms were determined to be responsive, responsible and qualified to perform the required services based on the IFB's requirements and technical evaluation by the Project Manager.

C. Cost/Price Analysis

The recommended hourly rate and total price from Specialty Door + Automation for the contract are considered fair and reasonable based upon adequate price competition, independent cost estimate, and technical evaluation. Specialty Door + Automation offered the lowest hourly labor rate.

In March 2016, the Department of Industrial Relations (DIR) confirmed that prevailing wage applies to the services included in this contract. Staff conducted an analysis of the bids to ensure that applicable prevailing wages were met. The analysis included a review of applicable labor categories cited by the DIR.

BIDDER	BID AMOUNT	METRO ICE	AWARD AMOUNT
Specialty Door + Automation	$1,860,675	$2,297,581	$1,860,675
Southern California Overhead Door Company.	$4,816,290	$2,297,581	

D. Background on Recommended Contractor

The recommended firm, Specialty Door + Automation located in Rancho Dominguez, California, has been in business since 1996. Their goal was to build a full service company that offered more features to industrial and retail customers at a low price. Specialty Door + Automation provides a variety of automation, security products, installation, and repair services. Their solutions include complete electrical, gates and fabrication. The company primarily focuses their services in Southern California where they have multiple offices from Santa Barbara to Orange County. Specialty Door + Automation is the incumbent for this work and has performed satisfactorily.

DEOD SUMMARY

COMMERCIAL AND INDUSTRIAL DOOR REPAIR AND PREVENTIVE MAINTENANCE SERVICES / OP4260900

A. Small Business Participation

The Diversity and Economic Opportunity Department (DEOD) established a 5% Small Business Enterprise (SBE) goal for this solicitation. At the time of bid, Specialty Doors Inc. did not make an SBE commitment. However, Specialty Doors notified Metro that their listed non-SBE subcontractor, LAX Equipment, submitted an application for SBE certification (received by Metro on March 25, 2016), and was SBE certified on April 19, 2016. Meeting the goal was neither a condition of award nor an issue of responsiveness. After contract award, it is expected that Specialty Doors will have an SBE participation of 2.42%.

According to guidance provided by County Counsel, SBE goals on non-federally funded IFBs cannot be a condition of award because Metro can only award to the lowest bidder in accordance with Section 130232(5) of the California Public Utilities Code. Staff is working with Government Relations to seek legislative change to the Public Utilities Code, through Assembly Bill 2690 (Ridley-Thomas). AB 2690 is currently pending referral to the Assembly Local Government Committee.

B. Living Wage and Service Contract Worker Retention Policy Applicability

The Living Wage and Service Contract Worker Retention Policy is not applicable to this contract.

C. Prevailing Wage Applicability

Prevailing Wage requirements are applicable to this project. DEOD will monitor contractors' compliance with the State of California Department of Industrial Relations (DIR), California Labor Code, and, if federally funded, the U S Department of Labor (DOL) Davis Bacon and Related Acts (DBRA).

D. Project Labor Agreement/Construction Careers Policy

The Project Labor Agreement/Construction Careers Policy is not applicable to this project.

File #: 2016-0052, **File Type:** Contract **Agenda Number:** 32

REVISED
SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE
MAY 19, 2016

SUBJECT: CONSULTING SERVICES FOR HEAVY RAIL VEHICLE ACQUISITION, TECHNICAL SUPPORT SERVICES

ACTION: AWARD PROFESSIONAL SERVICES CONTRACT

RECOMMENDATION

AWARD a cost plus fixed fee contract for **Technical Support Services for the Heavy Rail Vehicle (HRV) Acquisition, Contract No. OP16523-30433487, to LTK Engineering Services**, in the not-to-exceed amount of $13,028,744 for a period of 62 months from issuance of a Notice-to-Proceed (NTP) for the 64 HRV Base Order.

ISSUE

This action authorizes contract award to LTK Engineering Services to support Metro's designated Project Manager, or his/her designee, with engineering and technical oversight of the HRV 4000 Vehicle Contractor to ensure performance is consistent with the requirements of the HR4000 Heavy Rail Vehicle Contract. Subject to Metro's direction, the Consultant shall apply appropriate technical and engineering support services and resources to facilitate the timely production and delivery of the HR4000 HRVs and associated deliverables for a period of 62 months for the 64 vehicle HRV Base Order. Should Metro exercise Vehicle Options one (1) thru five (5) staff will return to the Board for approval of the additional not to exceed amount for LTK's services.

DISCUSSION

Metro is currently active in numerous rail line extensions including the Purple Line Extension (PLE), Sections 1, 2 and 3. This rail line expansion, previously named the Westside Subway Extension, extends service from the terminus of the Purple Line at the ~~Wilshire/Vermont~~ Wilshire/Western Station to Westwood.

In accordance with the Rail Fleet Management Plan FY2015-FY2040 (Draft, June 10, 2015, v.7.1), Metro anticipates a need to expand each rail fleet to accommodate anticipated growth in ridership, line extensions; replace vehicles reaching the end of their useful revenue service life; and support the maintenance department with reasonable spare ratios to prevent deferred maintenance issues. The base order of 64 HRVs will address the operational service requirements of the PLE, Section 1, with

34 HRVs; the other 30 HRVs will be used to replace the A650 Base Buy fleet that will be at the end of its useful revenue service life. As such this contract base order will be supporting the fleet replacement efforts under project number 206037 in addition to the PLE section 1 efforts under project number 865518. If in the future, the additional options are executed, project(s) will be directly charged for the option(s) benefitting the respective project(s). There are five (5) Options totaling 218 HRVs for potentially a cumulative purchase of 282 vehicles for the new HRV procurement.

The Options included as part of this action are as follows:

- Option 1 - 24 HRVs: Red Line Expansion
- Option 2 - 84 HRVs: System Expansion
- Option 3 - 20 HRVs: PLE, Section 2
- Option 4 - 16 HRVs: PLE, Section 3
- Option 5 - 74 HRVs: Fleet Replacement of existing 74 vehicles

LTK Engineering Services shall provide support to Metro's designated Project Manager or his/her designee, with technical and engineering oversight of the Vehicle Contractor to ensure that performance is consistent with the delivery requirements of the HR4000 Heavy Rail Vehicle Contract, which may include Metro's exercise of any or all of the five (5) Options. Subject to Metro's direction, LTK Engineering Services will apply appropriate technical and engineering support services and resources to facilitate the timely production and delivery of the HR4000 HRVs and associated deliverables.

The Scope of Services shall include, but not be limited to, document control, review and preparation of correspondence in response to technical submissions, oversight of the Vehicle Contractor's supply chain process, support of Project Reviews, oversight of testing and inspection activity, and other technical support services as directed by Metro.

The Consultant shall provide, on an as needed basis, highly experienced and qualified passenger heavy rail transit Vehicle engineers with demonstrated expertise in all subject areas listed in LTK Engineering Services' Statement of Qualifications for the duration of the Contract.

The Diversity & Economic Opportunity Department (DEOD) has completed its initial evaluation of the Proposer's commitment to meet the twenty percent (20%) Race Conscious Disadvantage Business Enterprise (RC DBE) goal established for this project. LTK Engineering Services exceeded the goal by making a 22.62% DBE commitment and is deemed responsive to the DBE requirements.

DETERMINATION OF SAFETY IMPACT

The approval of this contract award will have a direct and positive impact to system safety, service quality, system reliability and overall customer satisfaction. The procurement of sixty-four (64) new HRVs will support the operational service requirements of Section 1 of the PLE and augment service

levels by replacing the underperforming 30 Base Buy A650 HRVs.

FINANCIAL IMPACT

The total not-to-exceed contract amount to support the base is $13,028,744. Funding for the base order is within the respective Life of Project (LOP) budgets for the Westside Purple Line Extension (PLE) Section 1 (865518) of $2,739,510,000 and the Heavy Rail Procurement Project (206037) of $130,910,000.

The FY17 planned expenditures of $2,497,043 is included in the annual budgets for the two aforementioned projects in Cost Center 3043, Rail Vehicle Acquisition, and Account 50316, Professional & Technical Services and as per Attachment C.

Since this is a multi-year contract, the cost center Manager, Project Managers, and the Executive Director of Vehicle Acquisitions will ensure that costs will be budgeted in future years.

Impact to Budget

The source of funds for this action affecting Westside PLE Section 1 is Measure R 35%, and is within the Adopted LOP budget. Funding sources for the Westside PLE Section 1 project is planned for the design, construction and procurement efforts; these funds are not eligible for operations.

The source of funds for the Heavy Rail Procurement project is initially Measure R Administration, which is eligible for rail capital activities. The funding sources under this project are sufficient to award the contract base of this recommendation. Staff is actively pursuing additional Federal sources such as MAP-21 and other eligible federal sources. Staff is also pursuing additional State and Local funding sources such as Cap and Trade and similar sources as they become available to meet the funding needs of project 206037.

ALTERNATIVES CONSIDERED

Staff considered using in-house Metro resources to perform this work. This approach is not recommended as Metro does not have sufficient resources and Subject Matter Experts (SME) available to perform this work. The Transit Capital Programs group has only two (2) Senior Mechanical Engineers and two (2) Engineers available to facilitate four (4) rail projects already underway.

The Board of Directors may choose not to authorize the contract award for this project; however, this alternative is not recommended by staff as this project is critical to support the Purple Line Extension, accommodate projected growth in ridership, and increase vehicle spare ratios to enable the Maintenance department to effectively plan and schedule its work.

NEXT STEPS

Upon Board approval, a contract will be awarded and a Notice-to-Proceed will be issued to LTK Engineering Services. Metro and LTK Engineering Services will mobilize required resources and

SMEs to ensure timely completion of deliverables by the Vehicle Contractor.

ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - DEOD Summary
Attachment C - Funding/Expenditure Plan

Prepared by: Cop Tran, Project Control Manager, (213) 922-3188
Jesus Montes, Executive Director, Vehicle Acquisition, (213) 922-3838

Reviewed by: James T. Gallagher, Chief Operations Officer, (213) 922-4424
Ivan Page, Interim Executive Director, Vendor/Contract Management, (213) 922-6383

Phillip A. Washington
Chief Executive Officer

ATTACHMENT A

PROCUREMENT SUMMARY

CONSULTING SERVICES FOR HEAVY RAIL VEHICLE ACQUISITION, TECHNICAL SUPPORT SERVICES / OP16523-30433487

1.	**Contract Number**: OP16523-30433487	
2.	**Recommended Vendor**: LTK Engineering Services	
3.	**Type of Procurement (check one):** ☐ **IFB** ☒ **RFP** ☐ **RFP–A&E** ☐ **Non-Competitive** ☐ **Modification** ☐ **Task Order**	
4.	**Procurement Dates**:	
	A. Issued: 08/03/15	
	B. Advertised/Publicized: 08/05/15; 08/06/15; 08/10/15 and 08/13/15	
	C. Pre-proposal/Pre-Bid Conference: 08/18/15	
	D. Proposals/Bids Due: 10/07/15	
	E. Pre-Qualification Completed: 4/13/16	
	F. Conflict of Interest Form Submitted to Ethics: 03/30/16	
	G. Protest Period End Date: 5/24/16	
5.	**Solicitations Picked up/Downloaded**: 40	**Bids/Proposals Received**: 2
6.	**Contract Administrator**: Elizabeth Hernandez	**Telephone Number**: 213 922-7334
7.	**Project Manager**: Cop Tran	**Telephone Number**: 213 922-3188

A. Procurement Background

This Board Action is to approve the award of Contract No. OP16523-30433487 issued in support of the HR4000 Heavy Rail Vehicle Contract to address the need to expand the rail fleet to accommodate anticipated growth in ridership and line extensions; replace vehicles reaching the end of their useful revenue service life; and support the maintenance department with reasonable spare ratios to prevent deferred maintenance issues. The recommmended Consultant shall provide technical and engineering support to Metro's designated Project Manager, or his/her designee, and apply appropriate technical and engineering expertise and resources to facilitate the timely production and delivery of the HR4000 HRV Contract, which may include, Metro's exercise of any or all of the five Vehicle procurement Options.

The RFP was issued in accordance with Metro's Acquisition Policy and the contract type is a cost plus fixed fee contract.

Eight amendments were issued during the solicitation phase of this RFP:

- Amendment No. 1, issued on August 21, 2015, clarified requirements and extended the due date for the proposal;
- Amendment No. 2, issued on September 30, 2015, clarified requirements and extended the due date for the proposal;
- Amendment No. 3, issued on October 12, 2015 to the Proposers within the competitive range clarified Element B of the solicitation.

- Amendment No. 4, issued on December 24, 2015 to the Proposers within the competitive range clarified the cost items.
- Amendment No. 5 issued on January 21, 2016 to the Proposers within the competitive range clarified the labor hours.
- Amendment No. 6 issued on January 25, 2016 to the Proposers within the competitive range updated the labor hours.
- Amendment No. 7 issued on March 24, 2016 to the Proposers within the competitive range extended the due date for the Best and Final Offer (BAFO) and clarified terms and conditions.
- Amendment No. 8 issued on March 30, 2016 to the Proposers within the competitive range extended the due date for the BAFO and clarified terms and conditions.

A total of 11 attendees were present at the Pre-Proposal Conference held on August 18, 2015. Two sets of responses were issued to 15 questions asked by the prospective bidders and to provide a list of the contact information for the attendees to the Pre-Proposal Conference.

A total of two proposals were received by the October 7, 2015 due date from the following firms:

1. LTK Engineering Services, and
2. STV/PB, A Joint Venture.

B. Evaluation of Proposals/Bids

A Proposal Evaluation Team (PET) consisting of staff from Metro's Rail Vehicle Acquisition Department was convened and conducted a comprehensive technical evaluation of the proposals received.

The proposals were evaluated based on the following evaluation criteria and weights:

• Firm's Degree of Skills and Experience	30 percent
• Staffing Quality of Technical Experience	20 percent
• Understanding of Work and Appropriateness of Approach for Implementation	20 percent
• Price	30 percent

The evaluation criteria are appropriate and consistent with criteria developed for other, similar professional services procurements. Several factors were considered when developing these weights, giving the greatest importance to skills and experience of the firm in performing similar work.

The two proposals received were determined to be responsive, responsible and within the competitive range. Both proposing firms were determined to be within the competitive range.

Summary of the evaluation process:

The PET reviewed and evaluated the technical non-cost sections of the written proposals in accordance with factors set forth in the evaluation criteria. During the week of November 9, 2015, the PET met with and interviewed the firms. The firms' Project Managers and key personnel had an opportunity to present their experience and qualifications and respond to the PET's questions. In general, each firm's presentation addressed the requirements of the RFP by expanding on its experience and expertise with all aspects of the required tasks, and stressed its commitment to the success of the project. Also highlighted were staffing plans, work plans, and perceived project issues. Each firm adequately responded to questions relative to each firm's proposed alternatives and previous experience.

Qualifications Summary of Firms Within the Competitive Range:

LTK ENGINEERING SERVICES

LTK is based in Ambler, Pennsylvania with regional offices in Los Angeles, Atlanta, Boston, Chicago, Dallas, Denver, Houston, Minneapolis, Newark, New York, Petaluma, Portland, San Francisco, Seattle and Washington, D.C. LTK has assisted in the design, procurement, rehabilitation, inspection and acceptance testing of about 26,000 passenger rail cars operating in North America. LTK has an estimated 360 employees which includes 290 engineers and technicians with expertise in rail vehicle systems planning, engineering and economic analyses.

LTK has provided various engineering, technical, and management services in support of other transit agencies that include New York City Transit (NYCT), Washington Metropolitan Area Transit Authority (WMATA), Southeastern Pennsylvania Transportation Authority (SEPTA), Denver RTD, Bay Area Rapid Transit (BART), Massachusetts Bay Transportation Authority (MBTA), Dallas Area Rapid Transit (DART) and Los Angeles Metro.

The team proposed for this contract consists of LTK as the prime contractor and lead technical resource firm with the following sub-contractors:

- CH2M – vehicle and engineering services support
- Systra Consulting – train control engineering services
- Virginkar & Associates, Inc. – vehicle inspection services
- NDYLTK Rail – quality assurance support; vehicle engineering support
- Ramos Consulting Services, Inc. – document control and administrative support

STV/PB, a Joint Venture

STV Incorporated (STV) and WSP|Parsons Brinckerhoff (WSP|PB), two engineering firms, formed a joint venture, STV/PB Heavy Rail Vehicles, a Joint Venture (STV/PB), to propose for this procurement. Under a similar joint venture those firms proposed, and was awarded the contract to develop the performance-based technical specifications and commercial requirements for LACMTA's ongoing solicitation of the HR4000 vehicle procurement. STV, supported by WSP|PB, developed the specifications for Massachusetts Bay Transportation Authority's (MBTA) procurement of 226 HRVs for the Red and Orange Lines that was awarded to China Railway Rolling Stock Corp (CRRC).The firms are providing MBTA with technical and engineering support services as well as project management support.

STV

STV has provided engineering, architectural, planning, environmental, and construction management support services for the procurement and rehabilitation of rolling stock for subways, light rail and rail road systems for over 30 years. STV has a Vehicle Technology and Operation group within its organization with experience in transit car, commuter rail car, and locomotive engineering.

WSP|PB

WSP and Parsons Brinckerhoff combined to provide engineering and multidisciplinary professional services consulting services with more than 32,000 staff members in 500 offices across 39 countries.

Since 1984, PB has been involved in the procurement and/or rebuilding of over 3,500 rail cars, and has provided program management, engineering, inspection, and follow-up supervision services for major rolling stock procurement/rehabilitation programs either as a prime or a joint venture member.

The firms individually/collectively have provided support to HRV projects that include MBTA, Chicago Transit Authority (CTA), Metrolink, Port Authority of New York and New Jersey (PANYNJ), SEPTA, WMTA, NJ Transit, Long Island Railroad, Metro Red Line Extension, Seattle Monorail, Metro North Railroad, NJ Transit and LRV procurement for Honolulu Rail Transit, MTS San Diego, Utah Transit Authority, and Central Phoenix/East Valley.

Evaluation Summary

The PET evaluated the proposals and assessed strengths, weaknesses and associated risks of each Proposal utilizing the evaluation criteria factors and sub-factors defined in the RFP to determine the score for each firm. Based upon the collective evaluations, LTK Engineering Services is determined to be the PET's

recommendation for the top ranked firm based on the table below that provides the scores.

1	Firm	Average Score	Factor Weight	Weighted Average Score	Rank
2	**LTK Engineering Services**				
3	Firm's Degree of Skills and Experience	78.76	30.00%	23.63	
4	Staffing Quality of Technical Experience	77.50	20.00%	15.50	
5	Understanding of Work and Appropriateness of Approach for Implementation	80.00	20.00%	16.00	
6	Price	100.00	30.00%	30.00	
7	**Total**	**84.07**	**100.00%**	**85.13**	**1**
8	**STV/PB, A JV**				
9	Firm's Degree of Skills and Experience	80.00	30.00%	24.00	
10	Staffing Quality of Technical Experience	78.75	20.00%	15.75	
11	Understanding of Work and Appropriateness of Approach for Implementation	77.50	20.00%	15.50	
12	Price	95.03	30.00%	28.51	
13	**Total**	**82.82**	**100.00%**	83.76	**2**

C. Cost/Price Analysis

The recommended price has been determined to be fair and reasonable based upon adequate price competition, Management Audit Services (MAS) audit findings, an independent cost estimate, cost analysis, technical evaluation, fact finding, and negotiations.

	Proposer Name	Proposal Amount		Metro ICE	Negotiated or NTE amount
1.	LTK Engineering Services	Base	$13,522,892	**$12,736,727**	$13,028,744
		Options	$9,184,673	**$9,328,565**	$8,677,278
		Total	$22,707,565	**$22,065,292**	$21,706,022
2.	STV/PB, a Joint Venture	Base	$14,534,276	**$12,736,727**	$13,519,802
		Options	$10,366,652	**$9,328,565**	$9,323,417
		Total	$24,900,928	**$22,065,292**	$22,843,219

D. Background on Recommended Contractor

The recommended firm, LTK Engineering Services, located in Los Angeles, California has been in business for 32 years. LTK is an experienced rail vehicle consultant in North America and specializes solely in rail vehicle and systems engineering with a bench of experts in rail vehicle procurement, engineering, and component systems. LTK has experience in rapid transit car procurements in Los Angeles, Boston, New York City, New Jersey, Philadelphia and Washington, DC.

LTK has provided engineering expertise for over 20 years to LACMTA's vehicle procurement projects that include program management for the acquisition of the light rail vehicles (LRV) for the Blue Line and Green Line. LTK drafted the specifications for the Green Line car procurement and participated in design review, proof of design testing, inspection and commissioning. LTK was also selected to provide engineering support for the acquisition of the LRVs for the Gold Line and more recently the P3010. LTK provided program management, engineering support and vehicle commissioning services for the Red Line vehicle procurement for the base and option car orders.

LTK is currently providing technical support services to the LACMTA's P3010 Light Rail Vehicle procurement.

DEOD SUMMARY

CONSULTING SERVICES FOR HEAVY RAIL VEHICLE ACQUISITION, TECHNICAL SUPPORT SERVICES / OP16523-30433487

A. Small Business Participation

The Diversity and Economic Opportunity Department (DEOD) established a 20% Disadvantaged Business Enterprise (DBE) goal for this solicitation. LTK Engineering Services exceeded the goal by making a 22.62% DBE commitment.

Small Business Goal	20% DBE	Small Business Commitment	22.62% DBE

	DBE Subcontractors	Ethnicity	% DBE Commitment
1.	Ramos Consulting Services, Inc.	Hispanic American	3.60%
2.	Virginkar & Associates	Sub-Asian American	19.02%
	Total Commitment		**22.62%**

B. Living Wage and Service Contract Worker Retention Policy Applicability

The Living Wage and Service Contract Worker Retention Policy is not applicable to this contract.

C. Prevailing Wage Applicability

Prevailing wage is not applicable to this contract.

D. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to this contract.

FUNDING/EXPENDITURE PLAN
CP 206037 HR4000 HEAVY RAIL VEHICLE (HRV) PROCUREMENT
CONSULTING SERVICES FOR HEAVY RAIL VEHICLE ACQUISITION,
TECHNICAL SUPPORT SERVICES

ATTACHMENT C

		From Inception to Date (ITD) thru FY14 Jun	7/1/14 - 6/30/15	7/1/15 - 6/30/16	7/1/16 - 6/30/17	7/1/17 - 6/30/18	7/1/18 - 6/30/19	7/1/19 - 6/30/20	7/1/20 - 6/30/21		
1	**Use of Funds**		**FY15**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21**	**Total**	**% of Project**
2	Replacement: 30 Vehicles (CP 206037)	$0	$0	$595,000	$5,900,000	$24,497,000	$24,544,000	$24,559,000	$24,477,000	$104,572,000	35.9%
3	Professional Services	$0	$629,759	$405,000	$1,123,200	$1,921,000	$1,921,000	$1,921,000	$1,821,000	$9,741,959	3.3%
4	MTA Administration	$279,343	$157,890	$500,000	$775,000	$859,568	$812,668	$833,068	$839,068	$5,056,605	1.7%
5	Contingency	$0	$0	$0	$0	$0	$0	$0	$11,539,436	$11,539,436	4.0%
6	**Total**	**$279,343**	**$787,649**	**$1,500,000**	**$7,798,200**	**$27,277,568**	**$27,277,668**	**$27,313,068**	**$38,676,504**	**$130,910,000**	**45.0%**
7	WSE Section 1: 34 Vehicles (Project 865518)	$0	$0	$727,728	$7,216,124	$29,961,593	$30,019,077	$30,037,424	$29,937,132	$127,899,078	43.9%
8	Professional Services	$0	$770,241	$495,362	$1,373,803	$2,349,605	$2,349,605	$2,349,605	$2,227,293	$11,915,513	4.1%
9	MTA Administration	$341,657	$193,110	$611,536	$947,881	$1,051,313	$993,951	$1,018,902	$1,026,241	$6,184,591	2.1%
10	Contingency	$0	$0	$0	$0	$0	$0	$0	$14,113,517	$14,113,517	4.8%
11	**Total**	**$341,657**	**$963,351**	**$1,834,626**	**$9,537,808**	**$33,362,511**	**$33,362,634**	**$33,405,930**	**$47,304,183**	**$160,112,700**	**55.0%**
12	**Base Order Total**	**$621,000**	**$1,751,000**	**$3,334,626**	**$17,336,008**	**$60,640,079**	**$60,640,302**	**$60,718,998**	**$85,980,686**	**$291,022,700**	**100.0%**

		From Inception to Date (ITD) thru FY14 Jun	7/1/14 - 6/30/15	7/1/15 - 6/30/16	7/1/16 - 6/30/17	7/1/17 - 6/30/18	7/1/18 - 6/30/19	7/1/19 - 6/30/20	7/1/20 - 6/30/21		
13	**Base Order Summary**										
14	**Use of Funds**		**FY15**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21**	**Total Uses**	**% of Project**
15	Base Order 64 Vehicles	$0	$0	$1,322,728	$13,116,124	$54,458,593	$54,563,077	$54,596,424	$54,414,132	$232,471,078	79.9%
16	Professional Services	$0	$1,400,000	$900,362	$2,497,003	$4,270,605	$4,270,605	$4,270,605	$4,048,293	$21,657,472	7.4%
17	MTA Administration	$621,000	$351,000	$1,111,536	$1,722,881	$1,910,881	$1,806,619	$1,851,970	$1,865,309	$11,241,196	3.9%
18	Contingency	$0	$0	$0	$0	$0	$0	$0	$25,652,953	$25,652,953	8.8%
19	**Base Order Summary Total**	**$621,000**	**$1,751,000**	**$3,334,626**	**$17,336,008**	**$60,640,079**	**$60,640,302**	**$60,718,998**	**$85,980,686**	**$291,022,700**	**100.0%**

	Sources of Funds		**FY15**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21**	**Total Sources**	**%**
21	Measure R 35% Per WSE PLE Sec 1	$341,657	$963,351	$1,834,626	$9,537,808	$33,362,511	$33,362,634	$33,405,930	$47,304,183	$160,112,700	
22	***Reference the Adopted Uses and Sources for $2,739,510,000 Life of Project Budget for WSE PLE Section 1***										
23											
24	Measure R Admin (206037)	$279,343	$787,649	$1,500,000	$3,899,100					$6,466,092	
25	Cap and Trade; Other State & Federal sources (206037)*				$3,899,100	$27,277,568	$27,277,668	$27,313,068	$38,676,504	$124,443,908	
26											
27	**** Future Local, State & Federal Funds to be identified as they become avalaible.***										
28	**Total Funding Sources**	**$621,000**	**$1,751,000**	**$3,334,626**	**$17,336,008**	**$60,640,079**	**$60,640,302**	**$60,718,998**	**$85,980,686**	**$291,022,700**	

* Staff will pursue additional funding sources to supplement Project 206037 budget which may become available through MAP-21 or other federal sources for this project. Staff will also utilize other State and Local funding sources as opportunities arise such as Cap and Trade or other new sources.

File #: 2016-0360, **File Type:** Contract **Agenda Number:** 37

AD HOC TRANSIT POLICING OVERSIGHT COMMITTEE
MAY 19, 2016

SUBJECT: TRANSIT COMMUNITY POLICING SERVICES

ACTION: CONTRACT MODIFICATION

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to execute Modification No. 13 to Memorandum of Understanding (MOU) No. PS2610LASD with the **County of Los Angeles Sheriff's Department (LASD) to provide law enforcement services** for up to six (6) months for the period covering July 1, 2016 through December 31, 2016 in the amount of $56,296,146, thereby increasing the total contract value from $569,570,714 to $625,866,860.

ISSUE

The current Memorandum of Understanding (MOU) with the Los Angeles Sheriff's Department (LASD) will expire on June 30, 2016. The proposed MOU modification will extend the term of the MOU to align with the scheduled implementation date of the new Transit Policing contract.

DISCUSSION

On June 18, 2015, the Board authorized a twelve (12) month contract extension of the LASD contract, for the period covering July 1, 2015 through June 30, 2016, to complete the following items:

1. Review draft Transit Policing Statement of Work with the Ad Hoc Transit Policing Oversight Committee Board members (Per Motion By: Mayor Garcetti, Supervisor Molina, Supervisor Antonovich, and Director Fasana);
2. Release the Request for Proposal for Transit Policing Contract; and
3. Provide Law Enforcement Services to Foothill and Expo Extensions and add additional administrative staff and Deputies to support the new Transit Policing Division and current rail lines.

On February 5, 2016, Metro issued a new solicitation for a five-year Transit Policing contract. The statement of work took into consideration the workload and staffing recommendations of the Office of the Inspector General (based on a Board directed audit conducted by Bazilio Cobb Associates of the current LASD MOU). Following the release of the solicitation, one of the proposers requested a sixty (60) day extension. Proposals are now due on May 27, 2016. Staff anticipates bringing an award

recommendation to the September Board meeting.

The extended solicitation period provided potential proposers with additional time to obtain the necessary internal approvals and consider alternative technical proposals.

Staff is requesting a six (6) month extension to the current contract to ensure continuous safety and protection for our patrons, employees and critical infrastructure protection until a new contract is in place.

DETERMINATION OF SAFETY IMPACT

The authorization of FY17 contract extension will provide a positive impact on safety for our employees and patrons by mitigating potential terrorist incidents and deterring crimes on our transit system.

FINANCIAL IMPACT

The funding of $56,296,146 for Modification No. 13 is included in the FY17 budget in Cost Center 2610, System Security and Law Enforcement, under multiple bus and rail operating projects in Account 50320-Contract Services

Impact on Bus and Rail Operating and Capital Budget

The FY17 funding for contract Transit Policing Services will come from Enterprise Fund revenues (fares, sales tax revenues, and TDA4). These funds are eligible for bus and rail operating and capital expenses.

ALTERNATIVES CONSIDERED

The Board may decide not to authorize the modification to the existing contract. The alternative is not recommended because this is a critical security program and we do not currently have in place an alternative policy or strategy, nor do we have security assets to provide the current level of protection for our customers and employees that will be supported by Modification No. 13. Further, this would result in a minimal level of protection for our customers, employees, and critical infrastructure.

NEXT STEPS

Upon approval by the Board, staff will execute Modification No. 13 with LASD under the current MOU No. PS2610LASD to continue providing transit law enforcement services until the replace contract begins.

Metro staff intends to return to the Board in September 2016 to recommend award of a new Transit Policing contract.

ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - Contract Modification/Change Order Log
Attachment C - DEOD Summary

Prepared by: Alex Wiggins, Executive Officer, System, Security & Law Enforcement, (213) 922-4433

Reviewed by: Ivan Page, Interim Executive Director, Vendor/Contract Management, (213) 922-6383

Stephanie Wiggins, Deputy Chief Executive Officer, (213) 922-1023

Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY

TRANSIT COMMUNITY POLICING SERVICES/PS2610LASD

1.	**Contract Number:** PS2610LASD			
2.	**Contractor:** County of Los Angeles Sheriff's Department			
3.	**Mod Work Description:** Continuation of Transit Law Enforcement Services			
4.	**Contract Work Description:** Transit Community Policing Services			
5.	**The following data is current as of :** April 12, 2016			
6.	**Contract Completion Status**		**Financial Status**	
	Contract Awarded:	07/01/09	**Contract Award Amount:**	$65,921,937
	Notice to Proceed (NTP):	N/A	**Total of Modifications Approved:**	$503,648,777
	Original Complete Date:	06/30/12	**Pending Modifications (including this action):**	$56,296,146
	Current Est. Compete Date:	06/30/16	**Current Contract Value (with this action):**	$625,866,860
7	**Contract Administrator:** Aielyn Q. Dumaua		**Telephone Number:** (213) 922-7320	
8	**Project Manager:** Alex Wiggins		**Telephone Number:** (213) 922-4433	

A. Procurement Background

This board action is to approve Modification No. 13 issued in support of continued Metro system-wide law enforcement services, as set forth in Memorandum of Understanding (MOU) PS2610LASD currently in effect between Metro and Los Angeles County Sheriff's Department (LASD).

This modification will be processed in accordance with Metro's Acquisition Policy. The contract type is firm fixed unit rate.

The MOU with LASD was originally approved for a five-year term covering the period July 1, 2009 through June 30, 2014 (inclusive of two one-year options). Several contract actions/modifications have been executed and approved by the Board.
(Refer to Attachment B – Contract Modification/Change Order Log)

B. Cost/Price Analysis

The recommended price has been determined to be fair and reasonable based upon LASD's proposed rates established on an annual basis by the County of Los Angeles Auditor/Controller as required by Government Code Section 53069.8(b). The proposed rates were reviewed and found to be consistent with the pricing established by the Auditor-Controller.

Proposal Amount	Metro ICE	Negotiated Amount
$56,296,146	$56,301,059	$56,296,146

ATTACHMENT B

CONTRACT MODIFICATION/CHANGE LOG

TRANSIT COMMUNITY POLICING SERVICES/PS2610LASD

Mod No.	Description	Status (approved or pending)	Date	$ Amount
1	Provide additional law enforcement personnel for the Metro Gold Line Eastside extension.	Approved	12/10/09	$2,895,460
1-A	Threat Interdiction Unit (TIU) - grant funded	Approved	12/10/09	$943,216
2	Funding for the period July 1, 2010 through June 30, 2011, the second year of the base contract.	Approved	7/22/10	$62,937,004
3	Funding for the period July 1, 2011 through July 31, 2011.	Approved	6/22/11	$5,470,211
4	Funding for the period August 1, 2011through September 30, 2011. In addition, LASD shall provide specified Access Services in the amount of $227,461 for the period July 1, 2011 through June 30, 2012	Approved	8/4/11	$11,167,883
5	Funding for the period October 1, 2011through October 31, 2011	Approved	9/22/11	$5,470,211
6	Funding for November 1, 2011 through June 30, 2012, the remaining portion of the third year of the base contract	Approved	11/1/11	$58,844,951
7	Item D of Article 20, Standards of Performance of the MOU was revised to allow LASD assigned personnel to complete “Patrol Training” at Metro	Approved	8/1/12	$0

Mod no.	Description	Status (approved or pending)	Date	$ Amount
8	Exercise Option No. 1 to extend the period of performance from July 1, 2012 through June 30, 2013 and increase contract value. *Note: Board approval was for $80,622,796 but MOD 8 was issued in the reduced amount of $80,325,626*	Approved	8/1/12	$80,325,626
9	Exercise Option 2 to extend the period of performance from July 1, 2013 through June 30, 2014 and provide dedicated law enforcement staff for the TAP program.	Approved	9/1/13	$83,855,638
10	Extend the term of the MOU for 6 months from July 1, 2014 through December 31, 2014	Approved	6/5/14	$44,443,488
11	Extended the term of the MOU for 6 months from January 1, 2015 through June 30, 2015	Approved	1/1/15	$44,443,488
12	Extended term of the MOU for one year from July 1, 2015 through June 30, 2016 and provided additional law enforcement personnel for the Gold Line and Expo Line extensions.	Approved	7/1/15	$102,851,601
13	**Six-month extension of the term of the MOU from July 1, 2016 through December 31, 2016**	**Pending**	**5/19/16**	**$56,296,146**
	Modification 1 thru 13 Total:			**$559,944,923**
	Original Contract:			**$ 65,921,937**
	Total:			**$625,866,860**

DEOD SUMMARY

TRANSIT COMMUNITY POLICING SERVICES / PS2610LASD

A. Small Business Participation

The Diversity and Economic Opportunity Department (DEOD) did not establish a Disadvantaged Business Enterprise (DBE) goal for this project as there were no identified subcontracting opportunities. The County of Los Angeles Sheriff's Department (LASD) provides transit policing services with their own workforces.

B. Living Wage and Service Contract Worker Retention Policy Applicability

The Living Wage and Service Contract Worker Retention Policy is not applicable to this modification.

C. Prevailing Wage Applicability

Prevailing wage is not applicable to this modification.

D. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to this contract.

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

Board Report

File #: 2016-0460, **File Type:** Oral Report / Presentation **Agenda Number:** 3.

REGULAR BOARD MEETING
MAY 26, 2016

Report by the **Chair.**

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CHAIR'S REPORT

Supervisor Mark Ridley-Thomas
Board Chair
May 26, 2016


POTENTIAL BALLOT MEASURE
TELEPHONE TOWN HALLS

C/LAX LINE "HALFWAY THERE" COMMUNITY CELEBRATION

EXPO PHASE II GRAND OPENING

EXPO PHASE II GRAND OPENING

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

File #: 2016-0108, **File Type:** Program **Agenda Number:** 14.

PLANNING AND PROGRAMMING COMMITTEE
MAY 18, 2016

SUBJECT: METRO ACTIVE TRANSPORTATION STRATEGIC PLAN

ACTION: ADOPT STAFF RECOMMENDATIONS

RECOMMENDATION

ADOPT the **Active Transportation Strategic Plan**.

ISSUE

The Active Transportation Strategic Plan (ATSP) (Attachment A) will serve as Metro's overall strategy for funding and planning active transportation infrastructure and programs in Los Angeles County. The ATSP demonstrates Metro's ongoing commitment to improving mobility in the region for people who walk, bike, and take transit as well as creating safer streets that benefit all roadway users. Many of Metro's recent investments and projects are a reflection of how the agency can work with local partners to serve the region, maximize the return on investment on our County's extensive and growing transportation network, and support the public's interest in more travel choices.

DISCUSSION

Effective walking and bicycling infrastructure are critical elements to facilitate first last mile connectivity to our extensive public transit network. Beyond the connection to transit, a high-quality, safe, low stress regional active transportation network can provide more transportation options and improve mobility. However, Metro often does not own or operate key elements of the public right of way, including pedestrian and bicycle facilities, beyond our station footprint. The ATSP builds on local and sub-regional planning already underway to develop a cohesive strategy for our County, and identify opportunities for Metro to work with local partners to implement it. The three main components to this ATSP are:

- First last mile station area access improvements
- Regional Active Transportation Network
- Support Programs, including performance metrics and monitoring

Stakeholder Engagement

Since early 2015, staff has sought input for the development of the ATSP by engaging and soliciting feedback from various Metro departments, agency partners, including the Metro Technical Advisory Committee (TAC) and its Subcommittees, sub-regional Councils of Governments (COG), the

California Department of Transportation (Caltrans), Southern California Association of Governments (SCAG), local governments, community organizations and other stakeholders. Staff also formed a project TAC, consisting of internal Metro departments and external stakeholders, to guide the development of the ATSP. Between August and December 2015, staff conducted numerous stakeholder workshops across the County to solicit input. These workshops were attended by over 370 attendees. An online survey was launched during Summer 2015 to gather additional input. Informed by these outreach efforts, a draft ATSP was subsequently released for stakeholder review and comment. Staff convened an Active Transportation Summit on March 1, 2016, and over 250 participants attended to provide further input to the draft ATSP. A list of ATSP stakeholder meetings is provided in the Stakeholder Outreach Matrix (Attachment B). A summary of stakeholder input to the Draft ATSP and staff's response is provided in the Public Comments and Metro's Response Matrix (Attachment C).

Countywide Active Transportation Network

The ATSP includes a Countywide Active Transportation Network, comprised of two key components: 1) first last mile active transportation improvements to 661 transit station areas; and 2) the Regional Active Transportation Network. The ATSP builds off the framework of the Metro First Last Mile Strategic Plan and includes improvements for people walking and biking to 661 transit station locations, including existing stations and those under construction for Metro Rail, Metro Rapid, and Metrolink; as well as high-ridership local bus stops served by Metro and municipal transit operators. These first first-last mile improvements are intended to improve regional access by connecting people to the extensive and growing transit network, and to maximize the benefits from transit investments that are being made across the County. The Regional Active Transportation Network, which includes bicycle facilities and shared used paths, consist of almost 2,000 miles of high-quality facilities for bicycling and walking that connect key regional origins and destinations across the County.

Identifying Annual Investments Needed and Funding Sources

In July 2014, the Metro Board of Directors passed Motion #25, directing staff to develop an active transportation finance strategy (Attachment D). Per Board directive, staff developed a preliminary high-level estimate of the cost to build out a high quality active transportation environment throughout Los Angeles County. Low, medium and high cost ranges are presented in Attachment E, based on increasing magnitudes of project scope, and, therefore, cost. The ATSP itself focuses primarily on the regional active transportation network and first last mile access to major transit stops/stations in the County; representing a subset of the total countywide active transportation needs outlined in Attachment E.

A list of eligible fund sources for active transportation improvements in the County that are controlled by various levels of government is provided in Attachment F. Note, however, the totality of projected needs exceeds eligible funds, as these resources must be distributed across many transportation priorities. The ATSP recognizes that no single funding source will pay for the tremendous active transportation needs in the County. Successful implementation of the ATSP could require multiple funding options, including leveraging existing resources; better positioning partners for local, regional, state, and federal grant funding opportunities; private sector contributions; and coordinating among multiple jurisdictional partners. Cost savings may be obtained from changes in policies that support greater and more integrated multi-modal transportation planning and project delivery using a

Complete Streets approach. In addition, Metro is considering a ballot measure for November 2016 that could provide additional funding for active transportation, including a two-percent set-aside for the Regional Active Transportation Program, with approximately half of those funds allocated for projects that will be consistent with the ATSP. An additional 2.5% is proposed in the potential ballot measure for Local Active Transportation Projects. The ballot measure also includes 16% allocation for local return, which can be used for active transportation projects. The draft expenditure plan for the ballot measure is currently available for public comment.

DETERMINATION OF SAFETY IMPACT

The ATSP will not have adverse safety impacts on our employees and patrons. A key element of the ATSP will be to promote a transportation network that improves safety for travelers.

FINANCIAL IMPACT

There is no financial impact.

Impact to Budget

There is no impact to the budget.

ALTERNATIVES CONSIDERED

The Board could decide to delay or forgo the adoption of the ATSP. This alternative is not recommended as it would not advance previous Board direction and policies, including:

- Board Motion: Environmental & Sustainability Efforts to Further Metro's Goals to Reduce Emissions, Clean the Air & Improve Urban Areas, February 2016
- Metro/SCAG Joint-Work Program, May 2015
- Complete Streets Policy, October 2014
- Board Motion: Developing an Active Transportation Finance Strategy, July 2014
- First Last Mile Strategic Plan and Planning Guidelines, April 2014
- Countywide Sustainability Planning Policy and Implementation Plan, December 2012
- Bicycle Transportation Strategic Plan, June 2006

NEXT STEPS

Upon approval, staff will initiate implementation of the steps identified in the ATSP and use a phased approach based on availability of resources.

ATTACHMENTS

Attachment A - Active Transportation Strategic Plan
Attachment B - Stakeholder Outreach Matrix
Attachment C - Public Comments and Metro's Response
Attachment D - Motion #25: Developing an Active Transportation Finance Strategy

Attachment E - Preliminary Estimate of Annual Active Transportation Needs in Los Angeles County
Attachment F - Funding Sources

Prepared by: Tham Nguyen, Transportation Planning Manager, (213) 922-2606
Laura Cornejo, Deputy Executive Officer, (213) 922-2885
Diego Cardoso, Executive Officer, (213) 922-3076

Reviewed by: Therese W. McMillan, Chief Planning Officer, (213) 922-7077

Phillip A. Washington
Chief Executive Officer

Attachment A – Active Transportation Strategic Plan

Active Transportation Strategic Plan

Volume I
April 2016

Metro

ACKNOWLEDGMENTS

Los Angeles County Metropolitan Transportation Authority (Metro)

Diego Cardoso, Metro
Laura Cornejo, Metro
Tham Nguyen, Metro (Project Manager)
Tony Jusay, Metro
Jingyi Fan, Metro
Avital Shavit, Metro
Bronwen Keiner, Metro
Betty Barberena, Metro
Julia Salinas, Metro
Janna Smith, Metro
Jacqueline Su, Metro
Alice Tolar, Metro
Basilia Yim, Metro

Consultants

Matt Benjamin, Fehr & Peers (Co-Project Manager)
Miguel Nuñez, Fehr & Peers (Co-Project Manager)
Chelsea Richer, Fehr & Peers
Jeremy Klop, Fehr & Peers
Amber Hawkes, Melendrez
Alexander Jung, Melendrez
Mark Seinen, Alta Planning + Design
James Powell, Alta Planning + Design

Project Technical Advisory Committee

Lori Abrishami, Metro
Nate Baird, City of Long Beach
Dale Benson, Caltrans
Eric Bruins, Los Angeles County Bicycle Coalition
Elizabeth Carvajal, Metro
Pauline Chan, City of Los Angeles
Patricia Chen, Metro
Frank Ching, Metro
Emilia Crotty, LA Walks
Randie Davis, City of Lancaster
Fred Dock, City of Pasadena

Project Technical Advisory Committee (Continued)

Robert Farley, Metro
Adela Felix, Metro
Krista Frank, Global Green
Michelle Glickert, City of Santa Monica
Scott Greene, Metro
Erina Hong, Metro
Eugene Kim, Metro
Yvette Kirrin, Gateway Cities COG
Sarah Jepson, Southern California Association of Governments (SCAG)
My La, City of Los Angeles
Alexis Lantz, County of Los Angeles (PLACE)
Dean Lehman, County of Los Angeles
Katherine Lemmon, Metro
Jacob Lieb, Metro
Adam Light, Metro
Steven Mateer, Metro
Jessica Meaney, Investing in Place
Deborah Murphy, LA Walks
Isidro Panuco, Metro
Waqas Rehman, County of Los Angeles
Wil Ridder, Metro
Bill Sadler, Safe Routes to School National Partnership
Chanda Singh, County of Los Angeles (PLACE)
Janna Smith, City of Burbank
David Somers, City of Los Angeles
Francie Stefan, City of Santa Monica
Alan Thompson, SCAG
Rory Vaughn, Metrolink
John Walker, County of Los Angeles
Elma Watson, City of Lancaster
Teresa Wong, Metro
Mark Yamarone, City of Pasadena
Cory Zelmer, Metro
Ying Zhu, Metro

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Active Transportation Strategic Plan Volume I

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ACRONYMS AND ABBREVIATIONS

AB 32 – The California Global Warming Solutions Act of 2006
AB 1358 – California Complete Streets Act of 2008
ACS – US Census' American Community Survey
ADA – Americans with Disabilities Act
AHSC – California Affordable Housing and Sustainable Communities grant
ATP – California Transportation Commision's Active Transportation Program
ATSP – Metro's Active Transportation Strategic Plan
The BLVD – A downtown revitalization effort along Lancaster Blvd in Lancaster, California
BMP – Bicycle Master Plan
CAC – Community Advisory Committee
CalEnviroScreen – California Communities Environmental Health Screening Tool
Caltrans – California Department of Transportation
CMAQ – Congestion Mitigation and Air Quality Improvement Program
COG – Councils of Government
EPA – US Environmental Protection Agency
FAST – Fixing America's Surface Transportation Act
FHWA – Federal Highway Administration
GHG – Greenhouse Gas
HDM – Highway Design Manual
HSIP – Highway Safety Improvement Program
JD – Metro's Joint Development program
LADOT – Los Angeles Department of Transportation
LOS – Level of Service
MTA or Metro – Los Angeles County Metropolitan Transportation Authority
NCHRP – National Cooperative Highway Research Program
RSTP – Regional Surface Transportation Program
RTP – Regional Transportation Plan
SB 375 – Sustainable Communities and Climate Protection Act of 2008
SCAG – Southern California Association of Governments
SCS – Sustainable Communities Strategy
SHSP – Strategic Highway Safety Plan
STP-L – Surface Transportation Program – Local
SWITRS – Statewide Integrated Traffic Records System
TIGER – Transportation Investment Generating Economic Recovery
TIMS – Transportation Injury Mapping System
TOD – Transit-Oriented Development
USDOE – United States Department of Energy
VMT – vehicle miles traveled

EXECUTIVE SUMMARY

CicLAvia in Los Angeles

The reach of and vision for Metro's investments support all Los Angeles County residents, whether they choose to walk, bike, take transit, or drive. As a steward of public resources, Metro's aim is to create and maintain a world-class transportation system that focuses on providing the best customer experience possible and enhancing the quality of life for those who live, work, and play within the County. The reality is that this means different things for different people based on where they work or live or how they get around, which can differ based on length of the trip and the final destination. As transportation planner and coordinator, designer, funder, builder and transit operator, Metro is constantly working to deliver a regional system that supports increased transportation options and associated benefits, such as improved:

- mobility options
- air quality
- health and safety
- access to goods and services
- quality of life

While Metro will continue to serve the County's transportation network for all the ways people travel, this Active Transportation Strategic Plan (Plan) focuses on enhancing access to transit stations and developing a regional network for people who choose to take transit, walk, and/or bike. Such improvements

ultimately benefit all users of the transportation system by providing more transportation choices. Surveys of travelers in LA County have found that approximately half of all trips are three miles or less, which is generally a distance that can be biked. Approximately one quarter of trips are under one mile, which is generally a distance that can be walked. Over a third of trips of one mile or less are currently driven.

Without the resources or real estate to "build" our way out of congestion, we need to rethink how we use our public space and resources to develop a transportation system that enhances the viability of all travel options. Metro initiated this process with the Bicycle Transportation Strategic Plan in 2006 and is following-up with this effort. A lot has changed since 2006 in Los Angeles County, particularly with increases in biking and walking and community-driven efforts to improve safety and local access for people regardless of how they travel.

There are three main components to this plan that will help Metro and partners work to plan, implement, and improve the overall quality of our active transportation network:

> First last mile station area access improvements

> Regional Active Transportation Network

> Support Programs, including performance metrics and monitoring

Working toward this vision is not without its challenges. It is important to note that walking or biking may not be desired or viable in a number of communities based on topography, land use, preferences, or other factors. The intent of this effort is not to force people to travel differently but to provide that option to all users. This dynamic highlights the importance of Metro's partners, which include, but are not limited to, local agencies, residents, regional/state agencies, community groups, non-profits, and local advocates. Since Metro does not control the local roadways in most instances, Metro is dependent on partnerships and collaboration with local agencies.

This plan serves as a roadmap for stakeholders and partners to help identify transportation concepts and changes they'd like to see in their community and how all can work together to make that a reality. These efforts also help the region respond to regional and state regulations for the development of the transportation system and reductions in greenhouse gas emissions, including the development of Complete Streets networks.

As defined by Caltrans, a Complete Street is "a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including people who bike, walk, ride transit, or drive, appropriate to the function and context of the facility. Complete street concepts apply to rural, suburban, and urban areas." This policy is supported by laws and guidance at various levels of government, including Federal law requiring safe accommodation for all

users, State law requiring that Caltrans provide an integrated multi-modal system, and State Assembly Bill 1358 requiring cities to plan for Complete Streets in their General Plan. In addition, Metro has adopted a Complete Streets Policy. Ultimately, the regional transportation system should strive to meet the varied needs of multi-modal trips and travelers, such as the many people who live, work, and play in the County of Los Angeles and exhibit a wide range of travel patterns and modes (walking, biking, using transit, and driving).

The vision for this Plan is to enhance the environment for all road users and balance future policies and investments to reflect local values and conditions. For instance, many local cities do not currently have any designated bicycle facilities, even though they may have a number of constituents who walk, bike, or live in a very walkable or bikeable area (within one to three miles) from key destinations such as schools, parks, retail corridors, civic facilities, and local/regional transit corridors. The following statistics, most of which are unique to LA County, highlight the conditions making it ripe for planning and delivering active transportation infrastructure for our region:

- From 2006 to 2014, bicycle commute trips in Los Angeles County rose by 81%
- Among Metro Orange Line park-n-ride survey respondents, 39% reported using the Orange Line Bus Bikeway Path
- The Spring 2015 Metro Customer Survey found that 83% of bus riders and 68% of train riders begin their trip by walking
- Metro surveys reveal that 35% of train riders and 18% of bus riders had a car available to drive, but chose to take transit
- Studies in a number of cities have found that the average spent per month at local businesses was greatest amongst people who walk and bike compared to other ways of traveling, thus generating local economic development.

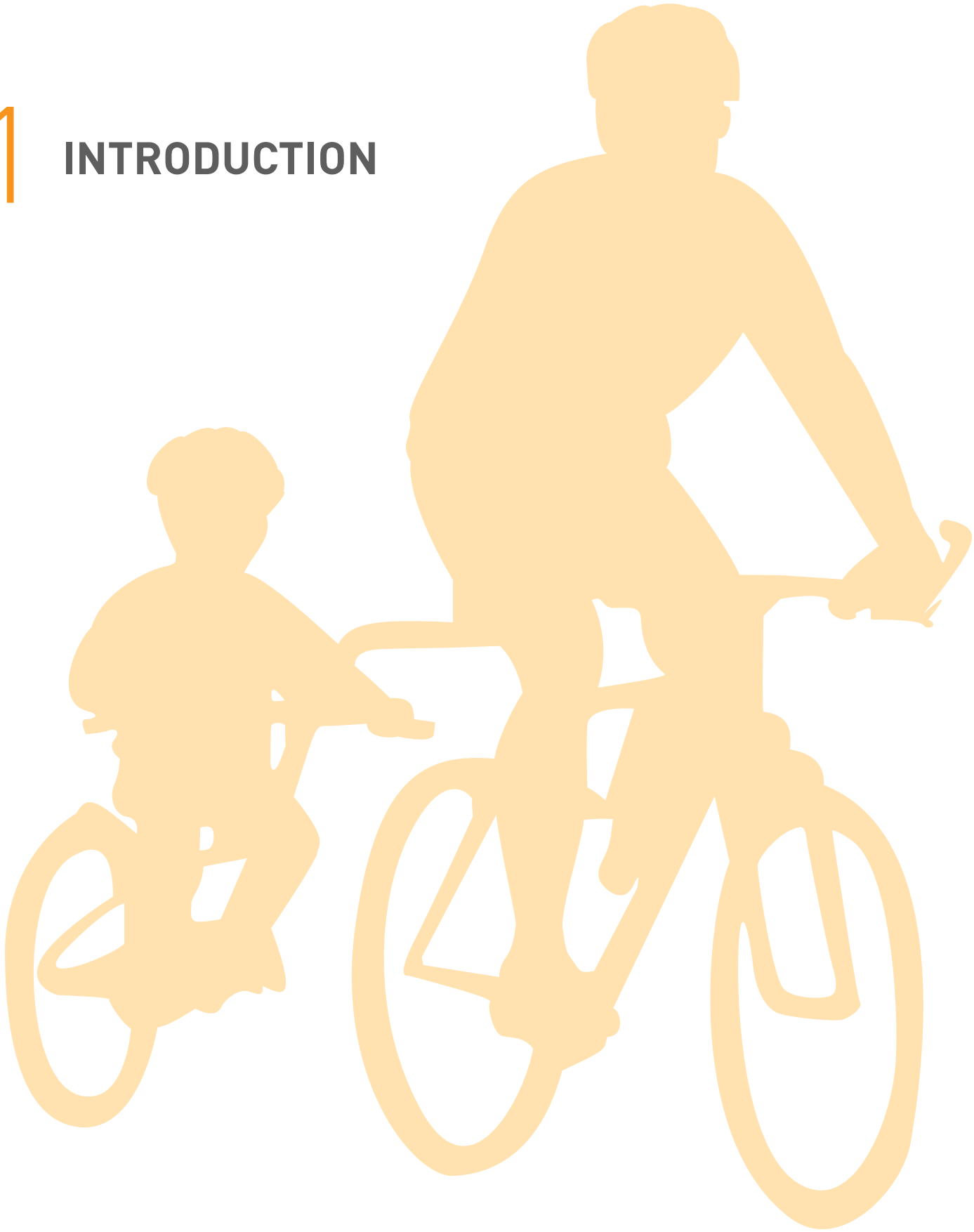
The Active Transportation Strategic Plan Volume I includes four chapters:

- **Chapter 1 – Introduction** describes the purpose and need for the Active Transportation Strategic Plan and defines its goals and objectives.
- **Chapter 2 – The Role of Active Transportation** frames active transportation within a broader policy context. It describes the benefits of active transportation investment, and it discusses the numerous existing related planning and implementation efforts occurring countywide. The chapter concludes with a summary of barriers and opportunities to implementing active transportation projects.
- **Chapter 3 – Implementation** explains the framework and resources available for delivering active

transportation projects. It defines stakeholder roles and provides multiple implementation approaches spanning a breadth of planning and funding scenarios. The chapter discusses innovations, showcases example projects, and details performance metrics for project evaluation. Financial considerations, including project cost estimates, funding strategies, and funding sources, are also discussed. Finally, the chapter lists Metro, city, and community programs that facilitate active transportation implementation and concludes with Metro's next steps to implementation.

> **Chapter 4 – Countywide Active Transportation Network** presents a vision for an interconnected active transportation network consisting of two pieces: 1) first last mile active transportation improvements to 661 major transit station areas and 2) the Regional Active Transportation Network. It describes the process for developing the network, the ways in which stakeholders have helped shape the network, and the projects comprising the Countywide Active Transportation Network.

1 INTRODUCTION



Multi-modal travel in Los Angeles

WHAT IS THE ACTIVE TRANSPORTATION STRATEGIC PLAN?

The Active Transportation Strategic Plan (ATSP) demonstrates Metro's ongoing commitment to improving mobility in the region for people who walk, bike, and take transit and to creating safer streets that benefit all roadway users. Many of Metro's recent investments and projects are a reflection of how the agency can work with local partners to serve the region, maximize the return on investment on our county's extensive and growing transportation network, and support the public's interest in more travel choices.

"Active Transportation" refers to any non-motorized mode of travel, including walking, bicycling, rolling, skating, or scootering. The ATSP will serve as Metro's overall strategy for funding and supporting implementation of active transportation infrastructure and programs in Los Angeles County. It identifies strategies to improve and grow the active transportation network, to expand the reach of transit, and to develop a regional active transportation network to increase personal travel options. It is intended to provide guidance to Metro and partner organizations, including local jurisdictions, regional government, and other stakeholders, in setting regional active transportation policies and guidelines to meet transportation goals and targets established in our local, regional, state, and federal plans.

In most instances, Metro does not own or operate many elements of the public right of way, including pedestrian and bicycle facilities beyond the agency's station footprint. However, effective walking and bicycling infrastructure are critical elements to facilitate first last mile connectivity to the agency's extensive public transit network. Beyond the connection to transit, a high-quality, safe, low-stress regional active transportation network can provide more transportation options and improve mobility. The ATSP builds on local and sub-regional planning already underway in the region to weave a cohesive strategy for our county and identify opportunities for Metro to support local partners in achieving implementation.

GOALS & OBJECTIVES

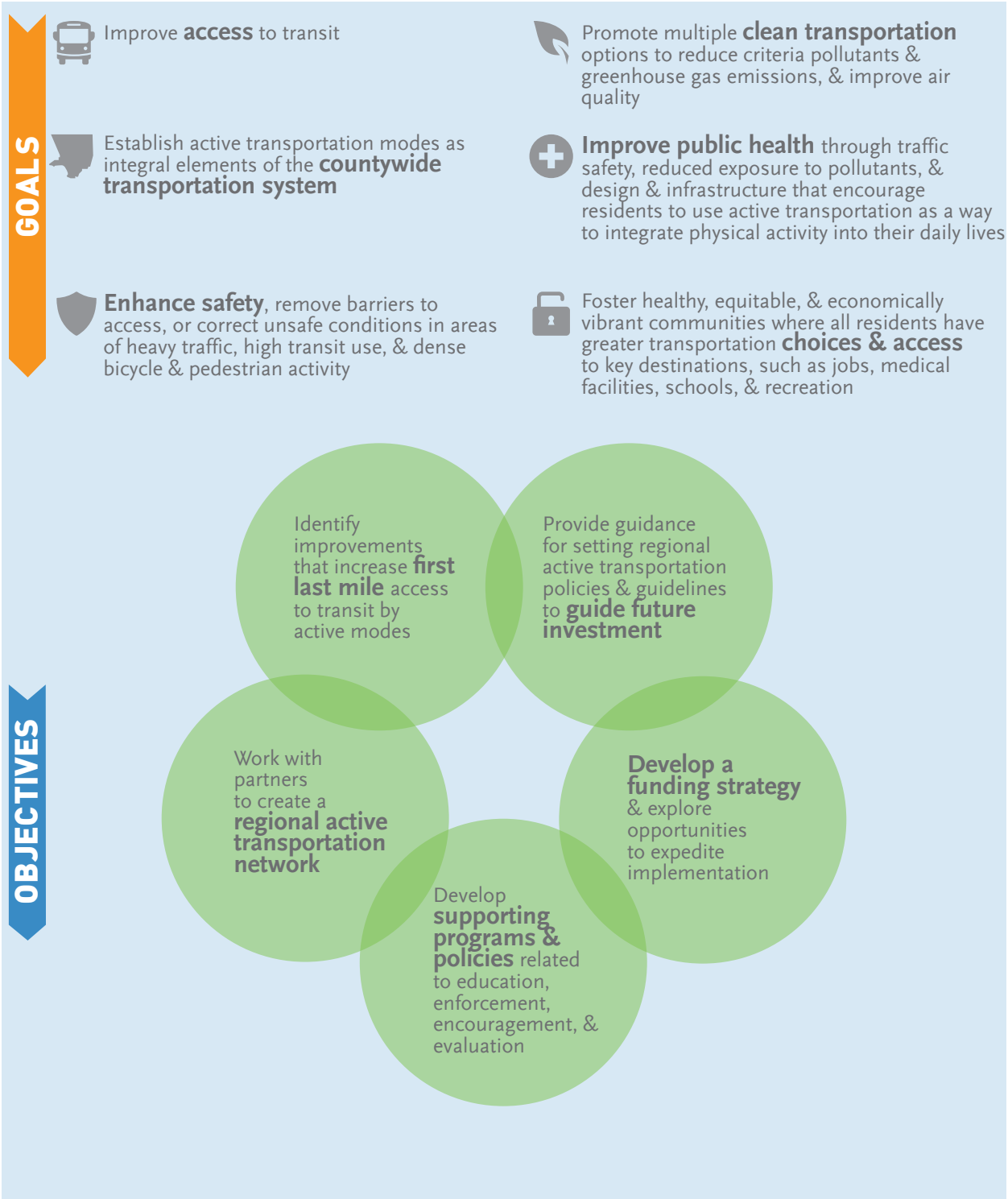


Figure 1.1: Goals and Objectives of ATSP

Plan Goals

The Active Transportation Strategic Plan (ATSP or Plan) goals were crafted to reflect the overarching vision of the active transportation planning process at Metro. The goals in Figure 1.1 are a synthesis of goals outlined in previous Metro documents that informed the development of the ATSP, updated to reflect Project Technical Advisory input. Though these goals were developed to specifically relate to active transportation, many of the goals are multi-modal in nature and will result in benefits for all users of the transportation system throughout Los Angeles County. The ATSP goals align with those established in previous Metro planning documents including the Long Range Transportation Plan (2009; update anticipated in 2017) and the Short Range Transportation Plan (2014).

Plan Objectives

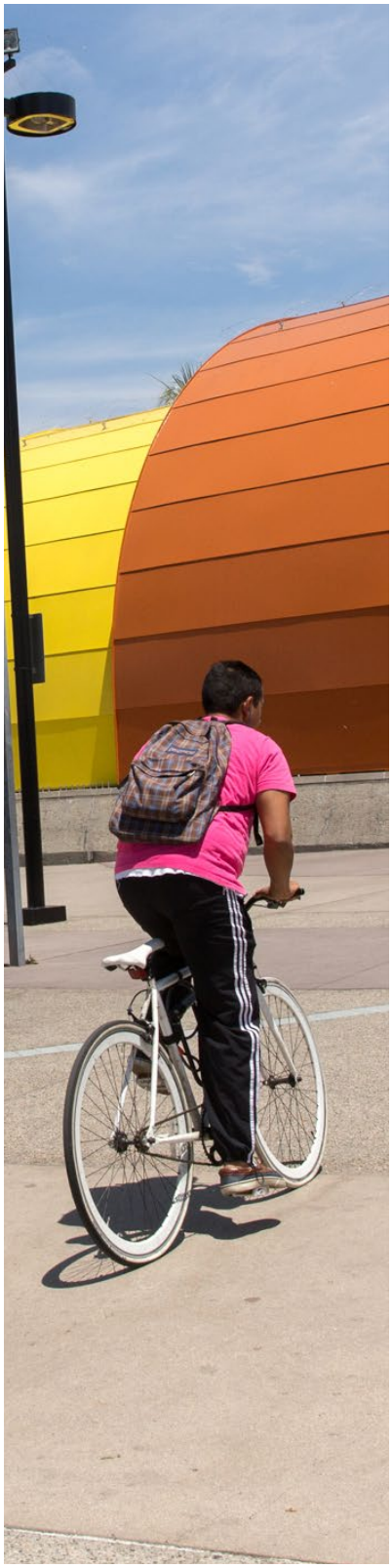
The objectives were crafted to identify the specific ways in which the scope of the ATSP supports the overarching vision outlined by the goals above. Compared to the goals, which are aspirational in nature and may be affected by other Metro efforts or other trends outside Metro's control, the objectives are more specific to this Plan and the actions that Metro can take related to the implementation of the Plan. The objectives speak to all of the goals articulated in Metro's guiding policies and plans (further discussed in Chapter 2 of this plan).

Component Parts

This Plan is presented in three chapters following this introductory chapter. Chapter 2 outlines the overall purpose of the Active Transportation Strategic Plan, including the benefits of active transportation and the need for active transportation planning in Los Angeles County. This chapter also reviews the previous work that has been done at Metro to set policies and initiate plans that improve access and safety across the county for people walking and biking.

Chapter 3 discusses implementation of active transportation projects. Throughout the process of developing this Active Transportation Strategic Plan, a key comment from stakeholders was that more support, technical advice, and guidance is needed to navigate the complex process of conceiving, planning, funding, constructing, and maintaining a project. Chapter 3 is intended to provide guidance and examples of how to navigate through the available options to implement successful active transportation projects.

Chapter 4 presents the recommended Countywide Active Transportation Network, comprised of two key components: 1) first last mile active transportation improvements to 661 transit station areas and 2) the Regional Active Transportation Network.

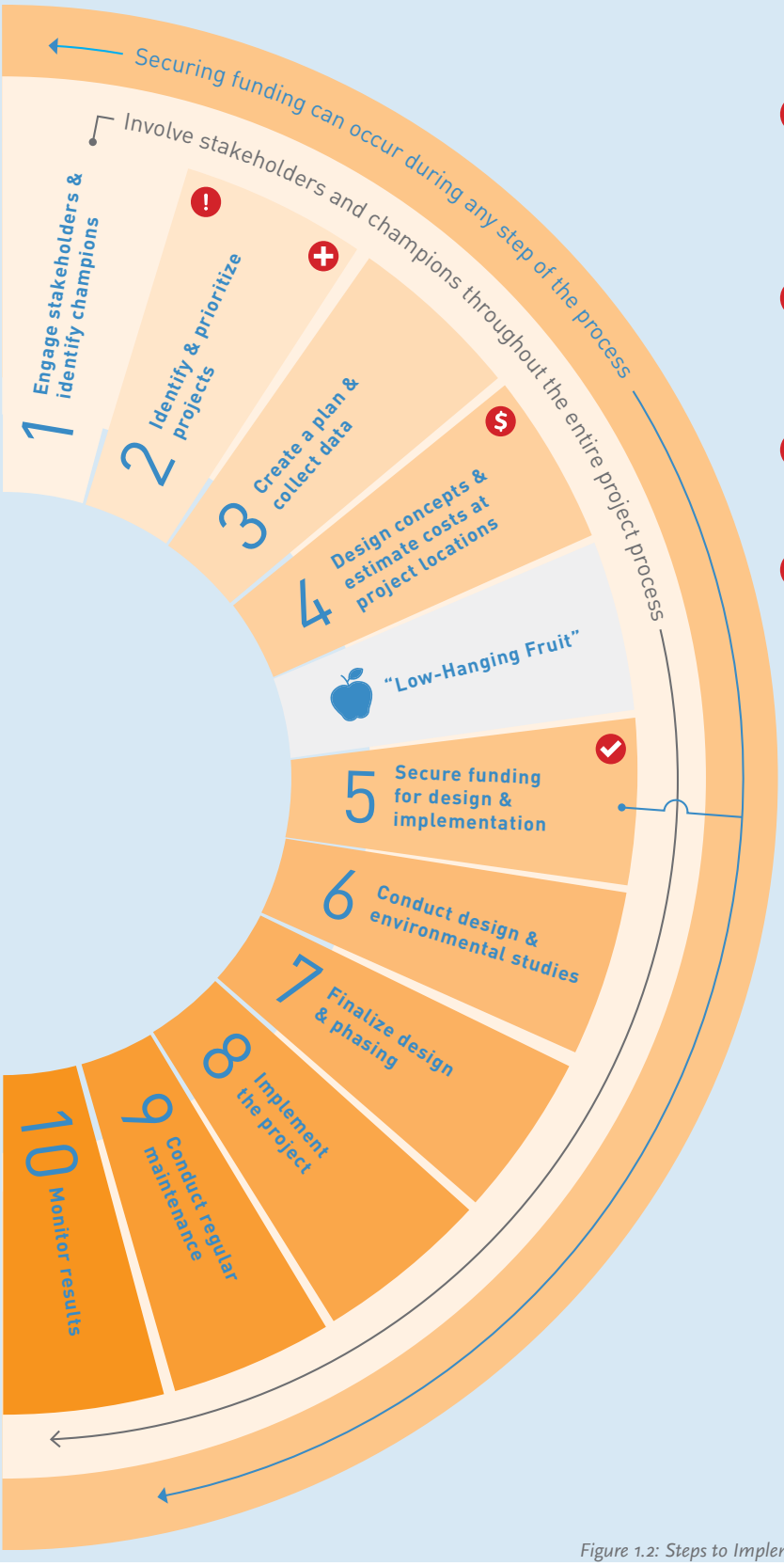


The ATSP builds off the framework of the Metro First Last Mile Strategic Plan and includes improvements for people walking and biking to 661 transit station locations, which include existing and under construction Metro Rail, Metro Rapid, Metrolink, and high ridership local bus stops served by Metro and municipal transit operators. These first last mile improvements are intended to improve regional access by connecting people to the extensive and growing transit network, and to maximize the benefits from transit investments that are being made across the county.

The Regional Active Transportation Network includes high-quality facilities for bicycling and walking that connect key regional origins and destinations across the county. The Regional Active Transportation Network is intended to improve regional access for people biking, walking, or rolling, and includes projects which close gaps between existing high-quality bicycling and walking facilities, as well as new corridors that take advantage of available waterways, utility corridors, and right-of-way that can be developed into high-quality walking and biking facilities.

Using the Active Transportation Strategic Plan

Figure 1.2 provides an overview of the steps to implementation for active transportation projects. For some of the steps, portions of the ATSP have been identified which can provide support to a local jurisdiction going through the implementation process. For example, “Step 2: Identify and prioritize projects” can be supported by the ATSP Volume II: Case Studies, which offers ideas for potential improvements to challenges that occur across the county. These case studies can help a local jurisdiction identify their own challenges and develop projects to address these challenges.



USING THE ACTIVE TRANSPORTATION STRATEGIC PLAN

- ATSP Case Studies can be used to identify potential improvements that are appropriate for your study area.
- The ATSP Regional Active Transportation Network can identify projects with regional benefits.
- ATSP Cost Estimates can be used for planning-level cost estimation.
- ATSP Existing Conditions Analysis can provide compelling data that supports grant applications.

Figure 1.2: Steps to Implementation (For more information, see page 36)

2 THE ROLE OF ACTIVE TRANSPORTATION

POLICY CONTEXT

Federal

Federal, state, regional, and local policies have echoed the need for accommodating all users of the roadway. The U.S. Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations supports the development of fully integrated active transportation system networks, which foster safer, more livable, family-friendly communities; promote physical activity and health; and reduce vehicle emissions and fuel use. The policy encourages transportation agencies to go beyond the minimum requirements and to proactively provide convenient, safe, and context-sensitive facilities that accommodate people of all ages and abilities, including people too young to drive, people who cannot drive, and people who choose not to drive. In 2011, the Federal Transit Administration issued a policy statement under Federal Transit Law indicating that all pedestrian improvements located within one-half mile and all bicycle improvements located within three miles of a public transportation stop or station have a de facto physical and functional relationship to public transportation.

FAST

Signed into law at the conclusion of 2015, Fixing America's Surface Transportation Act (FAST Act) is the first Federal law in over ten years to provide long-term funding certainty for surface transportation. The FAST Act authorizes $305 billion over fiscal years 2016 through 2020 to improve the nation's surface transportation infrastructure, including roads, bridges, transit systems, and passenger rail network. The FAST Act also aims to enhance federal safety programs for highways, public transportation, motor carriers, hazardous materials, and passenger rail. With its enactment, States and local governments can move forward with critical transportation projects, knowing they will have a Federal partner over the long term.

The FAST Act largely maintains current program structures and funding shares between highways and transit. It increases funding by 11 percent over five years, but still falls short of the amount needed to meet the increasing demands on our transportation systems in general, and does not address much of the unmet need for bicycle and pedestrian infrastructure throughout the country. The law also makes changes and reforms to many Federal transportation programs, including streamlining the approval processes for new transportation projects, providing new safety tools, and establishing new programs to advance critical freight projects.

State and Regional

The State of California enacted the California Complete Streets Act of 2008 (AB 1358), which requires that when cities or counties make substantive revisions to the circulation elements of their general plans, they identify how they will provide for the mobility needs of all users of the roadways. The California Department of Transportation's Deputy Directive 64-R2 emphasizes all transportation improvements as opportunities to improve safety, access, and mobility for

all travelers in California and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system. The California Global Warming Solutions Act of 2006 (AB 32) sets a mandate for the reduction of greenhouse gas emissions in the state, and the Sustainable Communities and Climate Protection Act of 2008 (SB 375) requires emissions reductions through coordinated regional planning that integrates transportation, housing, and land-use policy. Achieving the goals of these laws will require significant increases in travel by public transit, bicycling, and walking. Strategies to support greenhouse gas emissions targets in support of SB 375 were adopted by the Southern California Association of Governments in the 2012-2035 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), which is currently being updated at the time this Plan is written.

In 2013, the State enacted SB 743, which eliminates requirements for level of service (LOS) metrics for projects within Transit Priority Areas. Under SB 743, the Governor's Office of Planning and Research has been tasked with developing alternative criteria to LOS. Particularly within areas served by transit, the alternative criteria must promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.

The Metro Board has been a champion for sustainability and supportive of federal and state policy initiatives to address climate change and promote sustainable transportation. The development of an Active Transportation Strategic Plan is a continuation of the agency's commitment to supporting an integrated multimodal transportation system. The ATSP supports a number of Metro Board-adopted policies and directives, including, but not limited to, the following:

- Metro Board Motion: Environmental & Sustainability Efforts to Further Metro's Goals to Reduce Emissions, Clean the Air & Improve Urban Areas, February 2016;
- Complete Streets Policy, October 2014;
- Metro Board Motion: Developing an Active Transportation Finance Strategy, July 2014;
- First Last Mile Strategic Plan and Planning Guidelines, April 2014;
- Countywide Sustainability Planning Policy and Implementation Plan, December 2012;
- Metro/ SCAG Joint-Work Program, July 2012 (updated May 2015);
- Active Transportation Agenda, November 2011;
- Health and Active Transportation Motion, April 2011 (Item #17);
- Enhanced MTA Bicycle Policies and Programs Motion, September 2010; and
- Bicycle Transportation Strategic Plan, June 2006.

In addition to the these policies and directives, the goals and objectives of the ATSP align with the long-term and short-term strategies established in Metro planning documents such as the Long Range Transportation Plan (2009; update anticipated in 2017) and the Short Range Transportation Plan (2014), which serve as a blueprint for how Metro will spend anticipated revenue in the coming decades.

Local Jurisdictions

Within Los Angeles County, a number of local jurisdictions and sub-regions have adopted bicycle and pedestrian plans, Safe Routes to School plans, mobility plans, or adopted policies or resolutions to improve the mobility and safety of the streets for people who walk, bicycle, and take transit, and to advance the health, safety, welfare, economic vitality, and environmental well-being of their communities, as shown in Appendix B.

BENEFITS OF ACTIVE TRANSPORTATION

If you build it...

The decision to walk or ride a bicycle (instead of driving) hinges on the presence of safe and convenient active transportation infrastructure, such as protected bicycle lanes and sidewalks. When this infrastructure is provided, people use it: in 2006, federal funding for active transportation increased more than 60 percent to almost $1 billion per year (up from $360 million previously). Eight years later, the number of people riding bicycles to work in the United States had increased by 60 percent. A similar trend occurred in Los Angeles County, where bicycle commute trips grew 81 percent over the same time period.

Simply put, more people choose to walk and ride their bicycles when infrastructure investment enables them to do so safely and easily. A majority (53 percent) of Americans now say that they would like to bicycle more than they currently do. They are bringing to light a powerful latent demand for healthy and economical travel options.

Mobility Benefits

First Last Mile Connections

Active transportation investment enables better connectivity between modes – particularly for transit. Many people who could potentially take transit choose to drive instead when transit stops are not conveniently located at their starting points and final destinations. These situations require "first last mile" connections. Enabling people to walk or ride a bicycle to or from transit expands the menu of transportation choices and makes taking transit convenient and accessible. It creates a seamless travel experience that improves the transit experience. Better active transportation connections makes it possible for more riders to use transit easily, particularly in areas of Los Angeles County with fewer or less frequent transit routes. Integrating walking, biking, and rolling travel with transit expands the effective reach of the transit network and adds value to Metro's ongoing capital investments around the county.

Congestion

Americans wasted $124 billion sitting in traffic in 2013, costing families an average of $1,700 per year in wasted time (opportunity cost). Los Angeles County accounted for nearly a fifth of the total opportunity cost of congestion nationwide, at $23.2 billion annually. Travelers in the greater Los Angeles area spend an average of 80 hours per year in traffic.

Parking

With the high rate of car ownership in Los Angeles County, there is a perceived scarcity of parking spaces. An increase in people walking and bicycling offsets motor vehicle trips, reducing demand for motor

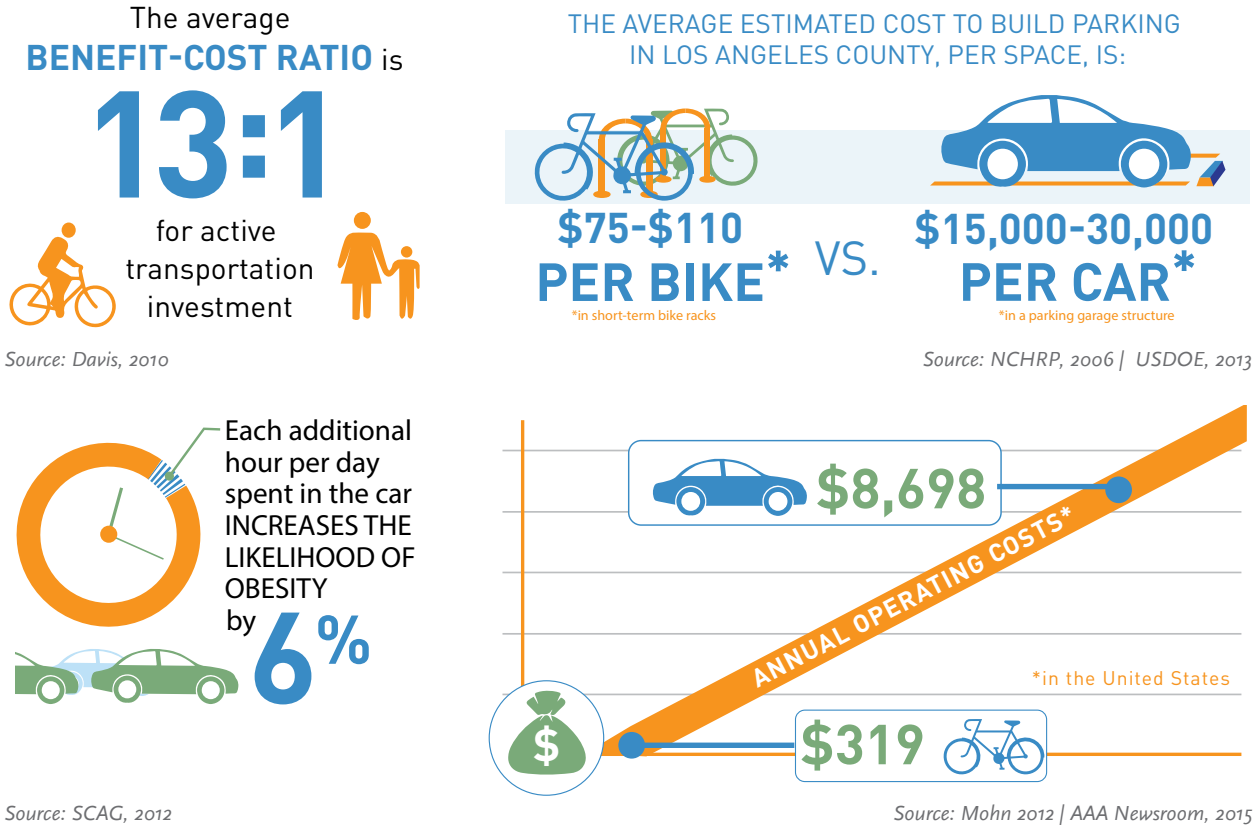


Figure 2.1: Benefits of Active Transportation

vehicle parking. This can potentially increase parking space availability and reduce cost for both users (lower prices) and developers (fewer parking spaces needed in new buildings).

People riding bicycles also require parking space, but bicycle parking is more efficient than vehicle parking in terms of both space and cost. Up to ten bicycles can fit in a parking space originally designed for a motor vehicle, and the cost per bicycle parking space is 200 to 300 times lower than the cost per motor vehicle parking space.

Active transportation is the most affordable means of transportation available in Los Angeles County

Economic Benefits

Affordability

Active transportation is the most affordable means of transportation available in Los Angeles County, where moderate-income residents spend 27 percent of their salaries on transportation. Replacing vehicle trips with walking and bicycle trips offers immediate financial relief for households struggling with transportation costs. Saving money on transportation gives people more disposable income to use for income-generating investments, rather than gasoline and maintenance.

Local Economic Development

People who arrive at local businesses by walking and bicycling spend more money than those arriving by car. For instance, a Portland study found that, compared to people who drive, people who bicycle spend 30 percent more at local establishments (restaurants, convenience stores and bars) and people who walk spend 7 percent more.

As part of The BLVD, a downtown revitalization effort, Lancaster, California re-designed its main street, Lancaster Boulevard. The re-design included a road diet, a pedestrian-only plaza, wider sidewalks and landscaping. After a $10.6 million public investment, the project helped attract nearly $125 million in private investment, resulting in a 26 percent increase in sales tax revenue and 800 new jobs.

People who arrive at local businesses by walking and bicycling spend more money than those who arrive by car

Job Creation

Active transportation infrastructure has an economic impact on local economies through increased retail activity (sales and rentals) and tax revenues. It can also result in direct job

creation through the design and construction of non-motorized infrastructure.

In the City of Baltimore, every $1 million spent on bicycle and pedestrian infrastructure projects created 11 to 14 jobs, compared to only 7 jobs for each $1 million in roadway infrastructure. This estimate includes direct jobs (engineering and construction), indirect jobs (related to engineering and construction) and induced effects (impacts on other industries, such as retail).

Health Benefits

Disease Prevention

Regular aerobic activity (i.e. 30 minutes per day, 5 days per week) improves health by lowering the risk of heart attack and stroke. Active transportation increases opportunities to meet this minimum threshold of aerobic activity, reducing the prevalence and cost of obesity and associated health conditions.

Sickness

Enabling people to ride bicycles to work can improve the health of the workforce. In the United Kingdom and the Netherlands, people who regularly bicycle to work take, on average, one to two fewer sick days annually.

Environmental Benefits

Physical Environment

Many of the factors contributing to LA County's low health outcomes are related to physical environment, such as air quality, access to recreation and exercise opportunities, long commutes and a high percentage of residents who drive alone. All of these factors can be improved with active transportation investment.

Pollution and Greenhouse Gases

Reducing vehicle miles traveled (VMT) in fossil fuel-burning vehicles is a pillar of efforts to reduce airborne pollutants and greenhouse gases (GHGs). Active transportation plays a role in reducing VMTs by offering a transportation alternative that enables people to leave their cars at home.

The transportation sector is a significant source of air and water pollution in Los Angeles County, accounting for 37 percent of GHG emissions. The American Lung Association places the Los Angeles Basin and California's Central Valley as the areas with the nation's highest levels of ozone and fine particle pollution. Los Angeles topped the list of cities with the worst smog in the nation, violating federal health standards for ozone an average of 122 days per year.

Active transportation infrastructure has an economic impact on local economies through increased retail activity and tax revenues

Safety Benefits

People walking and riding bicycles account for a disproportionate number of fatalities on the streets of Los Angeles County. These modes represent 19 percent of all trips, but 40 percent of all traffic fatalities.

In Los Angeles County, the financial loss due to active transportation fatalities is more than $1 billion per year - a figure that does not include the emotional cost to the families and friends of these victims.

Road diets have been found to be effective at reducing collisions for all road users in a variety of urban contexts. Road diets provide refuge for turning vehicles, which reduces side-swipe and rear-end collisions. They also have traffic calming effects, reducing the opportunity to speed or drive recklessly by eliminating excess capacity and repurposing it for people on bicycles or people on foot. Meanwhile, long-term statistics support the "safety in numbers" principle, which holds that walking and bicycling becomes statistically less dangerous when more people walk and ride bicycles.

Additional information on the benefits and effects of active transportation, including citations and references, are included in Appendix A.

Metro Bus in Downtown Los Angeles

EXISTING CONDITIONS

The existing conditions analysis is a key component of the process of developing the Active Transportation Strategic Plan. The data included in the analysis is intended to help communities and stakeholders plan for the specific needs and conditions around their station area of interest, to better position applicants for grant funding opportunities, to assist communities in targeting resources to those areas that need it most, and to add value to the tremendous transit investments occurring across the county.

The analysis covers 661 transit station areas across the county, including Metro Rapid and Metro Rail service, Metrolink service, and high ridership bus stops serviced by Metro or municipal transit providers. Not all municipal transit providers contributed the ridership data necessary to assess the stop-level activity for inclusion into the set of high-ridership stops. For a full description of the process and the municipal transit providers included in the analysis, please see Appendix D.

The existing conditions analysis provides a snapshot of key data around the station area, within a half-mile walkshed and a three-mile bikeshed. These sheds are based on the network connectivity and slope, and are therefore smaller than a simple circle with a half mile or three mile radius; they are more reflective of the realities of walking and biking in Los Angeles. The data available in this analysis are explained on the following page, with an example of the analysis layout for one station area.

To explore existing conditions around the full set of 661 station areas, visit http://gis.fehrandpeers.com/metroatsp/.

Additionally, much of the existing conditions data are used to set the baseline for the performance evaluation discussed in Chapter 3. Viewing this data station-by-station in the existing conditions analysis shows the variation that exists around the county, emphasizing the need to identify metrics and set benchmarks at the county level as well as at the project level. A more extensive discussion of performance evaluation is included in Chapter 3, along with the selected metrics and the benchmarks against which this Plan will be measured.

UNDERSTANDING THE ATSP EXISTING CONDITIONS ANALYSIS

As part of the ATSP, Metro uses several methods to capture data that the First Last Mile Strategic Plan identifies as important to planning a comprehensive first last mile analysis. The ATSP online portal, available at http://gis.fehrandpeers.com/metroatsp, is a publicly-accessible resource, home to existing conditions analysis for the 661 transit stations and stops. Each station area location may consist of multiple bus stops and rail stations that are close to each other - this enabled stops that are on opposite sides of the streets, rail stations that have bus stops nearby, or stations that have more than one portal, to be treated as one area rather than multiple areas with duplicate analysis. Figure 2.2 is an example of an existing conditions analysis summary.

The existing conditions analysis summaries help identify stations or stops in your local jurisdiction with need for first last mile connectivity improvements. The analysis focuses on a half-mile walkshed and a three-mile bikeshed around each station area location. The information presented in these summaries is based on the most recent available data for each source; therefore, it is important to supplement this with site visits and other data sources, when a specific station area planning effort begins.

The summaries visually present information and analysis on elements including:

- extents of the analysis area
- points of interest
- land uses
- jobs/housing diversity
- bicycle facilities
- ridership activity
- CalEnviroScreen Score
- collisons by mode
- population and employment
- age demographics
- Walk Score
- Bike Score
- Transit Score
- route directness
- intersection density
- journey to work

The ATSP online portal, available at http://gis.fehrandpeers.com/metroatsp, is a publicly-accessible resource, home to existing conditions analysis for the 661 transit stations and stops.

The following section provides a detailed overview of the existing conditions analysis conducted for the 661 station areas, the data presented, and the sources utilized to prepare the analyses. The data presented will be particularly helpful for initiating first last mile planning near station areas or presenting relevant data requested in grant applications to pursue funding for implementation of pre-existing plans and projects that help complete local and regional active transportation networks or address first last mile challenges.

The following pages are intended to serve as a guide to the data presented in the existing conditions analysis summary sheets. For the optimal experience, read the following pages alongside a full 11 x 17 inch printout of the existing conditions analysis at your station area, available at http://gis.fehrandpeers.com/metroatsp.

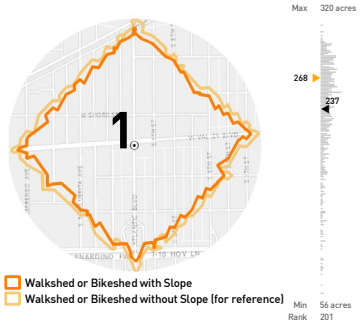
Metro Active Transportation Strategic Plan

Transit Station or Stop Name

Walkshed or Bikeshed Analysis - Existing Conditions

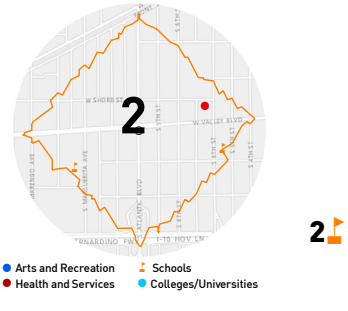
WALKSHED OR BIKESHED ANALYSIS AREA

Shows the area within a half mile walk or three mile bike along the street network.



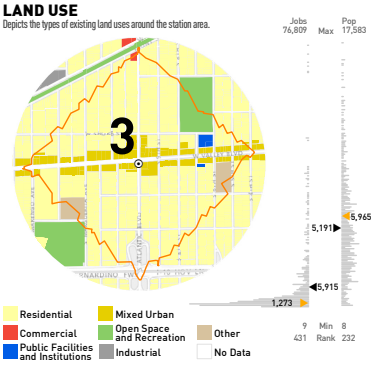
POINTS OF INTEREST

Shows the location of key community destinations and the number of schools in the walkshed or bikeshed.



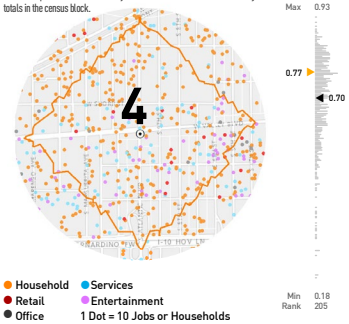
LAND USE

Depicts the types of existing land uses around the station area.



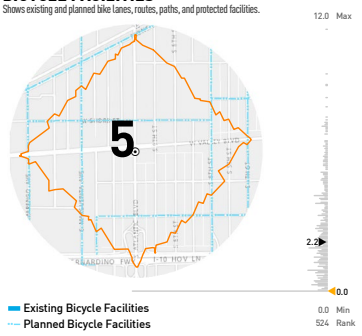
JOBS/HOUSING DIVERSITY

Each dot represents a household or job in the area. Dots are shown randomly in the area based on the totals in the census block.



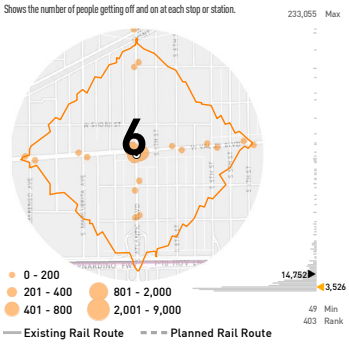
BICYCLE FACILITIES

Shows existing and planned bike lanes, routes, paths, and protected facilities.



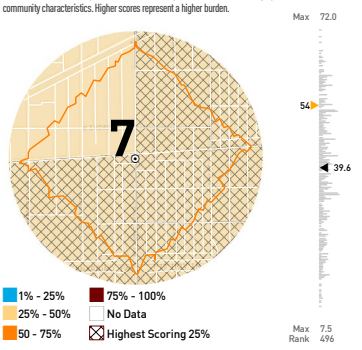
RIDERSHIP ACTIVITY

Shows the number of people getting off and on at each stop or station.



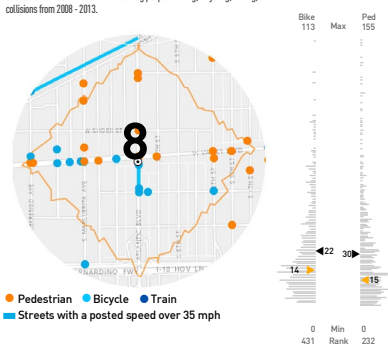
CALENVIROSCREEN SCORE

CalEnviroScreen Scores represent a combination of pollution levels and demographic community characteristics. Higher scores represent a higher burden.



COLLISION BY MODE

Shows locations of all collisions including people walking, bicycling, driving, and train collisions from 2008 - 2013.



POPULATION AND EMPLOYMENT

Population and employment in walkshed or bikeshed.

5,965 Population
232 Rank

1,273 Employment
431 Rank

AGE

Displays the number and %s of people under 18 and over 64 in the walkshed or bikeshed.

1,161 Under 18
19.5%

756 Over 64
12.7%

WALK SCORE (1-100)

Reports the Walk Score for the station area.

78

BIKE SCORE (1-100)

Reports the Bike Score for the station area.

21

TRANSIT SCORE (1-100)

Reports the Transit Score for the station area.

34

ROUTE DIRECTNESS

Represents the amount of out of direction travel needed to get to destinations in the walkshed or bikeshed. Higher scores are more direct.

4.4

INTERSECTION DENSITY

Number of intersections in walkshed or bikeshed.

105 Count
35 Score (1 - 100)

JOURNEY TO WORK

Shows the percentage of people who live in the walkshed or bikeshed and how they get to work.

2.3% Walk
0.2% Bike
0.0% Rail
7.2% Bus
13.0% Carpool
77.2% Drive Alone
0.1% Other

COLLISION BY MODE // KSI

Shows the total number of collisions in the walkshed or bike and the number of collisions resulting in someone being kille severely injured (KSI) from 2008-2013.

Total	KSI	
15	3	Pedestrian
14	0	Bike
0	0	Train
101	1	Auto

FEHR PEERS

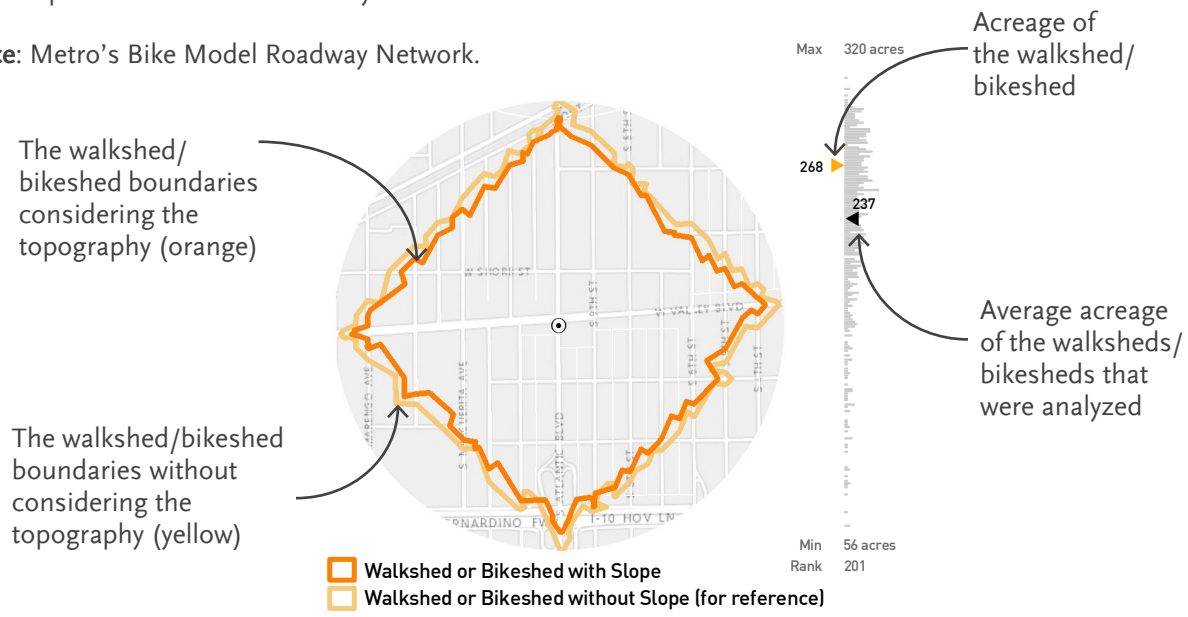
Figure 2.2: Existing conditions analysis summary

1. Bikeshed/Walkshed Analysis Area

Figure 2.3

Definition: The area is defined by the bikeshed/walkshed, or the distance a person is willing to travel biking or walking to or from a transit station or stop based on the existing street grid. The sheds are presented with and without the slope taken into account and are based on the travel distance on the street network, which is not necessarily in a straight line. All data are presented for the sheds with slope; the sheds without slope are presented for reference only.

Source: Metro's Bike Model Roadway Network.

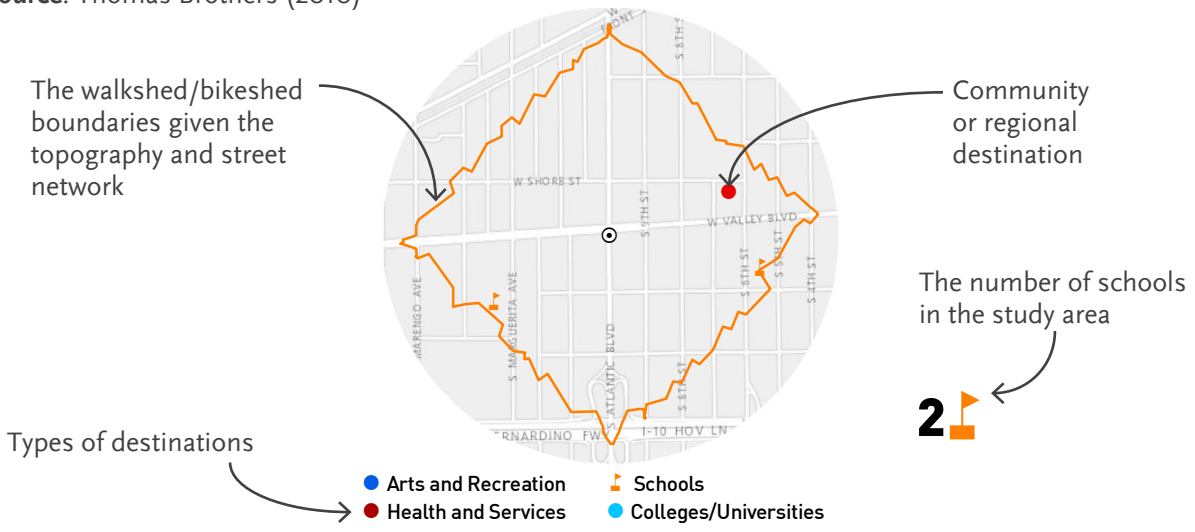


2. Points of Interest

Figure 2.4

Definition: The locations of important community or regional destinations that people might travel to/from the transit station or stop. The number of schools is also presented in this graphic.

Source: Thomas Brothers (2010)

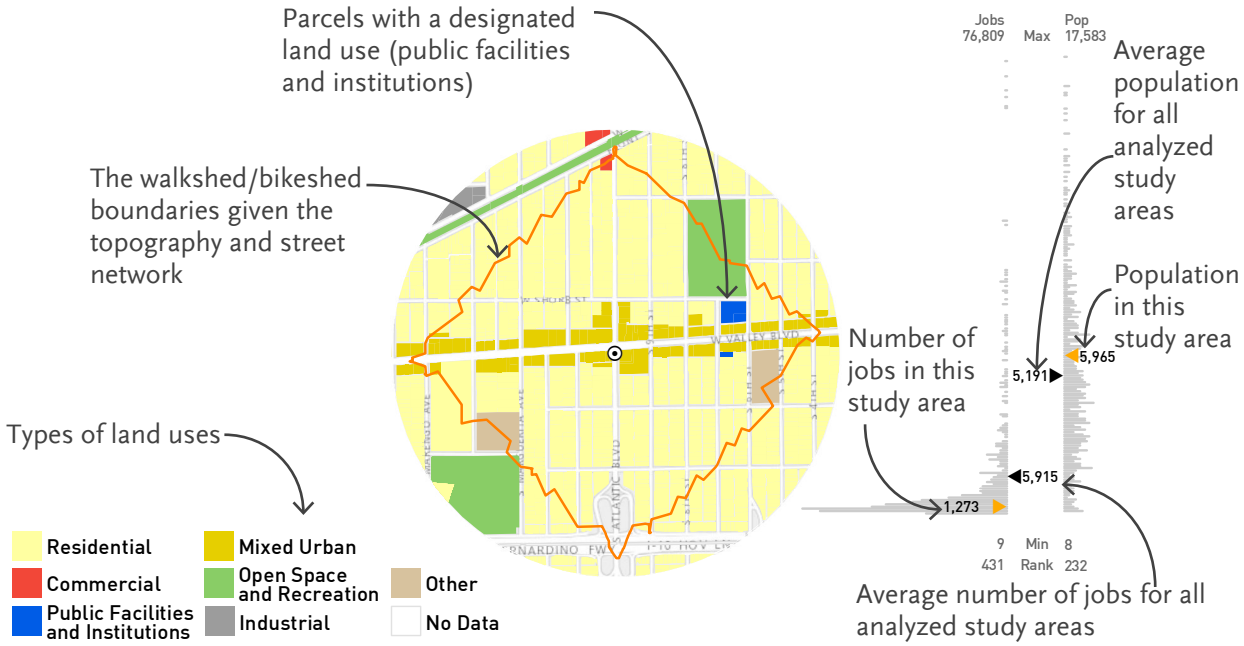


3. Land Use

Figure 2.5

Definition: The types of existing land uses that define the study area.

Source: Southern California Association of Governments (SCAG) (2010)



4. Jobs/Housing Diversity

Figure 2.6

Definition: The number of households and jobs in the study area based on Census block totals.

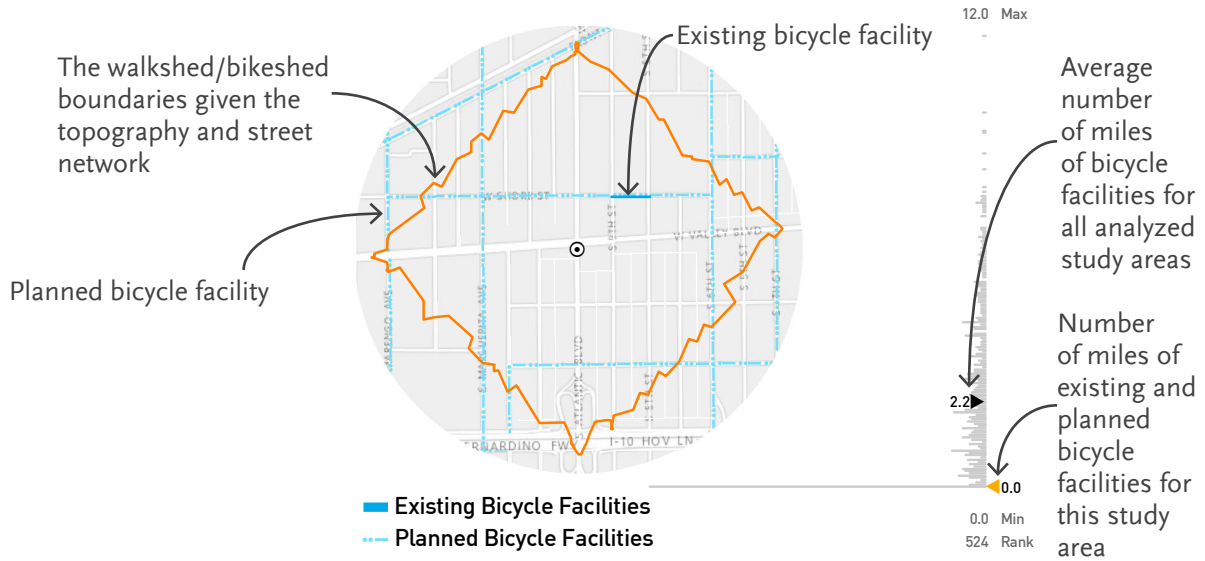
Source: Environmental Protection Agency (EPA) Smart Location Database (Census 2010)

5. Bicycle Facilities

Figure 2.7

Definition: The location of existing and planned bikeways, including bike lanes, routes, paths, and protected facilities.

Source: Metro (2015), Alta Planning (2015), Various Local Jurisdictions within Los Angeles County

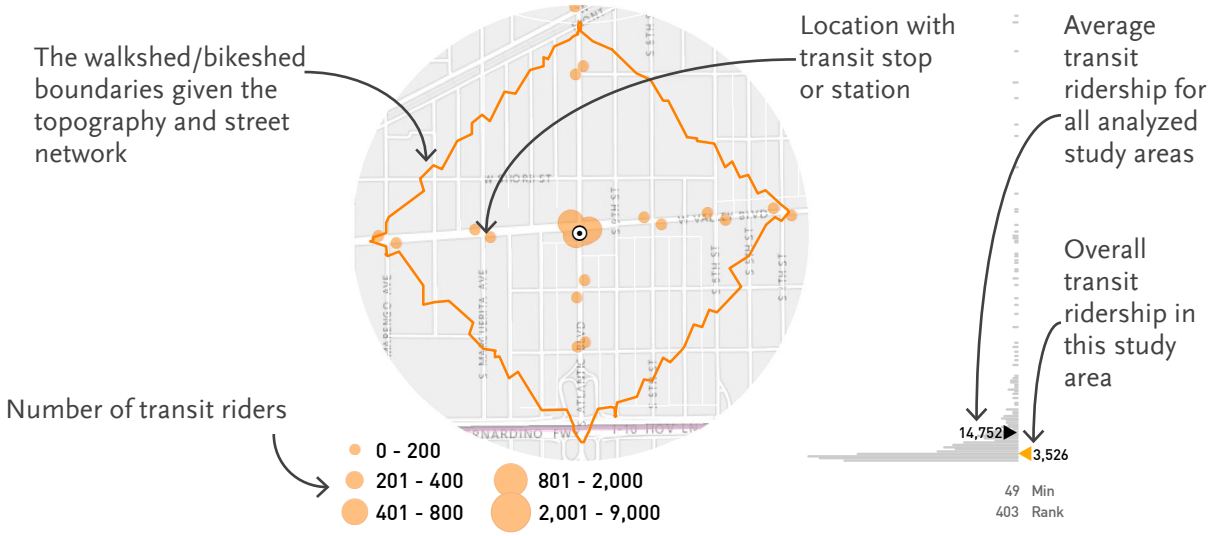


6. Ridership Activity

Figure 2.8

Definition: The number of people getting on and off at each transit stop or station within the study area.

Source: Metro, Culver City Bus, Foothill Transit, City of Los Angeles Department of Transportation (LADOT), Gardena Transit, Long Beach Transit, Montebello Bus, Santa Clarita Transit, Santa Monica Big Blue Bus. Numbers were normalized to reflect average daily boardings and alightings per stop.

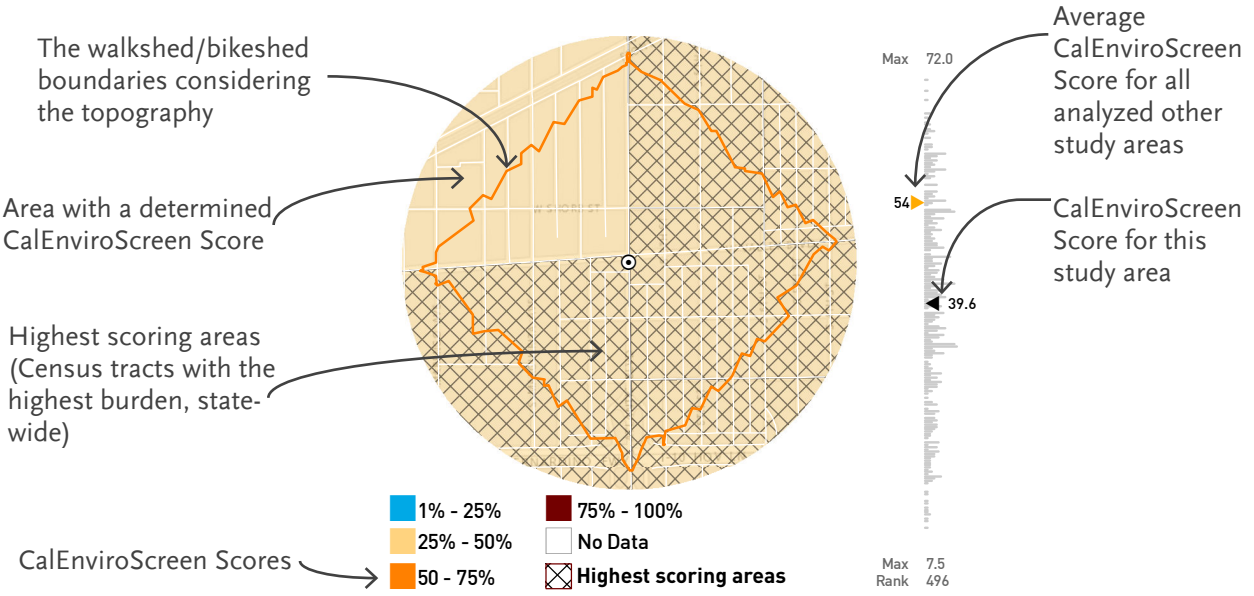


7. CalEnviroScreen Score 2.0

Figure 2.9

Definition: The score given to represent the overall quality of public health, considering a combination of pollution types and demographic community characteristics. Higher scores represent a greater burden.

Source: Office of Environmental Health and Hazard Assessment (OEHHA) (2014)

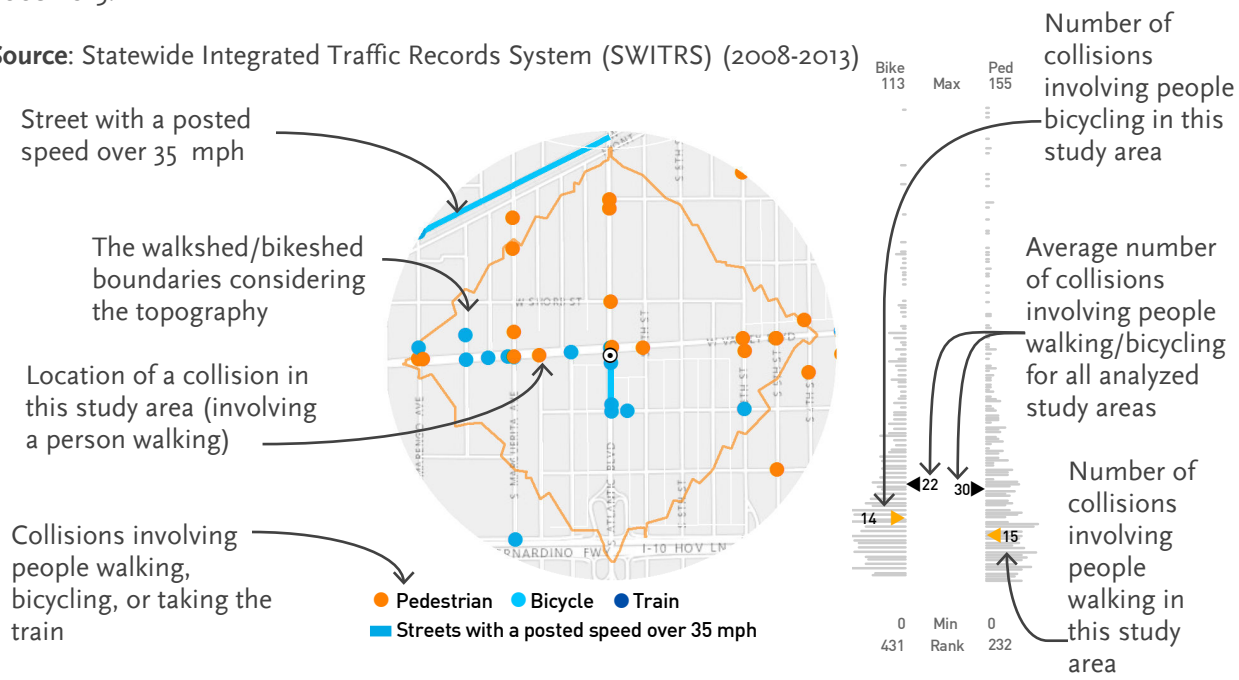


8. Collision by Mode

Figure 2.10

Definition: The locations of collisions involving people walking, bicycling, driving, and train collisions from 2008-2013.

Source: Statewide Integrated Traffic Records System (SWITRS) (2008-2013)



Population and Employment

Definition: The number of people living and working in the study area. Station areas are ranked 1-661, where 1 has the highest population/employment among all stations.

Source: U.S. Census Bureau (2010)

POPULATION AND EMPLOYMENT
Population and employment in walkshed or bikeshed.

5,965	Population
232	Rank
1,273	Employment
431	Rank

Age

Definition: The number and percentage of people under the age of 18 and over the age of 64 in the study area.

Source: U.S. Census Bureau (2010)

AGE
Displays the number and %s of people under 18 and over 64 in the walkshed or bikeshed.

1,161	Under 18
19.5%	
756	Over 64
12.7%	

Walk Score

Definition: The score given to represent the walkability in an area. Scores range from 1 (bad) to 100 (excellent).

Source: WalkScore.com (2015)

WALK SCORE (1-100)
Reports the Walk Score for the station area.

78

Bike Score

Definition: The score given to represent the bikeability in an area. Scores range from 1 (bad) to 100 (excellent).

Source: WalkScore.com (2015)

BIKE SCORE (1-100)
Reports the Bike Score for the station area.

21

Transit Score

Definition: The score given to represent the transit-friendliness in an area. Scores range from 1 (bad) to 100 (excellent).

Source: WalkScore.com (2015)

TRANSIT SCORE (1-100)
Reports the Transit Score for the station area.

34

Route Directness

Definition: The amount of out-of-direction travel needed to get to destinations in the study area. The Route Directness Index ranges from 1-5; higher scores are more direct.

Source: Fehr & Peers, Thomas Brothers (2010)

ROUTE DIRECTNESS
Represents the amount of out of direction travel needed to get to destinations in the walkshed or bikeshed. Higher scores are more direct.

4.4

Intersection Density

Definition: The number of intersections within a study area. Higher scores indicate more intersections. Scores range from 1-100.

Source: Thomas Brothers (2010)

INTERSECTION DENSITY
Number of intersections in walkshed or bikeshed.

105	Count
35	Score (1 - 100)

Journey to Work

Definition: The percentage of people in the study area who commute to work by each mode.

Source: U.S. Census (2010)

JOURNEY TO WORK
Shows the percentage of people who live in the walkshed or bikeshed and how they get to work.

2.3%	Walk
0.2%	Bike
0.0%	Rail
7.2%	Bus
13.0%	Carpool
77.2%	Drive Alone
0.1%	Other

Collision by Mode //KSI

Definition: The number of collisions and the number resulting in someone being killed or severely injured (KSI) from 2008-2013 in the study area.

Source: SWITRS (2008-2013)

COLLISION BY MODE // KSI
Shows the number of fatal or serious injury collisions in the walkshed or bikeshed from 2008-2013

Total	KSI	
15	**3**	Pedestrian
14	**0**	Bike
0	**0**	Train
101	**1**	Auto

Entrance to North Hollywood Station on the Metro Red Line

Cyclist near Tongva Park in Santa Monica

Biking and walking in downtown Los Angeles

BARRIERS TO IMPLEMENTATION

During the development of the Active Transportation Strategic Plan, Metro and the project team engaged numerous stakeholders through the Project Technical Advisory Committee, meetings with Councils of Governments, and stakeholder outreach meetings. A consistent theme throughout these discussions focused on implementation, and associated challenges and opportunities. The following section outlines and summarizes much of the feedback that stakeholders provided, focusing on the key challenges and barriers discussed. The ATSP is intended to help stakeholders address barriers and seize opportunities for the development and implementation of active transportation infrastructure. Appendix C provides more details on the outreach process that informed the development of this Plan.

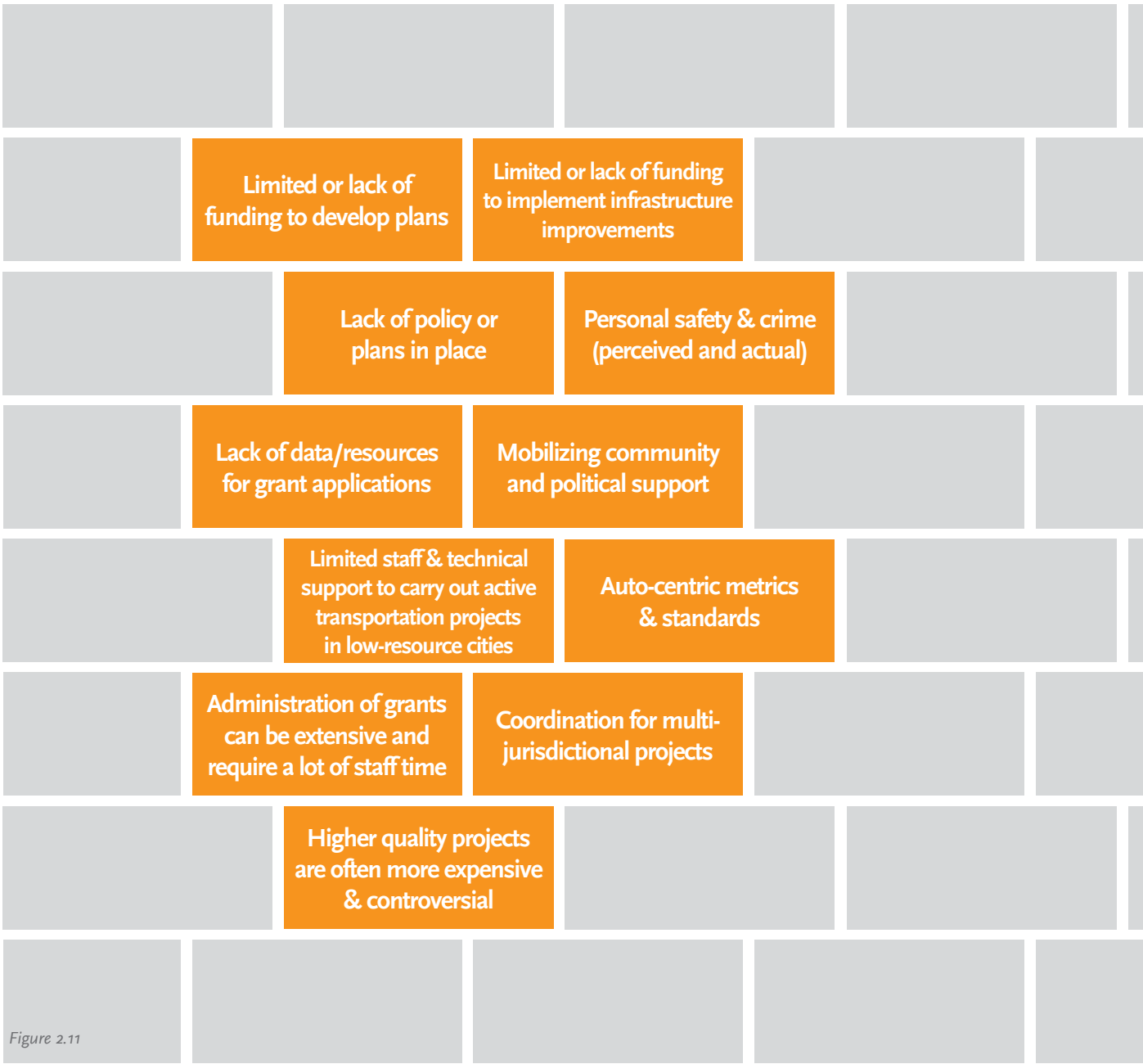


Figure 2.11

OPPORTUNITIES FOR IMPLEMENTATION

3 IMPLEMENTATION

OVERVIEW

This chapter helps identify the steps towards getting a project on the ground. It highlights the areas where various stakeholders can get involved, as well as the components that are supported by the Active Transportation Strategic Plan.

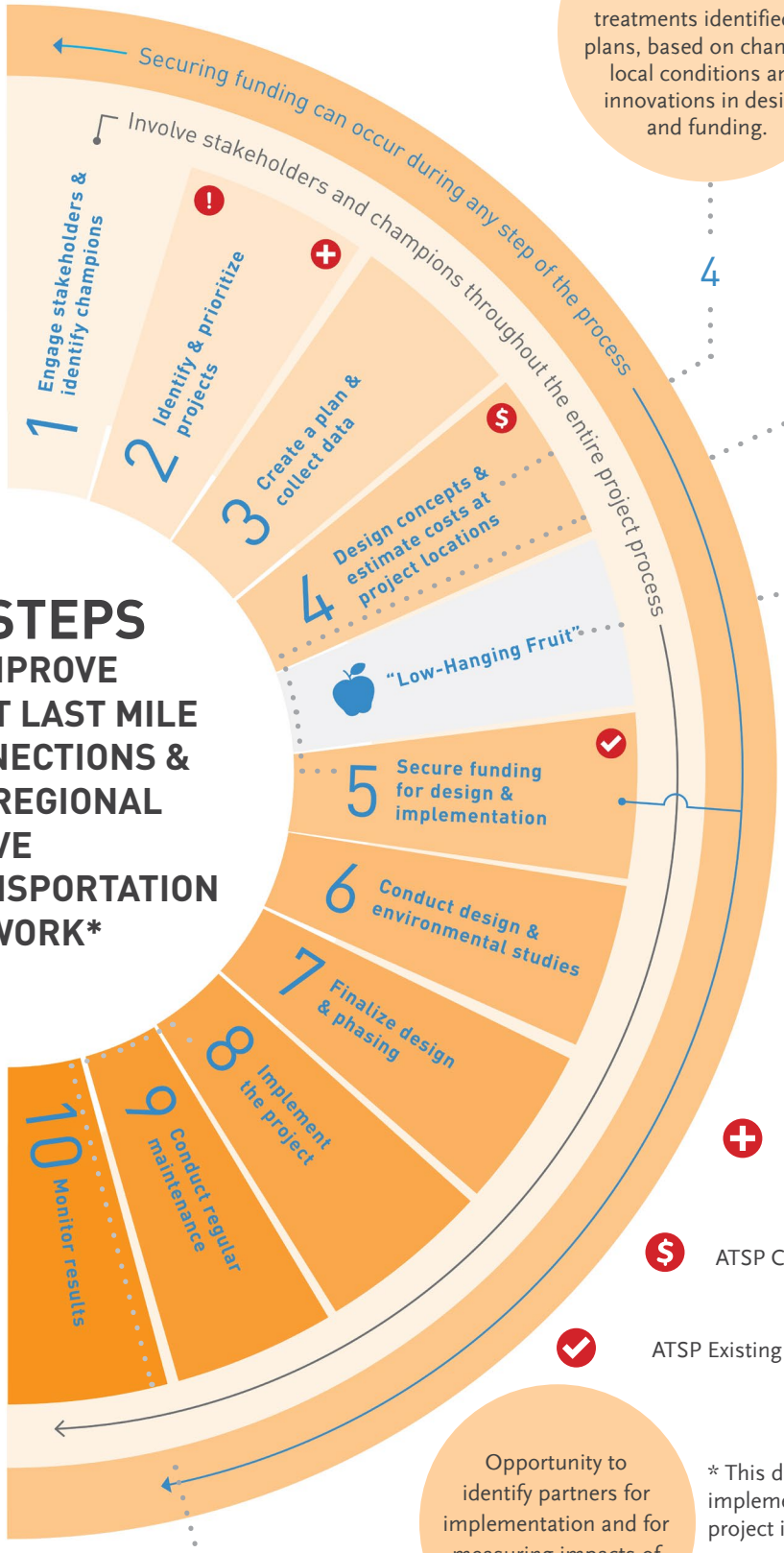
In order to make improvements that are beneficial to all stakeholder groups, it is vital that applicable groups are involved in the process when appropriate. However, this process could differ from city to city, project to project, or with different agencies.

Impromptu high-fives at CicLAvia South LA

Wayfinding helps guide pedestrians outside Union Station

Bike riding at CicLAvia South LA

STEPS TO IMPLEMENTATION



10 STEPS
TO IMPROVE FIRST LAST MILE CONNECTIONS & THE REGIONAL ACTIVE TRANSPORTATION NETWORK*

As time elapses, review corridors and treatments identified in plans, based on changing local conditions and innovations in design and funding.

4

Use ATSP as a starting point for planning and grant materials.

4 & 5

May include implementation options such as installing bicycle or pedestrian facilities with restriping or capital improvement projects, or facilities built in conjunction with private development projects.

8 & 10

Opportunity to identify partners for implementation and for measuring impacts of projects.

USING THE ACTIVE TRANSPORTATION STRATEGIC PLAN

ATSP Case Studies can be used to identify potential improvements that are appropriate for your study area.

The ATSP Regional Active Transportation Network can identify projects with regional benefits.

ATSP Cost Estimates can be used for planning-level cost estimation.

ATSP Existing Conditions Analysis can provide compelling data that supports grant applications.

* This diagram represents a typical process to implement an active transportation project. Each project is unique. Actual process steps may vary.

Figure 3.1

MORE INFORMATION

Stakeholder Outreach

- Stakeholders provide first-hand insight on priority projects and should be engaged early in the process.
- Potential champions and stakeholders include: neighborhood organizations, community groups, elected officials, council districts, municipal departments, residents, schools, non-profit organizations, faith-based organizations, large- and small- scale businesses, neighboring municipalities, and celebrities.
- Utilize technology, social media, and other non-traditional strategies to attract diverse groups of stakeholders to participate.
- Produce appropriate outreach material for people of varying ages, language needs, educational levels, etc.
- Consider developing a community advisory committee (CAC) comprised of local stakeholders to encourage ownership of the project.
- Stakeholders can help champion plans for final approval.
- Consider reaching out to the community to help install and maintain the project, as well as to collect subsequent data for evaluation.
- Consider having education and support programs that teach lawful and safe behaviors and the importance of maintenance and evaluation.

"Low-Hanging Fruit"

- Low-hanging fruit includes easy and immediate opportunities that are implemented before or during long-term projects to capitalize on existing resources.
- These easy and immediate improvements can include things like: adding landscaping, shade, lighting, and signage; enhancements to bus waiting areas; restriping lanes and crossings; adding time-to-station signage, street furniture, and bicycle parking.
- Consider coordinating Complete Streets improvements with private development, roadway repaving, re-striping, rehabilitation, renovation, and maintenance planned or underway. A Complete Streets approach views all transportation improvements as opportunities to create safe, more accessible public streets for all users.

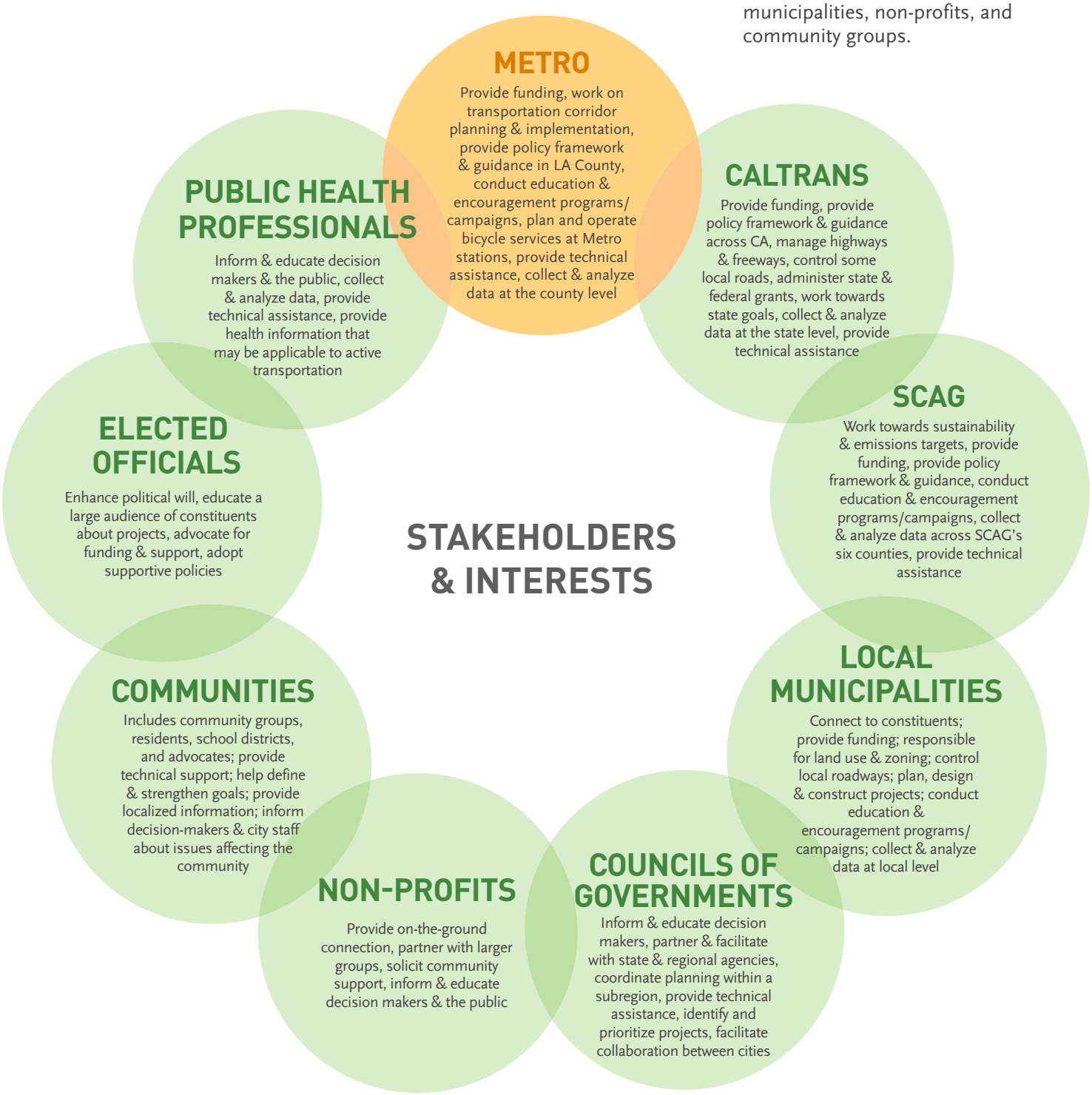
Helpful Tips

- Typical Complete Streets-related plan types include: Pedestrian Plans, Bicycle Plans, Active Transportation Plans, Community Plans, Transportation Plans, and Complete Streets Plans.
- Consider consulting with non-profit and private organizations that can offer their expertise in outreach, planning, cost estimation, grant writing, design, environmental review, implementation, and maintenance.
- Prioritize projects that provide greater safety, environmental and long-term benefits.
- Consider using new technologies and social media to collect data and track results.
- Consider first piloting the project using temporary and affordable materials.
- Create branding schemes and creative outreach mechanisms to attract and retain project supporters.
- Potential funding sources include: city funds, Metro capital grant programs, state and federal grants, philanthropy, and developer mitigations and fees. In some instances, the private sector can be involved in funding for projects or plans.

STAKEHOLDER ROLES

Many important stakeholder groups play a vital role in the inspiration, planning, funding and implementation of active transportation projects.

The graphic provides an overview of the functions and roles that each stakeholder may play as it relates to active transportation. These functions and roles may differ among various local municipalities, non-profits, and community groups.



Metro's Role

Metro is responsible for programming a significant portion of the County's transportation funds and for the planning and funding of the regional transit system and highway corridors. Over the last decade, the agency's role in supporting active transportation has continued to evolve in response to the Metro Board's vision and policy direction, regional and local needs and priorities, and to further support federal and state policy initiatives that address climate change and promote sustainable transportation. Metro's involvement in supporting active transportation projects and programs include:

- Funding projects that improve conditions for people who walk and bicycle through Metro's capital grant programs
- Leading the planning/ implementation of active transportation corridors and first last mile improvements to transit in partnership with local municipalities
- Leading the regional effort to develop a user-friendly bike share system to foster first last mile connections
- Operating and expanding bicycle parking at many stations throughout the system to improve first last mile connections
- Launching education and encouragement campaigns, events, and classes to raise awareness, improve safety, and encourage a shift from driving to more walking, bicycling, and the use of public transit
- Developing a Countywide Safe Routes to School Initiative to help communities start Safe Routes to School Programs or sustain and enhance existing efforts
- Providing technical assistance, policy guidance, training, toolkits, and data to local government agencies and other stakeholders to assist with project planning and implementation
- Metro's countywide programs are discussed in more detail on page 72

Temple City Rosemead Blvd. Improvement Project

Eastside Access Project

Metro El Monte Bike Hub

CicLAvia South LA

Metro's Safe Routes to School Pilot Program Walk to School Day

Other Stakeholder Roles, Responsibilities, & Opportunities

California Department of Transportation (Caltrans)

As the state transportation agency that controls the freeways in Los Angeles County, Caltrans is responsible for designing, building, and maintaining highways, freeways, and on and off ramps which can cause potential conflicts between vehicles entering or exiting the freeways and people walking or biking on the local adjacent roads. Caltrans also maintains some local roads throughout cities in the region, which follow the agency's design guidelines and standards rather than those of the local jurisdiction. Caltrans provides several funding streams for local agencies to implement pedestrian and bicycle improvements. Caltrans also sets state policy which can provide guidance for local jurisdictions coming into alignment with the goals of the state.

Non-profits

Non-profit organizations serve a variety of functions that link communities to the overall active transportation planning process. They provide programs and services that complement the infrastructure improvements across the county, such as CicLAvia. Non-profits solicit community input and report that input to the implementing agencies, and also communicate information about city and county efforts from agencies to the public. Some non-profits conduct third-party research and studies to advance the field of active transportation planning in Los Angeles County and advocate for change based on this research and the needs of the public.

Caltrans has a responsibility to maintain connection points between highways & local roads


Community workshop discussing the ATSP


Community workshop discussing the ATSP


Bicycle training class

Southern California Association of Governments (SCAG)

As the Metropolitan Planning Organization covering the six-county Southern California region, SCAG develops initiatives, conducts research and funds planning efforts to help Southern California meet state-legislated sustainability goals. The agency provides funding for bicycle and pedestrian improvements through the Active Transportation Program grant. SCAG provides policy guidance and technical assistance to local governments and conducts education and encouragement programs to encourage more sustainable transportation. SCAG also produces forecasts to estimate the pace of population growth in the region, as well as other demographic and socioeconomic changes that might have effects on transportation choices and travel behavior.

Communities

Community groups, residents, school districts, and individual advocates play an important role in the development and implementation of active transportation projects. They can provide insight into the needs and desires of residents, for whom the projects are intended to serve. They can also provide highly localized information about safety concerns and travel behavior, support the processes of defining goals, and inform the scoping, implementation, and maintenance of projects. They can also serve as a repository of knowledge about the history of plans and projects in a community for future planning efforts.

Local Municipalities

Local municipalities in Los Angeles County are largely responsible for owning and operating the public right-of-way used by people walking, biking, driving, and riding transit. Local monies can fund right-of-way maintenance and improvement, as well as implementation of new active transportation facilities and access improvements to connect local residents with regional destinations. Local municipalities can set design guidelines and standards for the use of their right-of-way. They enforce traffic through their law enforcement department. They also represent the views and preferences of their residents to regional and countywide planning agencies like SCAG and Metro. Other municipal agencies, like water districts, can also play a role in coordination and implementation of projects.

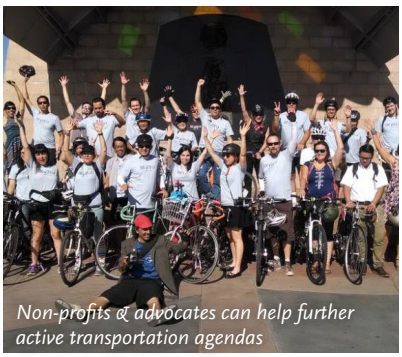
Elected Officials

Elected officials can be critical to the success of an active transportation project by serving as a local champion of a project idea, whether the idea was generated by constituents, by an agency, or by a third party such as a non-profit or community group. They can encourage agency staff to pursue the project, garner support from the public to implement the project, and advocate for funding to construct and maintain it. Elected officials can work to adopt supportive policies that provide institutional support for making streets safer and more accessible for all users.

Local advocates create a "parklet" on Parking Day

An example of bicycle infrastructure that enables more commuting choices

Metro's Safe Routes to School Pilot Program Walk to School Day



Non-profits & advocates can help further active transportation agendas

Councils of Governments (COGs)

Members of sub-regional Councils of Governments may consist of cities, Los Angeles County supervisorial districts, and other organizations. Each COG serves as a regional voice for its member agencies and provides an organizing body to engage and represent local agencies within a sub-region of the county to Metro for planning and funding purposes. The sub-regions were established to reflect the diversity of needs and preferences across the county, allowing each to set their own mobility and access agenda in a manner which represents the cities and residents within the sub-region through ongoing engagement with city representatives and the public. Sub-regional COGs communicate this input with Metro, influencing the development of active transportation programs and strategies.

Public Health Professionals

The topics of health and safety have become more pervasive in transportation planning, particularly with respect to walking, biking, and rolling. Public health professionals, some of whom also have planning backgrounds or experience, are uniquely suited to speak to health conditions and associated challenges that many communities face, particularly low-income communities and minority communities. Issues like air pollution, obesity, and opportunities for physical activity can be addressed through the strategies in this plan and by also incorporating the public health lens into planning and evaluation.

RESPONDING TO BARRIERS & OPPORTUNITIES

The Active Transportation Strategic Plan addresses many of the barriers and opportunities outlined in Chapter 2. It is designed to:

Provide clarity on the process of implementation

In this chapter, possible routes for implementation are outlined and clarified in a way that many different types of organizations can follow. Through the routes to implementation, which identify potential partner organizations for every step and related examples, this Plan aims to clarify the process and identify opportunities for different stakeholders to be involved in making our streets safer and more accessible for all users.

Provide guidance on obtaining & executing funding

Funding is a key element of any active transportation project. This Plan is intended to inform Metro's capital grant programs as well as better position partners for local, state, and federal grant funding opportunities that arise in the future. It identifies specific funding partners, strategies, and ways to think about new opportunities for funding.

Propose active transportation routes that connect multiple jurisdictions, communities, & regional destinations

Coordination with neighboring cities is critical to realizing the benefits of active transportation investments. Active transportation facilities within local jurisdictions can provide residents with more travel options by connecting local destinations; however, when these facilities connect multiple cities, communities, and regional destinations, it can bring tremendous regional benefits and contribute to a robust regional active transportation network. This Plan provides guidance and identifies gaps and corridors to provide a comprehensive, integrated, countywide active transportation network that can serve people ages 8 to 80.

Pull together progressive design resources

Designing an active transportation project that is both context-sensitive and cost effective while utilizing the newest planning practices can be difficult and daunting. This Plan looks at the latest in bicycle and pedestrian facility types and their application, paving the way for jurisdictions or agencies to follow suit.

Show by example how to scope projects to improve station area access

Examples in this Plan showcase the wide range of possible scopes for future projects, focusing in particular on station area access. The examples take into consideration different types of local context and challenges that are seen across the county. Use these flexible examples to build a scope that could be applied to any potential project site.

Share cost estimates and related tools

The cost estimates in this Plan provide a framework for creating a budget and determining funding needs for active transportation projects in the region.

LA River Bike Path, Vernon


Harbor Drive Cycle Track, Redondo Beach

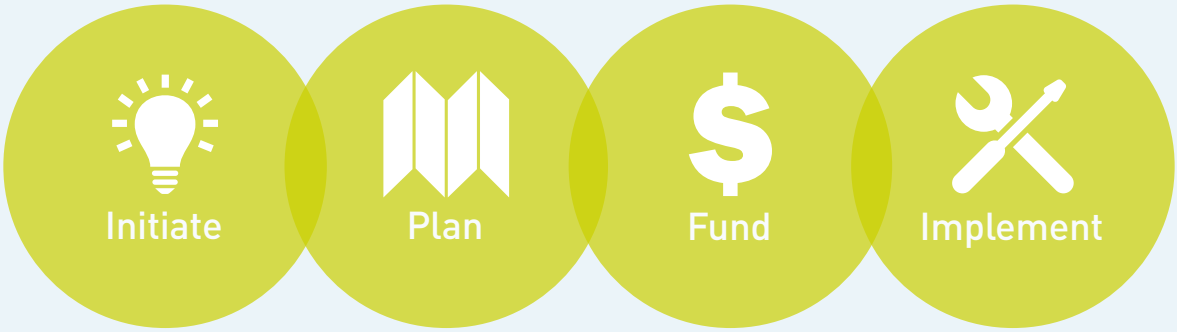

Michigan Avenue Neighborhood Greenway Staging, Santa Monica

ROUTES TO IMPLEMENTATION

This section provides several examples of how different agencies, partnerships, and approaches can come together to move toward active transportation project implementation. These examples include options such as local or regional agencies leading the effort, implementation efforts that are funded through grants or local funds, and areas where synergies and opportunities can be maximized based on a sampling of recent or on-going projects in LA County. These examples aim to provide a better understanding of key steps to implementation and how different stakeholders can participate in the process.

These are intended as representative examples only, and the participants, process, and implementation approach may vary in length, intensity, and stakeholder involvement depending on the given project.

Example 1: City government institutionalizes processes which lead to the implementation of active transportation projects.



City reviews existing processes to identify places where active transportation could be imbedded and projects could be implemented with little or no additional cost.

City relies on policy guidance (such as Complete Streets policies) to direct the inclusion of pedestrian and bicycle facilities in existing processes. Where applicable, City's policies may need to be adopted by City Council.

Grant funding is not necessary to implement; active transportation projects are included in the normal course of maintenance, development, and construction projects.

Implementation occurs over time during the normal course of maintenance, development, and construction.

City of Long Beach considers bicycle facilities such as this cycle track through existing processes.

Long Beach's Complete Streets Policy

The City of Long Beach has taken great strides to integrate complete streets into citywide planning and operations. When considering maintenance, corridor planning, or new development, the City contextualizes a street in terms of its function, the character and design of the surrounding neighborhood, and the needs of all mobility users. The design of streets is a multidisciplinary effort that draws from the expertise and resources of diverse City jurisdictions. This arrangement facilitates a more balanced mobility system, one that supports the integration of mobility, land use, and urban design.

Maintaining the program: As the consideration of bicycle and pedestrian safety and access became a normal part of all maintenance and construction, additional maintenance specific to those facilities became unnecessary. Maintenance of projects is institutionalized similar to all other capital projects.

Example 2: City government manages the projects from start to finish

City and local bicycle or pedestrian coalition successfully prepare grant for funds to develop bicycle plan.

City prepares active transportation master plan concurrent with subregional Active Transportation Plan at Council of Government level. City's plan is adopted by City Council.

Single grant source (e.g., Metro Call for Projects or State Active Transportation Plan) is successfully obtained to fund implementation of bicycle and pedestrian facilities, bicycle parking, and wayfinding.

Implementation of all components occurs upon receipt of grant funds from single source.

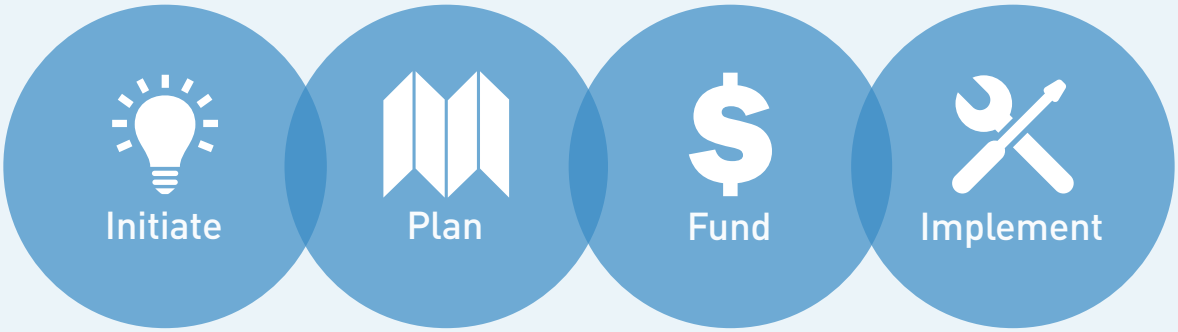
Cyclists of all ages attend Tour de Downey as part of the Bicycle Master Plan effort

Downey Bicycle Master Plan

The development of the Bicycle Master Plan came as part of an effort by the City of Downey to address local and regional desires to enhance the viability of bicycling as a mode of transportation and reduce transportation system impacts on local communities. The City of Downey General Plan, adopted in 2005, identifies active modes of transportation such as bicycling as a way to mitigate congestion and advance livable communities. The process to develop the Bicycle Master Plan began in May 2014. Grant funding secured through this process will include all of the Bicycle Master Plan's Phase I projects, including 16 miles of bike lanes, approximately 100 bike racks, and wayfinding. All of these components will enhance access to commercial areas and the Lakewood Boulevard Green Line Station.

Maintaining the program: In July 2015, City Council adopted the Plan, which allowed the City to expand its funding efforts. It has since been recommended for a Metro Grant award of $2.3 million for implementation.

Example 3: City government initiates and plans, then implements utilizing existing programs or as funding is available



City successfully prepares grant for funds to develop bicycle and pedestrian plan.

City prepares active transportation master plan absent subregional Active Transportation Plan. City's plan is adopted by City Council.

City transportation dollars and multiple grant sources (e.g., Metro Call for Projects and State Active Transportation Plan) are successfully obtained to fund implementation of bicycle and pedestrian facilities.

Implementation of facilities occurs as resources allow (such as roadway restriping) and as grants are received.

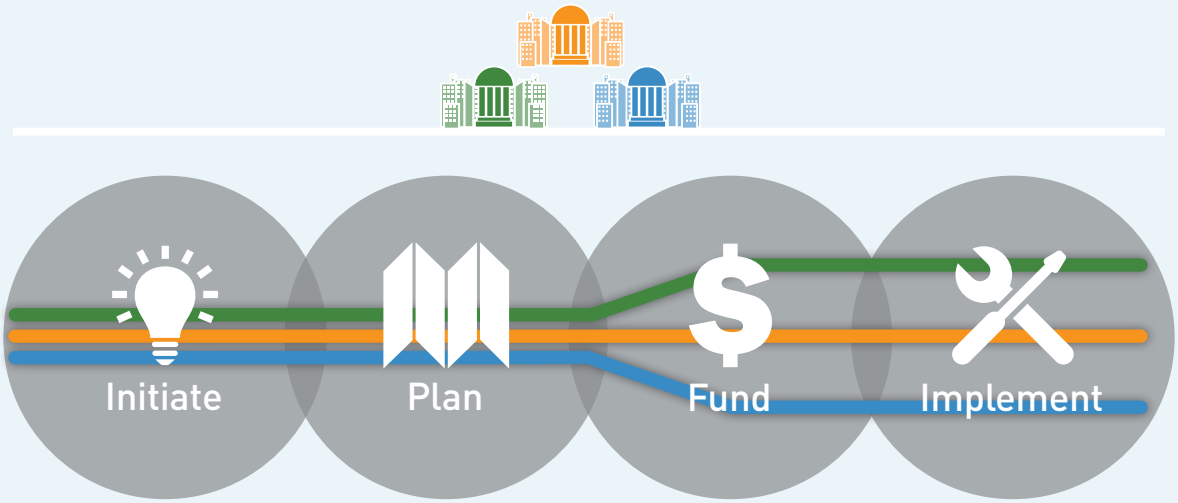
Pomona's Active Transportation Plan supports pedestrian and safe routes to school initiatives.

Pomona Active Transportation Plan

The City of Pomona embarked on developing its first Active Transportation Plan (ATP) in 2012, which includes a complete Bicycle Master Plan combined with targeted pedestrian and safe routes to school planning efforts. It was approved along with a General Plan amendment, Corridors Specific Plan, Green Plan and environmental impact study by City Council in March 2014.

Maintaining the program: Moving forward, the City of Pomona is considering "big-picture" ways in which the plan can now be implemented, as well as securing additional funding.

Example 4: Multiple cities initiate and coordinate, with each city obtaining its own funding and implementing separately



Multiple cities and/or agencies partner to plan and implement regional facility that connects multiple cities.

Project may be planned based on projects in local or regional plans. Projects may close gaps between existing facilities, or reflect jointly-planned new projects depending on each city's needs and capabilities.

Funding a project that is included in a local or regional plan will make it more competitive for grant funding. Jointly-planned new projects may require use of agency funds.

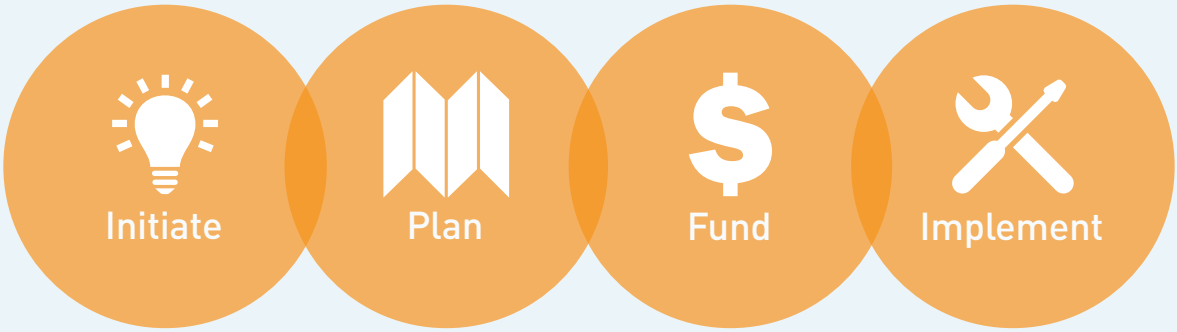
If cities jointly plan, fund, and implement the project with grant funding sources it may be done simultaneously or separately. Using agency funds is more likely to result in installation city by city.


Rosemead Blvd Cycle Track

Lakewood Blvd/Rosemead Blvd Bike Facilities

Numerous jurisdictions are connected on Lakewood Blvd/Rosemead Blvd, from the San Gabriel Valley to Long Beach. The separated bikeway on Rosemead Blvd in Temple City began construction in 2013, improving conditions for bicyclists and pedestrians through streetscaping and separation from moving vehicle traffic. The project had a budget of $20.7 million, funded through local, state, and federal resources, including Metro's 2011 Call for Projects. Adjacent cities and others along Lakewood/Rosemead are exploring opportunities for regional coordination for a low stress facility spanning a significant portion of the region.

Example 5: Metro initiates and leads project in coordination with local jurisdictions



Elected officials, Councils of Government, and/or the community partners with Metro to investigate the feasibility of an active transportation corridor along an under utilized Metro-owned right-of-way.

Metro develops a feasibility study with conceptual designs and generates support. The study identifies the value of multi-modal mobility elements throughout the corridor and benefits to the community, safety, connectivity to transit/light rail corridors and employment.

The feasibility study provides information needed for various grant opportunities and a framework to further refine the project scope and cost estimates. Metro leverages in-kind and local match dollars to successfully obtain federal and state grant funding to design and construct the project.

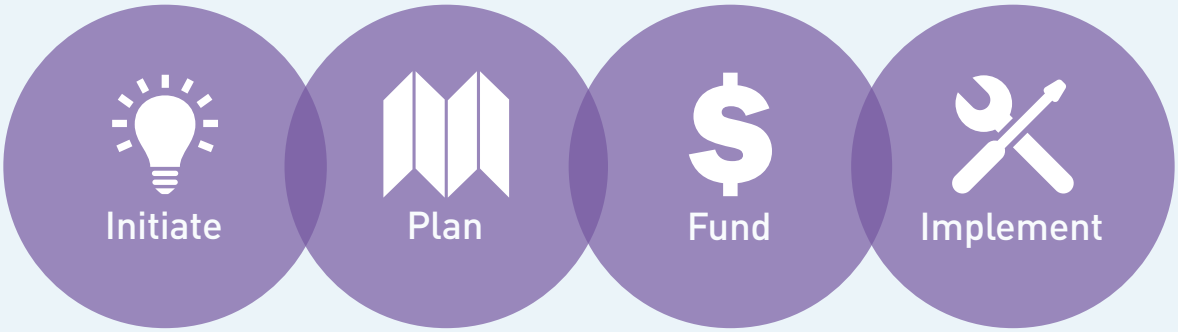
Metro continues to work with federal, state, and local partners, including elected officials, Councils of Government, local jurisdictions and community stakeholders, to further plan, design, and construct the project.

Photo-rendering shown at community meeting for the Rail-to-River Project

Metro Rail to Rail/River Active Transportation Corridor Project

The Rail to Rail/River Active Transportation Corridor Project will serve communities to the south and west of downtown LA by connecting two Metro Rail lines (Crenshaw/LAX and Blue Line) and the Harbor Busway to the LA River bike path which will eventually run 51 miles from the West San Fernando Valley to Long Beach. Metro is taking the lead on this complex active transportation project developed largely on Metro-owned right-of-way, requiring coordination with the BNSF railroad, the County of Los Angeles, and the cities of Bell, Huntington Park, Los Angeles, Maywood and Vernon.

Example 6: Community members, non-profit organization, and city partner for initiation through implementation



Stakeholders such as community members, Councils of Government, or non-profits initiate requests or planning for features such as bicycle repair hubs or fix it stations.

The city works with stakeholders to provide support in planning specifics such as location, goals, and intended use.

The city and stakeholders partner to identify and pursue funding sources to implement and maintain the desired amenities.

The city and stakeholders may partner on implementation and operation, or identify an entity to implement and run the program/ project.

Santa Monica Bike Center

Santa Monica Bike Center

The Bike Center is a City-owned facility that is privately operated, and exists as a part of Santa Monica's comprehensive Bike Action Plan adopted in 2011. The Bike Center provides bike rentals, secure bike parking, showers, locker rooms, education courses, and specialty rides such as those for senior citizens.

INNOVATIONS

The preceding section provides several examples, based on planned or completed projects, of how the planning process and resources available can be used among local stakeholders, elected officials, city staff, funding agencies, and regional partners to plan and implement active transportation projects. However, project planning, implementation, and associated processes can vary widely from community to community and project to project; therefore, the steps or strategies in the previous examples may be combined, expanded, or left out altogether depending on the local context and needs. While these are models used to successfully plan and implement projects, it is important to recognize that there is no "one size fits all" approach. The following innovations are described to provide more information regarding how approaches may be further modified to achieve project goals.

Innovation 1: Capacity Building with Metro

This route to implementation is a variation of examples 4 and 5 from the previous section. Under those examples, regional projects are initiated, planned, funded, and implemented entirely by the cities or Metro. One innovation that may emerge as a result of the ATSP recommended networks is for a project to be initiated by Metro and for Metro to play a greater role through the planning and funding stages for projects that span multiple cities or communities and connect employment centers, educational institutions, and transit operations. Most of the implementation would continue to be under the purview of the local jurisdictions. Corridors such as Vermont Avenue, Imperial Highway, Washington Boulevard, and Crenshaw Boulevard are examples of corridors that either are related to a variety of on-going studies (transit, freeway, and active transportation studies) and/or provide significant regional connections between major employment or residential concentrations and transit facilities.

- Initiate: *A corridor with a proposed local or regional bicycle or pedestrian facility may emerge as a key corridor for implementation because of the potential benefits to the users of the regional active transportation network or synergies with other projects underway.*
- Plan: *Playing a greater role, Metro could take the lead in organizing key government agencies and other implementers for communities along the corridor and provide technical assistance to those jurisdictions for planning the facility and pursuing funding for implementation.*
- Fund: *Metro would have involvement throughout the process, for instance providing assistance in preparing grant applications so that the various cities can secure funding through competitive sources and assemble multiple funding sources, if necessary.*
- Implement: *Two key outcomes of this innovation are implementation of projects for walking, biking, and rolling and building the capacity of local municipalities to replicate the process with or without Metro's assistance for the build out of local and regional active transportation networks.*

Innovation 2: Metro Exemplifies a Program Incubated by Stakeholders

This route to implementation is a variation of example 5. Under this innovation, local stakeholders would play a greater role in planning and implementing the project, and a successful undertaking would likely lead to the project's maintenance and on-going funding being transferred to local agencies, as opposed to staying at the community level. One example of a project that has generally followed this approach is Open Streets, which are temporary one-day events that close the streets to automotive traffic and open them to people on foot or bicycle. This project began at the local stakeholder level and has become a countywide program with a dedicated funding source at the regional level. Many cities have also taken it upon themselves to hold and fund smaller, local events.

CicLAvia Los Angeles

- Initiate: *A community stakeholder, such as a non-profit organization, resident, or elected official, initiates a program or a project based on a local desire or unmet need. The initiation process could include identifying a project, affected stakeholders, and a strategy for assembling partners, informing the community, and obtaining the needed resources.*
- Plan: *While planning a project or event, the initiating entity would need to conduct outreach and develop project details required to pursue funding and move toward implementation. For something like an open streets event, this could include determining a route, developing traffic operation and control plans, outreaching to residents and businesses affected by the event, identifying funding sources, advertising the event, working with governmental agencies to have them as partners, and securing any needed permits. City support in planning and pursuing funding would improve the likelihood of finding a viable funding source and may assist stakeholders with the capacity to administer grant funding.*
- Fund: *Depending on the project/event type, this phase may be the most challenging and may depend on effective planning that identifies a broad range of supporters and benefits to the local community. If initiated by a local non-profit, for example, it is likely that the group would require additional funding support. Currently, cities interested in hosting an Open Streets event can submit an application for funding to Metro when the grant cycle is open. Metro and local cities are currently the two main sources used for funding open streets events. However, when the first Open Streets, or CicLAvia, event was held in Los Angeles, this funding source did not exist and the planners of that event pursued funding from a variety of sources. This model should be encouraged to sustain long-term sustainability.*
- Implement: *Implementation of these projects are key to demonstrating their benefit and long-term viability. Under this option, implementation would be a partnership between the initiating stakeholder(s) and the City. If the project is successful in the long-run, the duties initially taken on by local stakeholders may be assumed by governmental agencies in an effort to increase the size and frequency of events at the local or regional level.*

Innovation 3: Working with Community-Based Groups

In addition to planning and funding infrastructure, support programs and events are critical elements of active transportation planning that should not be forgotten, since they are critical to building political will and public support to help implement walking and bicycling facilities. This route to implementation can be seen as a complement to all five of the routes discussed previously. Under this innovation, local stakeholders would take the lead, with coordination and support from governmental agencies, in developing programs alongside the planning and implementation of active transportation infrastructure. A number of non-profits have educational curricula, staff, and a variety of funding sources that they pursue to conduct programs related to the other E's (education, encouragement, enforcement, and evaluation) such as outreach, walking/biking skills classes, community based walking audits, and pedestrian/bike count data collection. This innovation identifies ways that stakeholders and agencies can partner to avoid duplicating efforts and enjoy the synergies between the engineering aspect of implementing facilities and the other E's, to promote safe and regular use of active transportation infrastructure through additional engagement of stakeholders. This example will focus on using the annual count program that the Los Angeles County Bicycle Coalition (LACBC) organizes as a model.

Volunteer at PopUp MANGo Event

> Initiate: *An external stakeholder, such as a local non-profit or community-based organization, initiates the planning of a program or effort such as count data collection. Initiation of this activity should include the local agency as a partner and can occur simultaneously with the development of a plan or the implementation of infrastructure for walking and biking.*

> Plan: *Planning a data collection program would be based on serving the effort being undertaken by the local agency. For example, if a cycle track is being implemented by a local city, a local stakeholder might conduct outreach to businesses and residents along the corridor to explain how the facility is being implemented and some of the associated tradeoffs and benefits. This could be followed by educational materials and classes targeting all roadway users to explain how the facility operates and the rights and responsibilities of all roadway users. Finally, this group may also plan a ride, collect pedestrian and bicycle data, and organize other events in the community to raise awareness of the project, evaluate how it is being used, and pursue additional implementation of infrastructure as desired by the local community.*

> Fund and Implement: *Funding and implementation would be led by the local stakeholder group with support from the City and other regional partners. The LACBC count program is largely a volunteer effort; however, as data collection needs grow for new projects and funding sources, support from sponsors and agencies are needed to organize the event, provide training and materials, and produce a document or product that shares the data collected and relevant findings.*

REGIONAL CORRIDOR EXAMPLES

Building on feedback regarding challenges and opportunities around the steps outlined in the Routes to Implementation section, this section demonstrates how those processes can be put into practice by collecting data, analyzing existing conditions, reviewing plans and proposals at the local (City plans) and regional (COG, SCAG, Metro) levels, and selecting from the regional network and low-stress treatment options to meet local needs and desires for active transportation projects.

Imperial Highway

South Bay and Gateway Cities Sub-regions

Initiate

> Proposed as a dedicated on-street facility in the ATSP

> Identified in the South Bay Subregional Mobility & Gateway Cities Subregional Mobility Matrix/Project Lists

> Based on local community goals, plans and preferences, agencies may need to coordinate on the consideration of alternative facility types or corridors for implementation

Plan

> Two segments in South LA/ Watts included in the High Injury Network

> Major facilities represent a significant challenge to regional connectivity via active transportation

> Connects with I-105, I-405, I-110, I-710, I-5, I-605

> Connects with Metro Rapid Lines 740, 710, 757, 754, 745, 760, 762, Metro Green Line, Silver Line, Blue Line

> A low stress bicycle facility on an arterial such as Imperial Hwy would include protected or buffered on-street bike lanes

> A low stress bicycle facility through the South Bay sub-region could include slow lanes that accommodate bicycles and Neighborhood Electric Vehicles

> Include connectivity and wayfinding along corridor to/from local and regional facilities and activity sites

> Shade and ADA issues should be addressed to improve the streetscape

> Provide ancillary facilities to support active transportation along the corridor, including bike parking, sidewalk improvements, and street crossing enhancements

Fund

> To be most competitive for funding, regional cooperation is needed amongst cities and COGs, Metro ATSP, local advocacy groups and state and regional funding agencies

Implement

> California Active Transportation Program (ATP) Cycle 2 grants were awarded in October 2015. Future projects should be planned to be consistent with previous ATP grant cycle application requirements

Vermont Avenue

South Bay and Central Los Angeles Sub-regions

Initiate

> Proposed as a dedicated on-street facility in the ATSP

> Identified in the South Bay Subregional Mobility & Central Subregional Mobility Matrix/Project Lists

> Based on local community goals, plans and preferences, agencies may need to coordinate on the consideration of alternative facilities or implementation options

Plan

> A large segment of Vermont Ave., from Manchester Ave. to Franklin Ave., is included in the High Injury Network

> Traverses South Bay and Central Los Angeles sub-regions

> Connects with I-405, SR-91, I-105, I-10, US 101

> Connects with Metro Rapid Lines 754, 705, 740, 728, 730, 733, 720, 704, 780, Metro Green Line, Expo Line, and Red/Purple Lines

> A low stress bicycle facility on an arterial such as Vermont Ave. would include protected or buffered on-street bike lanes

> Include connectivity and wayfinding along corridor to/from local and regional facilities and activity sites

> Shade and ADA issues should be addressed to improve the streetscape

> Provide ancillary facilities to support active transportation along the corridor, including bike parking, sidewalk improvements, and street crossing enhancements

Fund

> To be most competitive for funding, regional cooperation is needed amongst cities and COGs, Metro ATSP, local advocacy groups and state and regional funding agencies

Implement

> California Active Transportation Program (ATP) Cycle 2 grants were awarded in October 2015. Future projects should be planned to be consistent with previous ATP grant cycle application requirements

San Fernando Road / Colorado Blvd. / Huntington Dr.

San Fernando and San Gabriel Valley Sub-regions

Initiate

> Proposed as a dedicated off-street facility in the ATSP

> Identified in the San Fernando Valley Subregional Matrix/Project List

> Based on local community goals, plans and preferences, agencies may need to coordinate on the consideration of alternative facilities or implementation options

Plan

> San Fernando Road: Several segments in the northeastern San Fernando Valley included in the High Injury Network

> Colorado Blvd./Foothill Blvd.: High Injury data only available within City of Los Angeles; portions of other major corridors across LA County may also have high injury rates

> Connects with I-5, I-210, SR-118, SR-134, SR-2, I-605

> Connects with Metro Rapid 794, 761, 734, Metrolink, and the Metro Gold Line

> A low stress off-street bicycle facility on an arterial such as San Fernando Road could include a Class I bike path or a new Class IV cycletrack

> A low stress bicycle facility on Colorado Blvd./ Foothill Blvd. would include protected or buffered on-street bike lanes

> Include connectivity and wayfinding along corridor to/from local and regional facilities and activity sites

> Shade and ADA issues should be addressed to improve the streetscape

> Provide ancillary facilities to support active transportation along the corridor, including bike parking, sidewalk improvements, and street crossing enhancements

Fund

> To be most competitive for funding, regional cooperation is needed amongst cities and COGs, Metro ATSP, local advocacy groups and state and regional funding agencies

Implement

> California Active Transportation Program (ATP) Cycle 2 grants were awarded in October 2015. Future projects should be planned to be consistent with previous ATP grant cycle application requirements

Sub-Regional Project with Regional Significance

Various Sub-regions

Initiate

> Proposed as a designated active transportation improvement in the ATSP or local planning documents

> Identify projects from Sub-regional Mobility Matrices/Project Lists

> Based on local community goals, plans and preferences, agencies may need to coordinate on the consideration of alternative facilities or implementation options

Plan

> Connects with several corridors planned as dedicated on-street active transportation facilities

> Connects through major highways and regional transit facilities

> Overcomes regional barriers such as water features or topography

> Addresses first last mile challenges when accessing transit facilities

> A low stress bicycle facility could include various on- or off-street options, including a Class I bike path, a Class IV cycletrack, or a Class II protected/buffered bike lane

> Include connectivity and wayfinding along corridor to/from local and regional facilities and activity sites, including transit stations/centers, educational facilities, recreational facilities, institutional/government facilities and high employment and commercial centers

> Provide ancillary facilities to support active transportation along the corridor, including bike parking, sidewalk improvements, and street crossing enhancements

Fund

> To be most competitive for funding, regional cooperation is needed amongst cities and COGs, Metro ATSP, local advocacy groups and state and regional funding agencies

Implement

> As funding becomes available, coordinate between cities, sub-regions, and COGs to implement project cohesively

COST ESTIMATES

An important aspect of active transportation planning and infrastructure development is understanding the resources required to develop a robust active transportation network that serves the County's varied user types and trips. Metro has been working to develop an estimate of the cost to build-out the active transportation network and incorporate a funding strategy to help partners in the region obtain dollars for planning and implementation. With an emphasis on developing a safe, low-stress network that suits users of all ages and abilities for both local and regional travel, an estimate is provided below for building out a high-quality network throughout the county. For additional detail on how these estimates were developed, please see Appendix G. The costs are presented in Table 3.1 as a low-medium-high range, based on increasing magnitude of project and, therefore, cost. The ATSP will focus primarily on the regional active transportation network and first last mile access to major transit stops and stations in the County; therefore, the cost to implement improvements identified in the ATSP would be less than the total countywide active transportation needs mentioned in Table 3.1. Local active transportation networks that connect to local desinations are not the focus of the ATSP. However, estimates of annual needs for these local active transportation facilities are provided in Table 3.1 for informational purposes.Cost savings may be obtained from changes in policies that support greater and more integrated multi-modal transportation planning and implementation and by using a Complete Streets approach.

Bike racks on the front of a Metro bus help with first last mile access

Table 3.1: High-Level Estimate of Annual Active Transportation Needs in Los Angeles County

Description	Cost [1]		
	Low	*Medium*	*High*
Total Active Transportation Network - Annual Capital Costs [2]	**$698,245,426**	**$1,013,418,783**	**$1,613,352,965**
First Last Mile Access to Major Transit Stops/ Stations [3]	$347,306,213	$468,699,344	$604,622,152
Regional Active Transportation Network [4]	$4,714,147	$75,811,137	$396,667,117
Local Active Transportation Networks [5]	$346,225,067	$468,908,301	$612,063,696
Metro Bike Services - Annual Capital Costs [6]	**$1,068,100**	**$2,205,900**	**$3,496,500**
Metro Bike Services - Annual Operations and Maintenance [6]	**$13,635,000**	**$26,921,000**	**$40,016,000**
Education & Encouragement Programs - Annual Costs [7]	**$24,357,776**	**$30,010,552**	**$35,734,663**
Total Annual Cost Range	**$737,306,302**	**$1,072,556,235**	**$1,692,600,128**

Notes:

1. Costs are in 2015 dollars and not escalated. Cost estimates are subject to change based on further refinements and economic conditions.
2. Assumes total build out by 2035. Includes planning, design, engineering, environmental clearance, construction, and contingency costs. Cost range considers intensity of infrastructure improvement elements. Includes annual capital costs for first last mile access improvements to major transit stops/stations, regional active transportation network, and local active transportation network.
3. Includes first last mile active transportation improvements to 661 total station areas, which consist of existing and under construction Metro Rail, Metro Rapid, Metrolink, and high ridership local bus stops served by Metro and municipal transit operators. Each station area location may consist of multiple bus stops and rail stations that are close to each other - this enabled stops that are on opposite sides of the streets, rail stations that have bus stops nearby, or stations that have more than one portal to be treated as one area rather than multiple areas with duplicative analysis.
4. Regional active transportation network consists of bikeways and mixed use paths that connect cities and communities, major destinations, and transit hubs. These include local projects with regional benefits.
5. Local active transportation networks provide connections to local destinations and feed into the regional network.
6. Metro bicycle services include bike share and secure bike parking, such as bike hubs, lockers, and racks. Cost range considers scale of services.
7. Cost range considers scale and intensity of activities for Metro-sponsored Adult Bicycle Safety Skills Classes, Metro sponsored community rides, Metro Open Streets grant program, and Safe Routes to School non-infrastructure programs at public schools, which may be implemented by local municipalities or other external stakeholders.

FUNDING STRATEGIES

With an understanding of the financial resources needed to develop world-class infrastructure for Los Angeles County, a funding strategy that accounts for this need helps the region compete for resources at all levels, including local, regional, state, and federal, as well as public-private partnerships or other private sector entities. There are many ways this issue can be examined, beginning with two key questions:

> How much would the county need to spend annually to build out this infrastructure in 20 years or 40 years?

> At the county's current annual spending levels, how many years would it take to build out this infrastructure?

Table 3.2 provides the estimated expenditures needed to build out the full active transportation network within 20 years and within 40 years.

The ATSP identifies a number of funding sources and opportunities to achieve implementation, including leveraging existing resources; better positioning partners for local, regional, state, and federal grant funding opportunities; involving the private sector; coordinating among multiple jurisdictions; identifying partnership opportunities among various entities; and using a Complete Streets approach to transportation planning and implementation. In addition, Metro is considering a ballot measure for November 2016 that could provide additional funding for active transportation, including a two-percent set-aside for the Regional Active Transportation Program, with approximately half of those funds allocated for projects that will be consistent with the ATSP. The ballot measure also includes 16% allocation for local return, which can be used for active transportation projects. There are several changes the Metro Board may wish to consider to align existing funding sources to better support active transportation projects in Los Angeles County. Below are recommendations to policy changes that may increase Metro's ability to finance and deliver active transportation projects to meet the equity, mobility, and sustainability goals of the agency. Tables 3.3 through 3.8 provide additional information about the funding sources mentioned here.

> Update Proposition A, C, and Measure R Local Return Guidelines to align with the Metro Board-adopted 2009 Long Range Transportation Plan, Metro First Last Mile Strategic Plan, Metro Complete Streets Policy, and the Active Transportation Strategic Plan, consistent with any constraints in the ordinance language;

> Update Proposition C 10% and Proposition C 25% Guidelines to align with the Metro Board-adopted 2009 Long Range Transportation Plan and future Board-adopted updates, Metro First Last Mile Strategic Plan, Metro Complete Streets Policy, and the Active Transportation Strategic Plan;

> Increase proportion of Call for Projects funding reserved for the Bicycle, Pedestrian, and Transportation Demand Management Modes according to the needs identified in the ATSP in proportion to needs for other modes;

- Prioritize projects submitted for Call for Projects funding which implement projects and programs identified in the Metro Active Transportation Strategic Plan;
- Continue to use grant-writing technical assistance for Active Transportation Program (ATP), Affordable Housing and Sustainable Communities (AHSC) Program, Highway Safety Improvement Program (HSIP) and Transportation Investments Generating Economic Recovery (TIGER) to advance projects and programs identified in the ATSP and any future updates; and
- Consider providing grant-writing technical assistance for other existing funding sources, including "non-traditional funds" or new funds that may arise in the future (e.g., health-related grants, "parks and recreation"-related grants that may fund active transportation projects that support Metro's policy goals).

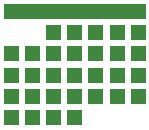


Table 3.2: Active Transportation Network Build Out within 20 years/40 years

Active Transportation Network build out estimate [1]	$20,300,000,000 [2]	
# of years for build out	20-year	40-year
Required yearly expenditures for Active Transportation network	$1,013,000,000	$506,700,000

Notes:

1. Includes first last mile access to major transit stops/stations, proposed Regional Active Transportation Network, and other local active transportation network.
2. Reflects the value of the medium cost estimate in the range provided in Table 3.1.

FUNDING SOURCES

Tables 3.3-3.7 contains the list of eligible fund sources for active transportation improvements in the county and controlled by various levels of government. It should be noted that while the total amount of funding available per year is shown, many of these fund sources are also currently used for other transportation needs in the County beyond active transportation. Due to finite resources that must be distributed across many transportation priorities, these needs exceed the existing funding sources available.

Table 3.3: Eligible Formula Local Funding Sources

Funding Source and Annual Amount [1] (approx.)	Description	Eligible Uses	Opportunities/ Constraints
Transportation Development Act (TDA) – Article 3 $7.5 million	2% of TDA Article 3 funds are allocated to local jurisdictions based 85% on population and 15% to City of LA and LA County to maintenance of regionally significant Class I bicycle facilities.	Bicycle and pedestrian facilities are eligible.	TDA Article 3 funds are directly allocated to local jurisdictions.
Proposition C 10% $75.2 million	10% Commuter Rail/Transit Centers/ Park-n-Ride – To increase mobility and reduce congestion by providing funds for Commuter Rail and the construction of Transit Centers, Park-and-Ride Lots, and Freeway Bus Stops. Allocated directly by the Metro Board to Metrolink and through the Metro Call for Projects process to other eligible agencies for specific eligible projects.	In terms of active transportation, access improvement projects are eligible as well as bicycle lockers and other improvements to Metrolink rail stations.	Bond debt service and commuter rail operations have first priority for these funds. Board action in June 2015 further restricted these funds to only be available to projects which directly benefit Metrolink operations. These funds may not be used to improve access to Metro Rail or Bus stations.
Proposition C 20% $150.4 million	20% Local Return – Distributed to cities on a per capita basis for public transit-related purposes.	Proposition C 20% Local Return can be used for Transportation Demand Management, commuter bikeways and bike lanes, and street improvements supporting public transit service.	Declines in gas tax subventions from the state have led to cities using a larger portion of Local Return for street maintenance.
TDA Article 8 $22 million	For areas within LA County not served by Metro, North County unincorporated area, Palmdale, Lancaster, Santa Clarita, and Avalon. Allocated to the eligible local jurisdictions based on population. Requires annual public hearings.	Transit and paratransit programs to fulfill unmet transit needs in areas not served by Metro.	If there are no unmet transit needs, may be used for street and road improvements.

Table 3.3: Eligible Formula Local Funding Sources (Continued)

Funding Source and Annual Amount [1] (approx.)	Description	Eligible Uses	Opportunities/ Constraints
Proposition C 25% $188.0 million	25% Transit-related Improvements to Freeways and State Highways and Public Mass Transit Improvements to Railroad Rights-of-Way – To provide essential countywide transit-related improvements to freeways and State highways. To facilitate transit flow, the operation of major streets and freeways will be improved by providing preference and priority for transit.	In terms of eligible active transportation projects, transportation demand management, Class I and Class II bicycle facilities, roadway improvements which support transit use, like first last mile improvements are eligible.	Bond debt service has first priority for funds. The majority of these funds are assumed to be programmed to rail and HOV projects. The balance is typically allocated through the Metro Call for Projects.
Measure R 15% $112.8 million	15% Local Return - Distributed to the incorporated cities within Los Angeles County and the County of Los Angeles for the unincorporated area of the County on a per capita basis.	Major street resurfacing, rehabilitation, reconstruction, bikeways, pedestrian improvements, streetscapes, and other active transportation improvements.	Declines in gas tax subventions from the state have led to cities using a larger portion of Local Return for street maintenance.
Repayment of Capital Project Loans Fund 3562 $ variable	Metro established the Repayment of Capital Project Loans (fund 3562) to account for capital reimbursements from the State for advances that Metro made in lieu of capital project funding that the State could not provide on the originally programmed schedule.	The Long Range Transportation Plan (LRTP) assumes that these funds must be used for capital purposes only and are allocated at the discretion of the Metro Board.	This source is typically used to cover cost increases on rail projects which are under construction. This fund source can also be programmed in the Metro Call for Projects when other eligible funds are not available.
Metro ExpressLanes Net Toll Revenue Grant Program $ 19.6 million (Cycle 1)	The objective of the Program is to increase mobility and person throughput through a series of integrated strategies (transit operations, transportation demand management, transportation systems management, active transportation, and capital investments) in the I-10 and I-110 corridors.	First last mile connections to transit facilities, focusing on multimodal elements recommended as part of the First Last Mile Strategic Plan including investments that might support 3rd party mobility solutions (car-share, bike-share), complete streets projects which emphasize multi-modalism, bicycle infrastructure including bicycle lanes and secured bicycle parking facilities, and pedestrian enhancements including on/off-ramp safety improvements.	This source is flexible, but limited by Board policy to areas within three miles of the ExpressLanes facilities. Funding for this program is subject to availability of net toll revenue.

Table 3.4: Eligible Formula State Funding Source [2]

Funding Source and Annual Amount [1] (approx.)	Description	Eligible Uses	Opportunities/Constraints
Regional Improvement Program $ variable	Regional Improvement Program – 75% of State Transportation Improvement Program Funds are distributed to the counties and RTPA's.	Capital projects including bicycle, pedestrian projects, safety projects, TDM, and intermodal facilities.	Funding from this source has been limited and volatile due to inflation and legislative and market changes in the price of gasoline and the taxes on gasoline.

Table 3.5: Eligible Competitive State Funding Sources

Funding Source and Annual Amount [1] (approx.)	Description	Eligible Uses	Opportunities/Constraints
Active Transportation Program (ATP)[3] $120 million available statewide $33 million available to LA County	The Active Transportation Program is a consolidation of five previous programs which funded active transportation. This program is exclusively devoted to funding active transportation projects, particularly those that improve health and safety, benefit disadvantaged communities, and promote increased use of active modes.	Bicycle and pedestrian improvement project, Safe Routes to School, bicycle and pedestrian planning, non-infrastructure projects, safety and encouragement campaigns. Highest priority projects demonstrate ability to increase walking and biking, improve health and safety, reduce GHG, and ensure benefit to disadvantaged communities.	Projects are selected based on a statewide as well as regional competition. Funds are now programmed several years out and are not available for immediate active transportation needs. Metro has provided ongoing technical grant-writing assistance to local municipalities to compete for this funding source.
Affordable Housing and Sustainable Communities (AHSC)[3] $ is 20% of overall Greenhouse Gas Reduction Fund	Supports reduction of GHG emissions by improving mobility options and increasing infill developments. Funds are administered by the Strategic Growth Council.	Active transportation and complete streets that are linked to affordable and infill developments.	Active transportation improvements must be linked to an affordable housing development.
Transit and Intercity Rail Capital Program (TIRCP) $ is 10% of overall Greenhouse Gas Reduction Fund	Administered by Caltrans in collaboration with California State Transportation Agency (CalSTA). The TIRCP provides grants for capital improvements and operational investments that modernize California's transit system.	Active transportation projects are eligible as project elements.	Funds are typically reserved for bus or rail projects. However, bicycle and pedestrian improvements are eligible project expenses as long as they are part of a transit expansion or modernization project.

Table 3.6: Eligible Formula Federal Funding Sources [4]

Funding Source and Annual Amount [1] (approx.)	Description	Eligible Uses	Opportunities/Constraints
Congestion Mitigation and Air Quality Improvement Program (CMAQ) $138 million	An FHWA program. CMAQ funds are used for projects and programs which have a demonstrable impact on reducing criteria pollutants and relieving congestion. Funds are allocated based on weighted population formula, which takes into account air pollution severity, and are typically awarded through the Metro Call for Projects.	Bicycle, pedestrian, and TDM projects are eligible so long as they can demonstrate air quality benefits.	Funds from this source are typically allocated to rail expansion, HOV projects, and rail operation start-up. A limited amount of CMAQ is also programmed through the Metro Call for Projects to the Bicycle, Pedestrian, and Transit Capital modes. Projects must clearly demonstrate air quality benefits. Landscaping and street furniture are not eligible.
Regional Surface Transportation Program (RSTP) $81.6 million	An FHWA program. A flexible funding source which is apportioned to states on a per capita basis. Metro programs LA County's share to LRTP projects or through the Metro Call for Projects.	Bicycle, pedestrian, and TDM projects	Funds from this source are currently used primarily to operate Access Services as well as some highway and transit projects.
Surface Transportation Program – Local (STP-L) $31.7 million	Part of RSTP. Metro allocates $31.7 million per year of RSTP	Bicycle, pedestrian, and TDM projects; typically used for rehabilitation and maintenance	Funds from this source are apportioned to each municipality by population. Municipalities are responsible for selecting projects under this program.
Federal Transit Administration (FTA) Grants Section 5307 - $247.1 million Section 5310 - $0.4 million Section 5311 - $0.18 million Section 5337 - $84.5 million Section 5339 - $24.8 million	FTA MAP-21 programs.	Active transportation projects must meet the following criteria: 1) Be elements of a larger transit project. 2) Be within a 3-mile bikeshed or a 1/2-mile walkshed of a transit station. 3) Enhance economic development or incorporate private investment; effectiveness of public transit project, or establish new or enhanced coordination between public transit and other transportation; and provide a fair share of revenue for public transit.	Use of these funds for active transportation requires showing connectivity and a demonstrable benefit to the transit system (i.e., attracting new riders). Use of these funds is likely easier for new transit projects than existing transit facilities due to high FTA threshold.

Table 3.7: Eligible Competitive Federal Funding Sources

Funding Source and Annual Amount (approx.)	Description	Eligible Uses	Opportunities/Constraints
Highway Safety Improvement Program (HSIP) $2.4 billion available nationwide	An FHWAY MAP-21 program. The program purpose is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.	Any strategy, activity, or project on a public road with the data-driven State Strategic Highway Safety Plan (SHSP) and corrects or addresses a highway safety problem. Funds are administered by the state.	Projects must be identified in the SHSP.
Transportation Investment Generating Economic Recovery (TIGER) $500 million available nationwide	A competitive grant program for surface transportation capital project	All bicycle and pedestrian projects.	This is an extremely competitive grant program. Projects will need to demonstrate economic value as well as multi-modal transportation improvements.
Federal Transit Administration Section 5309 $ variable	A component of the New Starts program. A discretionary grant program from the Federal General Fund. Maximum Federal share is generally 80%.	See eligible uses under FTA Section 5307.	See opportunities/constraints under FTA Section 5307.

Notes:

[1] Amount shown is after administrative costs.
[2] Eligibility and available funding amounts of state funds may have changed due to passage of the new federal transportation bill, the FAST Act.
[3] ATP and AHSC funds are not directly controlled by Metro. However, Metro has provided grant assistance for recipients and has received ATP and AHSC funding for Metro-sponsored projects.
[4] Federal amounts reflect MAP-21 funding levels. Amounts will be updated once the FAST Act and state enabling legislation are analyzed.

PERFORMANCE METRICS

Various transportation modes in Downtown Los Angeles

Progress toward the goals and objectives of this Plan can be measured by performance metrics that capture how much implementation activity is occurring and how this implementation activity is affecting the quality of life across the county. Both types of metrics are important to track so that Metro has an understanding of the broader trends that may influence or be influenced by Metro's active transportation investments.

The tables on the following pages include the set of performance metrics to measure the performance of this Plan. These metrics are based on the goals and objectives described in Chapter 1, informed by stakeholder input; aligned with national best practices from two key national sources of guidance, the National Complete Streets Coalition and the National Association of City Transportation Officials; and by a review of "cutting edge" peer agencies[1]. A number of these metrics are optimal for the county level, so Metro and partner agencies can understand the effects of active transportation investments across the county, as shown in Table 3.8. Tracking at the countywide level is critical as some metrics may see an exponential effect – where the observed increases or decreases are greater than the sum of the activity occurring right around the project location. The benchmarks are set as an opportunity for Metro to be a leader in the field of active transportation planning. They are specifically tied to the context of Los Angeles County in terms of current baseline. The horizon year of 2025 was selected for most of the potential benchmarks because the ten-year horizon is generally the time frame in which active transportation plans are refreshed and updated, and would be a good point to revisit these targets. This time frame would allow Metro and partner agencies to track the implementation of active transportation projects and evaluate the performance of those projects against the baseline and benchmarks. Other metrics are more appropriate to be collected and tracked at the project level, to understand the localized impact of specific improvements for people walking and bicycling. Each performance metric includes a baseline and a benchmark, reflecting where we are today (or the most recent data available) and where we want to be by 2025 and 2035, using measurable targets. The full process of developing these metrics is described in Appendix F.

Finally, there are a number of other performance measure initiatives at Metro taking place concurrently to this Plan. These include the performance measures under review for the upcoming Long Range Transportation Plan update, those set forth by the Metro Countywide Sustainability Planning Policy and Implementation Plan, and those to be included in an upcoming Metro Quality of Life project. Where possible, Metro will streamline data collection and avoid duplication of efforts, as many of the types of data recommended for these various efforts are very similar.

[1] *Peer agencies reviewed included San Francisco Bay Area Metropolitan Transportation Commission, San Francisco Metropolitan Transportation Authority, Oregon Metro, Puget Sound Regional Council, New York City, City of Seattle, City of San Luis Obispo, City of Los Angeles, and City of Santa Monica.*

PERFORMANCE METRICS AT THE COUNTYWIDE LEVEL

Table 3.8: Performance Metrics Collected at the Countywide Level

Performance Metric	Initial Baseline (2015)	Potential Benchmark	Available Data Sources
Number and percent bicycle-to-transit[1]	4% (Rail) 3% (Bus)	100% increase by 2025	Metro On-Board Surveys
Number and percent walk-to-transit	68% Walk (Rail) 4% Skated (Rail) 83% Walk (Bus) 2% Skated (Bus)	10 percentage point increase (walk to rail) by 2025 5 percentage point increase by 2025 (walk to bus)	Metro On-Board Surveys
Percent of all trips completed by bicycle in Los Angeles County	1.4% Bike	100% increase by 2025	2009 National Household Travel Survey
Percent of all trips completed by walking in Los Angeles County	17.6% Walk	50% increase by 2025	2009 National Household Travel Survey
Means of transportation to work	3.8% Combined Bike + Walk (0.9% Bicycle, 2.9% Walk)	100% increase by 2025 in combined Bike + Walk	2013 American Communities Survey 5-Year Estimate
Miles of installed bicycle facilities, by class	2014: Class IV = 6 miles (2015) Class III = 614 miles Class II = 1,046 miles Class I = 341 miles	100% increase per year for class IV 10% increase per year for each class I, II and III	Self-reported by jurisdictions

Table 3.8 (continued)

Performance Metric	Initial Baseline (2015)	Potential Benchmark	Available Data Sources
Metro capital funding allocated to bicycle/pedestrian improvements	To Be Determined	To Be Determined	Self-tracked/self-reported by Metro
Percent of bicycle/ pedestrian improvement projects funded by Metro capital funding that benefits a disadvantaged community[2]	n/a	50% per funding cycle	Self-tracked/self-reported by Metro
Number of station areas receiving Metro capital funding or external funding allocated to bicycle/pedestrian access improvement treatments	To Be Determined	100% of 661 station areas served by 2030	Self-tracked/self-reported by Metro
Number of station areas with completed bicycle/ pedestrian access improvement treatments funded by Metro capital funding or external funding	To Be Determined	100% of 661 station areas served by 2035	Self-tracked/self-reported by Metro
External (non-Metro) discretionary grant funding won within LA County for active transportation projects	To Be Determined	Proportional to LA County population or greater	Self-reported by jurisdictions and implementing agencies

Notes:

1. *Because the percent of transit riders who walk or bike to transit is already very high, it is critical to also collect the number of riders who walk or bike to a station, so that net ridership increases are captured in addition to any increase in walk-or-bike-to-transit ridership.*

2. *For the purposes of this ATSP, Disadvantaged Community is characterized as one of the following: The median household income is less than 80% of the statewide median based on the most current census tract level data from the American Community Survey, an area identified as among the most disadvantaged 25% in the state of California according to the CalEPA and based on the latest version of the California Communities Environmental Health Screening Tool (CalEnviroScreen) scores, or at least 75% of public school students in the project area are eligible to receive free or reduced-price meals under the National School Lunch Program.*

Table 3.8 (continued)

Performance Metric	Initial Baseline (2015)	Potential Benchmark	Available Data Sources
Collision statistics (number by mode, percent by mode for severe injury and fatal crashes)	2012: Total Collisions=51,207 Total Injuries=50,622 Total Severe Injuries=2,300 Total Fatalities=585 Ped Collisions=5,024 Ped Injuries=4,821 Ped Fatalities=203 Bike Collisions=4,955 Bike Injuries=4,926 Bike Fatalities=29	Support benchmark of local municipalities with Vision Zero Policies Decrease overall collisions by 10% per year countywide	State-Wide Integrated Traffic Reporting System (SWITRS)
Greenhouse gas reductions	To Be Determined	Evaluate against forecasts and inputs	SCAG, Self-reported by implementing agencies

PERFORMANCE METRICS AT THE PROJECT LEVEL

Table 3.9: Performance Metrics Collected at the Project Level

Performance Metric	Initial Baseline (2015)	Potential Benchmark	Available Data Sources
Number and percent of people who walk	Baseline set by implementing agency before project implementation	100% increase by 2025	Self-reported by implementing agencies via pedestrian counts, Baseline available in the ATSP existing conditions analysis
Number and percent of people who bike	Baseline set by implementing agency before project implementation	100% increase by 2025	Self-reported by implementing agencies via bicycle counts, Baseline available in the ATSP existing conditions analysis
Number of households within ¼ mile of a low-stress bicycle facility	Baseline set by implementing agency before project implementation	Increase by 20% per year, countywide	US Census American Communities Survey, Self-reported by implementing agencies, Baseline available in the ATSP existing conditions analysis
Number of jobs within ¼ mile of a low-stress bicycle facility	Baseline set by implementing agency before project implementation	Increase by 20% per year, countywide	US Census American Communities Survey, Self-reported by implementing agencies, Baseline available in the ATSP existing conditions analysis
Number of destinations (schools, medical, parks, recreational, etc.) within ¼ mile of a low-stress bicycle facility	Baseline set by implementing agency before project implementation	Increase by 20% per year, countywide	Self-reported by implementing agencies; Baseline available in the ATSP existing conditions analysis

METRO PROGRAMS

Supportive non-infrastructure programs and policies can help build capacity and momentum to implement active transportation infrastructure projects. This section provides an overview of programs under the purview of Metro that support active transportation in the county. By developing infrastructure, policies, and programs, the region will be able to execute a holistic approach to project delivery to improve safety and access for all roadway users.

Table 3.10: Metro Programs

Category	Programs & Description
Grant Programs	Call for Projects - Competitive grant program that provides local, state, and federal funds for surface transportation improvements in seven modal categories, including bicycle and pedestrian capital improvements. Other modal categories eligible for funding include regional surface transportation improvements, goods movement improvements, signal synchronization & bus speed improvements, transportation demand management, and transit capital.
	ExpressLanes Net Toll Revenue Re-Investment Grant Program - Net toll revenues generated by the Metro ExpressLanes are required by state law to be reinvested for transportation improvements in the corridor where generated. The Grant Program is intended to increase mobility through transit operations, transportation demand management, transportation systems management, active transportation, and capital investments in the I-10 and I-110 corridors.
	Metro Open Streets Grant Program - Competitive grant program that funds regional car-free events to provide opportunities to 1) ride transit, walk and ride a bike, possibly for the first time, 2) encourage future mode shift to more sustainable transportation modes, and 3) foster the development of multi-modal policies and infrastructure at the city/community level.
	Wayfinding Signage Grant Pilot Program – Provides funds to eligible agencies wishing to install static wayfinding signage within one mile to and from Metro fixed guideway stations that will be open by June 30, 2017.
	Transit Oriented Development (TOD) Planning Grant Program - Grant Program designed to spur the adoption of local land use regulations that are supportive of Transit Oriented Development in Los Angeles County.
Planning Studies	Los Angeles River Bikeway Gap Closure Feasibility Study - Feasibility study included conceptual designs, associated cost estimates and engineering feasibility considerations for the 8-mile gap in the path between Atwater Village and Maywood. The Study included a comprehensive accounting of existing and known future attractions as well as general transportation needs of the neighborhoods surrounding the project area.
	I-710 Bikeway Study - Studying the development of the following Class-I bike paths and access points: a) Los Angeles Flood Control District right-of-way on the western levee of the Los Angeles River Channel from the Pacific Coast Highway (Long Beach) to Imperial Highway (South Gate) to connect with the existing Los Angeles River Bike Path, b) Southern California Edison (SCE) right-of-way, roughly parallel to Greenleaf Blvd., between the Los Angeles Blue Line and Sportsman Drive; and c) SCE and Los Angeles Department of Water and Power right-of-way from Willow/TI Freeway (Long Beach) to connect with the Rio Hondo Bike trail at Garfield Avenue (South Gate).

Table 3.10 (continued)

Category	Programs & Description
Planning Studies (continued)	Bike/Bus Interface Study - The study will establish recommended infrastructure guidelines that enhance safe and efficient mobility for roadway users. Study tasks include performing in-depth technical analyses to understand effects of bicycle infrastructure on transit operations and overall roadway safety, completing a review of national and international best practices and research on bike/bus interactions, developing training guidance and safety tips for transit operators and bicyclists, and identifying appropriate design guidelines.
	Blue Line First Last Mile Planning - Metro was awarded an Active Transportation Program (ATP) grant for first last mile planning around all 22 stations of the Metro Blue Line. This project will use the planning guidelines in the First Last Mile Strategic Plan to conduct walk audits and develop detailed plans for first last mile investments in and around 22 Metro Blue Line stations. The project will also utilize innovative community engagement to inform the first last mile maps and recommended improvements.
	Sustainability Demonstration Project: Metro is working in partnership with the San Gabriel Valley Council of Governments to develop a Bike Friendly Business Improvement Plan for the cities of South Pasadena and Glendora.
	Sustainability Demonstration Project: Complete Streets Master Plan - This project, in coordination with the Gateway Cities Council of Governments, will create a plan for implementation of a key complete street corridor identified in the COG's strategic transportation plan. The corridor will traverse multiple jurisdictions along Florence Avenue and will test and develop implementation methods for a multi-city project. The project is part of a larger effort to pilot strategies featured in Metro's Countywide Sustainability Planning Policy.
	Metro Transfer Design Criteria - Metro is working to develop criteria for transfer points. Over half of transit passengers make at least one transfer as part of their trip. The new Design Criteria will streamline the transfer experience with standards for the type and locations of transit amenities and infrastructure at major transfer points. Metro is gathering input from local jurisdictions, municipal transit operators, transit riders, and other stakeholder groups to develop the criteria. In addition to the Design Criteria for Metro, the project will produce an easy-to-use handbook for cities with local strategies to improve the transfer environment.
Capital Projects	Rail to Rail/River Active Transportation Corridor Project – This is a 6.4-mile long corridor project in South Los Angeles that will convert a rail right-of-way to an active transportation corridor, facilitating opportunities for improved access to key destinations and linking major transit facilities, including the future Crenshaw/LAX Transit Project, the Silver Bus Rapid Transit Line, and the Metro Blue Line.
	Regional Connector 1st & Central Station first last mile improvements.
	Gold Line Eastside Access Projects - First last mile improvements to the following Metro Gold Line stations: Pico/Aliso, Mariachi Plaza, Soto, Indiana, Maravilla, East LA Civic Center, and Atlantic.
	Connect US Action Plan - Metro will support the City of Los Angeles in identifying funding opportunities in order to improve pedestrian and bicycle connections to and from Los Angeles Union Station, the 1st/ Central Regional Connector Station, and the surrounding historic and culturally significant communities.
Bicycle Services	Bicycle Parking - Metro provides bicycle parking and continues to expand bicycle services at many stations throughout the system to improve first last mile connections, including providing bike racks, bike lockers and secure bike hubs.

Table 3.10 (continued)

Category	Programs & Description
Bicycle Services (continued)	Metro Bike Share – Metro is leading a regional effort to develop a Countywide Metro Bike Share program to facilitate first last mile connections and short point-to-point trips. The system will begin in summer 2016 with a pilot of 1000 bicycles and 80 stations in downtown Los Angeles with a phase II in the works to expand to Pasadena. Additionally, there are plans to expand the system to 4000 bicycles in other bike share ready communities, including, but not limited to, MacArthur Park, Koreatown, Hollywood, Culver City, East LA (unincorporated LA County), Boyle Heights, Burbank, Glendale, North Hollywood, Huntington Park, Downey, Marina Del Rey (unincorporated LA County), Venice, and San Gabriel Valley cities.
Joint Development Program	The Metro Joint Development (JD) Program is a real estate management program that collaborates with qualified developers to build transit-oriented developments (TODs) on Metro-owned properties. These properties are often parcels of land that contain Metro Rail station portals or platforms or that were acquired for parking or construction staging for transit projects. Metro's JD sites are a gateway to the Metro transit system and hold unique potential for shaping the built environment surrounding transit stations, which will have a significant impact on rider experience, attraction of new riders, and the urban form of the County of Los Angeles. Each site includes a creation of Development Guidelines, in collaboration with the community and local regulatory agencies, to identify desired land uses, density and amenities for a Metro-owned site; provides neighborhood context; and assesses opportunities for integration with active transportation and other community development goals.
Education & Encouragement Programs and Activities	Active Transportation Campaign – Annual campaign to promote awareness of and participation in walking and bicycling countywide. A single marketing effort unites events for Bike Month and Walktober, and cross-promotes complementary efforts from many organizations and municipalities across the county.
	Bike Month LA - Month-long marketing and event effort to highlight bicycling as a mode of transportation. Creates multiple opportunities and incentives for people to try riding bicycles for utilitarian trips, perhaps for the first time. Bike Month culminates in Bike to Work Day, with pit stops across the county, and Bike Night, a Metro-hosted gathering at Union Station.
	Community Bicycle Rides - Metro's guided bicycle ride events provide safe, supportive environments such that people of all skill and comfort levels may engage in riding a bike in an urban setting. The rides also provide a controlled environment in which people can practice safe riding skills and provide a valuable overall encouragement opportunity.
	Bicycle Safety Classes - Metro provides bicycle safety skills classes free to the public. This resource is available to any Los Angeles County resident and classes are held in locations across the county. Classes may range from entry-level to expert instructor certification and are moving towards regionally-tailored educational materials adapted from national standards.
	Complete Streets Education and Training – Provides training to applicable Metro staff and local government agency planners, engineers, decision-makers, traffic safety professionals, public health professionals, and community organizations about developing a Complete Streets policy, as well as implementing Complete Streets and incorporating high quality design to help comply with the California Complete Streets Act of 2008 and Metro's 2014 Complete Streets Policy.
	First Last Mile Training Pilot Program - Metro will offer a series of trainings to local staff, elected officials, and other stakeholders. The trainings will inform staff on how to design, seek funding, and implement a first last mile project. Policy level trainings will cover communication and community issues that often arise as part of first last mile and active transportation efforts. The trainings will be geared toward near term implementation and will result in preliminary concept plans that can be directed toward funding sources in the near term.

Table 3.10 (continued)

Category	Programs & Description
Technical Assistance, Policy and Planning Guidance, and Data	Grant Writing Assistance – Metro provides grant writing assistance to advance and implement Metro's active transportation plans and meet critical active transportation needs in Los Angeles County.
	Bicycle and Pedestrian Counter Program - In partnership with the Southern California Association of Governments, Metro is developing a countywide counter deployment plan to meet the calibration needs of bicycle travel demand models and infrastructure project performance monitoring. A combination of permanent and temporary automatic counters will be deployed in strategic locations and their data fed into the regional Active Transportation Database.
	Active Transportation Data Collection Plan – Metro is working in partnership with the Southern California Association of Governments to upgrade the existing Bicycle Data Clearinghouse. The new Active Transportation Database will set standards for data collected regionally and will be compatible with national databases. It will have the capability to accept manually collected as well as automatic data feeds. The Data Collection Plan will lay out initial and ongoing data collection efforts to meet regional needs.
	Open Streets Evaluation – Per Metro Board direction in 2014 to evaluate the costs/benefits of the annual $2 million grant program, Metro is conducting an evaluation of the 12 cycle-one Metro Open Street events. Results will be shared after the last event is implemented in June 2016.
	Urban Greening Toolkit and Implementation Plan – On-line website that provides tools on how to create transit-adjacent projects that facilitate access to Metro bus and rail lines throughout the Los Angeles region and enhance transit riders' experience getting to and from stations. Provides information on best-practices, resources, and guide to implementing greening and placemaking projects.
	Toolkit for Transit Supportive Planning- Funded by the Strategic Growth Council, Metro is developing the Toolkit for Transit Supportive Planning as a resource for Los Angeles County jurisdictions to develop and adopt transit supportive regulations and achieve the broader greenhouse gas (GHG) emission reduction and transportation, water, and energy efficiency goals of Assembly Bill 32 (AB32) and Senate Bill 375 (SB375).
	Countywide Safe Routes to School Initiative - Metro continues to collaborate with stakeholders to develop a Countywide Safe Routes to School Initiative to provide technical support to help communities interested in starting Safe Routes to School programs or sustain and enhance existing efforts. This involves assessing needs and identifying opportunities, collecting data, convening an advisory committee, and hosting summits to engage local jurisdictions and other stakeholders to guide Metro's initiative.
Other	Bicycle Roundtable - The Bicycle Roundtable is a quarterly public outreach meeting held by Metro that provides a forum to discuss and get input on current Metro bicycle projects and programs.

CITY, COUNTY AND COMMUNITY PROGRAMS

This section outlines key innovative programs, selected based on prior effectiveness in advancing planning, implementation, and capacity building at the local and regional level. These programs can supplement the physical improvements described in this Plan. Many programs are appropriate for countywide implementation, requiring more resources and regional coordination to realize the full benefits of the program. Some programs are appropriate on a smaller scale, at the city level or community level. The table below indicates the scale at which they are most appropriate.

Table 3.11: City & Community Programs

Programs	Implementers
Develop a Pedestrian and Bicycle Master Plan	*City planning, public works, or transportation department*
Train staff on Complete Streets guidelines, bicycle facilities design standards, and pedestrian-oriented safety interventions	*City, Caltrans, Metro, SCAG*
Train staff on how to respond to bicycle and pedestrian collisions to reduce collision severity	*City emergency responders*
Organize Open Streets events which temporarily close streets to vehicles and open them to people on foot, bike, skateboards, scooters, etc.	*Community groups or city agencies*

Developing the Downey Bicycle Master Plan

Metro's Complete Streets Workshop

Bike Safety Training Course

Ciclavia in Pasadena

Table 3.11 (continued)

	Programs	Implementers
 *Bicycle Officers can help train communities*	Organize trainings on bicycle, pedestrian, and roadway safety	*City police department and County sheriff's department; other road safety experts*
 *Walk to School Day*	Organize Walking School Buses or Bicycle Trains to encourage kids to walk and bike to school	*School communities, city*
 *Pedestrian Facilities from Eastside Access Project*	Develop a GIS-based asset inventory of sidewalks, curb-cuts, mid-block crossings, pedestrian and bicycle signals, bike lanes, bike racks, and other pedestrian and bicycle infrastructure	*City public works, planning, or transportation department*
 *Multi-modal Parking*	Conduct an annual multi-modal collision data analysis	*City public works, planning, or transportation department*
 *Pedestrians and cyclists meet at the Orange Line*	Conduct an annual collection of pedestrian and bicycle volumes at key locations including transit stops and stations	*City public works, planning, or transportation department*

NEXT STEPS FOR IMPLEMENTATION OF THE ACTIVE TRANSPORTATION STRATEGIC PLAN

Table 3.12: Steps for Implementation

Implementation Action	Metro Participants (lead department designated in bold and underlined)	Other External Participants	Initiation Timeframe
1. Technical Assistance, Policy and Planning Guidance, and Data			
1.1 Provide grant-writing technical assistance for Active Transportation Program (ATP), Affordable Housing and Sustainable Communities (AHSC) Program, Highway Safety Improvement Program (HSIP) and Transportation Investments Generating Economic Recovery (TIGER) to advance projects and programs identified in the ATSP and any future updates.	**Planning**	Local Jurisdications	ongoing
1.2 Provide grant-writing technical assistance for other funding sources, including "non-traditional funds" or new funds that may arise in the future (e.g., health-related grants, "parks and recreation"-related grants that may fund active transportation projects that support Metro's policy goals).	**Planning**	Local Jurisdications	0-1 year
1.3 Maintain and update Metro active transportation and other applicable websites, newsletters, social media profiles, and online resources to provide relevant information to stakeholders regarding resources, funding, key information, and best-practices.	**Planning, Communications**		ongoing
1.4 Explore upcoming grant opportunities (e.g., Caltrans Planning Grant, Active Transportation Program, Cap and Trade, TIGER) and identify potential opportunities for supporting local jurisdictions to achieve implementation.	**Planning**	Local Jurisdictions	ongoing
1.5 Organize training workshops, symposiums, and forums to disperse information on best-practices related to active transportation, first last mile, and complete streets.	**Planning**, Highways, Construction, Operations	Southern California Association of Governments (SCAG), Caltrans, Local Jurisdictions, Public Health, Nonprofits, Advocates, Other Interested Stakeholders	ongoing

Table 3.12 (continued)

Implementation Action	Metro Participants (lead department designated in bold and underlined)	Other External Participants	Initiation Timeframe
1.6 Participate in project technical advisory committees and working groups convened by local jurisdictions.	Applicable Departments	Local Jurisdictions	ongoing
1.7 Connect agencies to other local organizations and expert sources, where applicable, to support implementation of active transportation projects and programs.	Planning	Local Jurisdictions	ongoing
1.8 Organize summit, at least annually, to connect organizations and businesses that offer resources and services related to active transportation with those who are looking to implement such projects and programs in Los Angeles County.	Planning, DEOD, other applicable departments	Local Jurisdictions, Businesses, Nonprofits, Other Interested Stakeholders	0-1 year
1.9 Assist local agencies to seek opportunities and partnerships to implement demonstration projects to showcase best practices and case studies and to highlight innovative active transportation demonstration projects.	**Planning**, other applicable departments	Local Jurisdictions	ongoing
1.10 Publicize outcomes of active transportation infrastructure, educational, and demonstration projects.	**Planning**, Communications, Community and Government Relations, and other applicable departments	Local Jurisdictions	0-2 years
1.11 Conduct before and after performance evaluations on projects led by Metro or projects funded through Metro's grant programs to evaluate metrics against baseline and benchmarks identified in ATSP report. Collection and reporting of data may be by Metro or partner agencies but must be uploaded to the Active Transportation Database.	**Planning**, other applicable departments	Local agencies, interested stakeholders	0-2 years
1.12 Implement automatic bicycle and pedestrian counter program.	**Planning**, Operations	SCAG, Local agencies, interested stakeholders	0-1 year

Table 3.12 (continued)

Implementation Action	Metro Participants (lead department designated in bold and underlined)	Other External Participants	Initiation Timeframe
1.13 Continue development of Metro Countywide Safe Routes to School (SRTS) Initiative through collaboration with Metro departments, elected officials and staff, SRTS advisory group, and key stakeholders to inform policy and program development.	**Planning**, other applicable departments	Local jurisdictions, other stakeholders	ongoing
1.14 Further refine Active Transportation Strategic Plan online webtool and update relevant data when applicable to better position partners for local, state, and federal grant funding opportunities that arise in the future.	**Planning**, ITS		0-1 year
2. Education & Encouragement Programs and Activities			
2.1 Implement temporary (i.e., pop-up, tactical urbanism) active transportation and first last mile projects to build community support and foster multi-modal policies and long-term infrastrucutre improvements.	**Planning**, Communications, Operations	SCAG, Caltrans, Local Jurisdictions, Public Health, Nonprofits, Advocates, Other Interested Stakeholders	0-2 years
2.2 Continue to promote safe travel to schools in Los Angeles County through the development of Metro Safe Routes to School (SRTS) Resource Manual (toolkit); Walk-Safe, Bike-Safe (train the trainer) Safety Education Campaign; continued development and maintenance of the Metro SRTS website; and other related activities.	Planning, other applicable departments	Local Jurisdictions, Other Stakeholders	ongoing
2.3 Continue collaboration with key stakeholders and other Metro departments in the development of campaigns, printed materials, video and other visuals supporting safe walking, bicycling, and utilization of public transit for travel to and from schools within Los Angeles County.	Planning, other applicable departments	Local jurisdictions, other participants	ongoing
2.4 Continue to enhance education and training for bicyclists, pedestrians, bus operators, and other roadway users to improve awareness and safer interactions between these users of the roadway.	**Operations, Planning, Community Relations**	Metro Technical Advisory Committee (TAC) & Subcommittees, Transit Operators	ongoing

Table 3.12 (continued)

Implementation Action	Metro Participants (lead department designated in bold and underlined)	Other External Participants	Initiation Timeframe
2.5 Continue annual active transportation campaigns, such as advertising/messaging, bike and walk to work/ school, radio advertisements, social media, and other related activities.	**Planning, Communications**, other applicable departments		ongoing
2.6 Work with health care providers, community groups, businesses, and other organizations to promote bicycle and pedestrian education programs and highlight benefits. Continue to seek partnerships and innovation opportunities.	Planning, Communications, other applicable departments	Health Care Providers, Community Groups, Businesses, other interested stakeholders	ongoing
2.7 Continue bicycle traffic safety classes, community bicycle rides, and explore other education and safety programs to promote bicycling and mode shift. Evaluate the effectiveness of these projects and programs and report outcomes. Refine as necessary to maximize effectiveness.	**Planning, Communications**, Community Relations, other applicable departments	Law Enforcement, Local Jurisdictions, School Districts, Nonprofits, Advocates, Other Interested Stakeholders	ongoing
2.8 Promote walking and bicycling among Metro employees through wellness programs, incentive programs, safety programs, rideshare, community rides, marketing materials, and campaigns.	Planning, Corporate Wellness, Communication, other applicable departments		ongoing
2.9 Explore the creation of Metro employee bicycle pool commuting and bicycle fleet programs.	Planning, General Services, Communication, other applicable departments		0-2 years
2.10 Support local agency efforts on bicycle and pedestrian education and safety.	**Planning**	Local Jurisdictions, Nonprofits, Advocates	ongoing

Table 3.12 (continued)

Implementation Action	Metro Participants (lead department designated in bold and underlined)	Other External Participants	Initiation Timeframe
2.11 Seek partnerships with local educational institutions to create active transportation education and research center in Los Angeles region to build capacity and knowledge about active transportation planning, implementation, and research and build long-term institutional knowledge among practitioners, decisionmakers, local jurisdictions, and other key stakeholders.	**Planning**	Educational Institutions, Federal Highway Administration, Federal Transit Administration, Caltrans	0-2 years
3. Funding			
3.1 Prioritize recommendations in Active Transportation Strategic Plan in Metro Capital Grant Programs.	**Planning, Congestion Reduction**	Metro TAC & Subcommittees, Councils of Governments (COGs), SCAG, Caltrans, Local Jurisdictions, Public Health, Nonprofits, Advocates, other interested stakeholders	0-1 year
3.2 Update Proposition A, C, and Measure R Local Return Guidelines to align with the Metro Board-adopted 2009 Long Range Transportation Plan, Metro First Last Mile Strategic Plan, Metro Complete Streets Policy, and the Active Transportation Strategic Plan, consistent with any constraints in the ordinance language.	Planning, OMB	Metro TAC & Subcommittees, COGs, SCAG, Caltrans, Local Jurisdictions, Public Health, Nonprofits, Advocates, other interested stakeholders	0-1 year
3.3 Update Proposition C 10% and Proposition C 25% Guidelines to align with the Metro Board-adopted 2009 Long Range Transportation Plan and future Board-adopted updates, Metro First Last Mile Strategic Plan, Metro Complete Streets Policy, and the Active Transportation Strategic Plan.	Planning, OMB	Metro TAC & Subcommittees, COGs, SCAG, Caltrans, Local Jurisdictions, Public Health, Nonprofits, Advocates, other interested stakeholders	0-1 year

Table 3.12 (continued)

Implementation Action	Metro Participants (lead department designated in bold and underlined)	Other External Participants	Initiation Timeframe
3.4 Increase proportion of Call for Projects funding reserved for the Bicycle, Pedestrian, and Transportation Demand Management Modes according to the needs identified in the ATSP in proportion to needs for other modes.	Planning, OMB	Metro TAC & Subcommittees, COGs, SCAG, Caltrans, Local Jurisdictions, Public Health, Nonprofits, Advocates, other interested stakeholders	0-1 year
3.5 Incorporate Active Transportation Strategic Plan into 2009 Long Range Transportation Plan update.	**Planning**	Metro TAC & Subcommittees, COGs, SCAG, Caltrans, Local Jurisdictions, Public Health, Nonprofits, Advocates, other interested stakeholders	0-1 year
3.6 Update funding criteria in Metro capital grant programs (i.e., Call for Projects, ExpressLanes Net Toll Revenue Re-Investment Grant Program, and other Metro capital grant programs) to encourage projects that implement recommendations in the Active Transportation Strategic Plan and projects that achieve goals of Metro Board-adopted First Last Mile Strategic Plan and Complete Streets Policy.	**Planning, Congestion Reduction**	Metro TAC & Subcommittees, COGs, SCAG, Caltrans, Local Jurisdictions, Public Health, Nonprofits, Advocates, other interested stakeholders	0-1 year
3.7 Promote active transportation strategies and funding in applicable state and federal legislations.	Government Relations, Planning		ongoing
3.8 Seek new sources of funding opportunities and innovative finance strategies.	Planning, Office of Management & Budget		ongoing
3.9 When funding is available, program local funds for active transportation projects that have grant awards of $2 million or less. Prioritize federal funding when available and applicable to grant awards of $2 million or more to reduce the burden of grant administration and processing on smaller projects.	**Planning**		ongoing

Table 3.12 (continued)

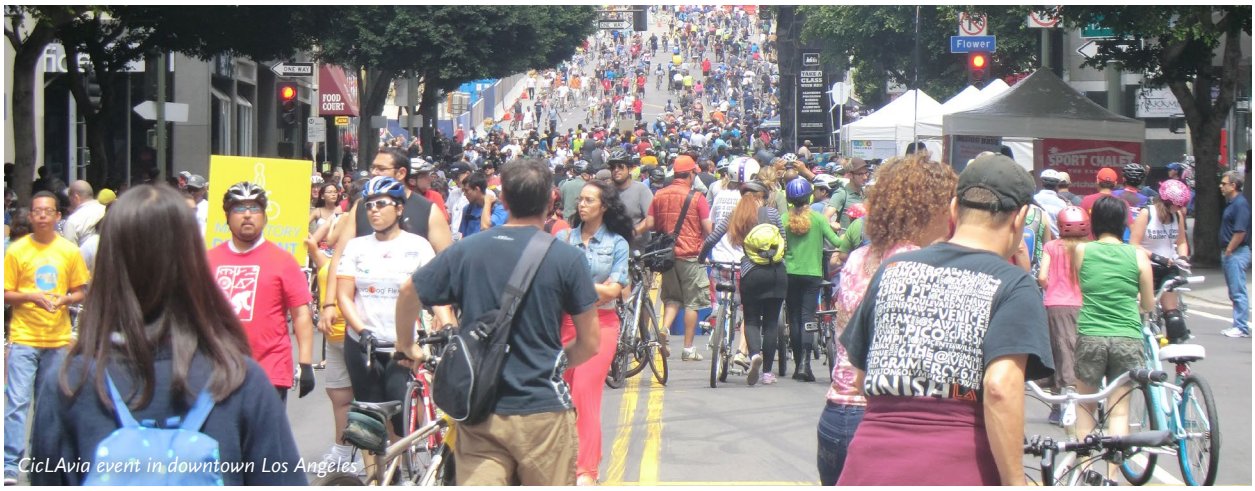
Implementation Action	Metro Participants (lead department designated in bold and underlined)	Other External Participants	Initiation Timeframe
4. Planning and Project Delivery			
4.1 Issue "Call for Partners" to identify potential partners to help bring key active transportation corridor projects identified in the ATSP closer to the "shovel ready" stage and take advantage of potential funding opportunities that may arise in the future to acheive project implementation, including, but not limited to, the San Gabriel Valley Greenway Network and those currently in progress as shown in Chapter 3, under Metro Programs.	**Planning**, Highways, Construction, Operations	Local Jurisdictions, interested stakeholders	0-1 year
4.2 Update rail design criteria to further incorporate active transportation elements and create active transportation design criteria section.	**Planning, Construction**, Operations		0-1 year
4.3 Expand bicycle parking at Metro stations and stops, including creating bicycle hubs, increasing bicycle parking, implementing and expanding bike share, and providing other bicycle facilities.	**Planning**, Construction, Operations, other applicable departments	Local Jurisdictions, interested stakeholders	ongoing
4.4 During transit project corridor planning phase, define active transportation connectivity elements as an intrinsic part of the project's scope during project planning and in environmental documents and project definition for construction. Key sections within environmental documents where active transportation connectivity elements can be better specified include: Purpose and Need Statement, Project Definition, Basis of Design, and Mitigation Measures. Ensure project team members have staff skilled and experienced to address active transportation and first last mile planning and design by providing training to Metro staff members involved in project and/or as part of criteria during consultant team selection. Conduct active transportation access studies as part of corridor planning to ensure first last mile and bicycle and pedestrian access improvements are addressed early in the project planning. These studies may be planned as part of larger transit corridor project or in parallel.	**Planning**, Construction, Operations, other applicable departments	Local Jurisdictions, interested stakeholders	0-1 year

Table 3.12 (continued)

Implementation Action	Metro Participants (lead department designated in bold and underlined)	Other External Participants	Initiation Timeframe
4.5 During project design phase (following environmental clearance) and during construction for new projects, ensure that active transportation improvements and first and last mile solutions are integrated into project scope, design, and implementation. Provide relevant directive drawing(s) and appropriate budget set aside in Life of Project for construction of these facilities. Ensure project team members have staff skilled and experienced to adress first last mile and bicycle and pedestrian access design and implementation by providing training to Metro staff members involved in project and/or as part of criteria during consultant team selection.	**Planning, Construction**, Operations, other applicable departments	Local Jurisdictions, interested stakeholders	0-1 year
4.6 During construction for new projects, identify opportunities for maintaining access to bicycle and pedestrian facilities or provide appropriate detours.	**Planning, Construction**	Local Jurisdictions	ongoing
4.7 Better design street treatments around freeway on and off ramps in highway corridor projects to facilitate safer and convenient access for pedestrians and bicyclists who must cross these corridors. Ensure project team members have staff skilled and experienced to address multimodal active transportation and complete streets planning and design by providing training to Metro staff members involved in project and/or as part of criteria during consultant team selection.	**Highways**, Planning	Caltrans, Local Jurisdictions	ongoing
4-8 Include first last mile and active transportation components as a standard in conjunction with design of new stations and updates to existing stations for projects that do not have a Life of Project (LOP) budget established.	**Planning, Construction**, Operations, other applicable departments	Local Jurisdictions, interested stakeholders	0-1 year
5. Joint Development			
5.1 Include appropriate text in boilerplate or a modified-to-suit language in every joint development project solicitation/Requests for Proposal/Design Guidelines to ensure appropriate inclusion of active transportation facilities and access for people who walk and bicycle.	**Planning**	Local Jurisdictions, interested stakeholders	ongoing
5.2 Work with local jurisdictions to incentivize developer mitigations to address first and last mile solutions and active transportation facilities and access.	**Planning**	Local Jurisdictions, interested stakeholders	ongoing

Table 3.12 (continued)

Implementation Action	Metro Participants (lead department designated in bold and underlined)	Other External Participants	Initiation Timeframe
6. Transit Operations			
6.1 Explore opportunities to add additional bicycle accommodations on buses and trains.	**Planning, Operations**		ongoing
7. Bicycle Services			
7.1 Expand bicycle parking at Metro stations and stops, including creating bicycle hubs, increasing bicycle parking, implementing bike share, and providing other bicycle facilities.	**Planning**, Operations, Construction, Maintenance, Communications, other applicable department		ongoing
8. Policy Update			
8.1 Review and consider updates to the Active Transportation Strategic Plan at least every five years.	**Planning**, other applicable departments	Metro TAC & Subcommittees, COGs, SCAG, Caltrans, Local Jurisdictions, Public Health, Nonprofits, Advocates, other interested stakeholders	
8.2 Review and recommend possible changes to Metro, state, and federal policies to achieve the goals of the ATSP.	Planning, other applicable departments		ongoing
8.3 Update the 2000 Metro Right of Way Preservation Guidelines to be consistent with recent Metro Board-adopted policies.	Planning, Operations, other applicable departments		0-2 years



CicLAvia event in downtown Los Angeles

Metro Rapid bus serving Santa Monica

Pedestrians prepare to cross the street near a Metro bus station

4 COUNTYWIDE ACTIVE TRANSPORTATION NETWORK

OVERVIEW

This chapter presents the recommended Countywide Active Transportation Network, comprised of two key components: 1) first last mile active transportation improvements to 661 major transit station areas and 2) the Regional Active Transportation Network.

The ATSP identified 661 major transit station locations throughout the county for first last mile improvements, which are intended to enhance regional access by connecting people to the extensive and growing transit network and to maximize the benefits from transit investments. In many places across the county, it connects with key corridors in the Regional Active Transportation Network that function both as origins and destinations as well as transit corridors.

The proposed Regional Active Transportation Network is intended to serve people biking and walking much like our freeway network serves drivers or our rail network serves transit riders. It is intended to provide the most comfortable, safe, high-quality bicycling and walking experience, with minimal disruption from other users and with extensive reach across the county. It is designed to connect key regional origins and destinations across the county, filling in the gaps in the current network, taking advantage of available waterways, utility corridors, and on-street right-of-way that can be developed into high-quality, low-stress walking and biking facilities.

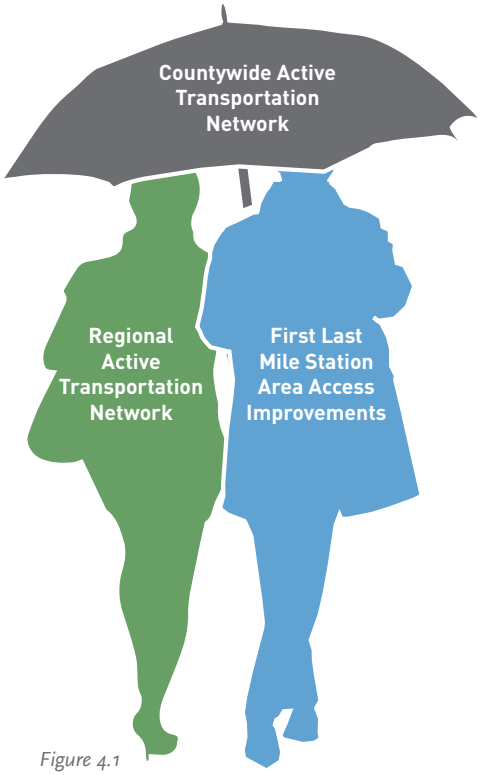


Figure 4.1

Sample Facilities in the Countywide Active Transportation Network

Sidewalk
(Dedicated On-Street)

Pedestrian-Only Promenade
(Dedicated On-Street)

Paseo
(Shared On-Street or Off-Street)

Class I Shared-Use Path
(Off-Street)

Class II Bicycle Lane
(Dedicated On-Street)

Class II Buffered Bicycle Lane
(Dedicated On-Street)

Class III Bicycle Route/Boulevard
(Shared On-Street)

Class IV Protected Bicycle Lane
(Dedicated On-Street)

STAKEHOLDER OUTREACH

The process for identifying the Countywide Active Transportation Network began with an extensive existing conditions analysis. During the development of the ATSP, the project team engaged and solicited feedback from various Metro departments, as well as agency partners, including the Metro Technical Advisory Committee and its Subcommittees, sub-regional Councils of Governments, the California Department of Transportation (Caltrans), Southern California Association of Governments (SCAG), local governments, and other stakeholders. Metro also formed a project Technical Advisory Committee, which consisted of internal Metro departments and external stakeholders, to guide the development of the ATSP. During August 2015, Metro held seven stakeholder workshops across the county to solicit input. These workshops were attended by over 250 attendees and included representatives of local, regional, and state government agencies; elected offices; sub-regional councils of governments; nonprofit organizations; community groups; advocates; private firms; transit operators; transit riders; public health professionals; and other stakeholders. Metro launched an online survey to gather additional input from stakeholders during Summer 2015. During December 2015, the agency held a second round of six stakeholder workshops across the county to provide an update on the ATSP and solicit additional input. Over 120 participants attended in total to provide feedback. Refer to Appendix C for more details.

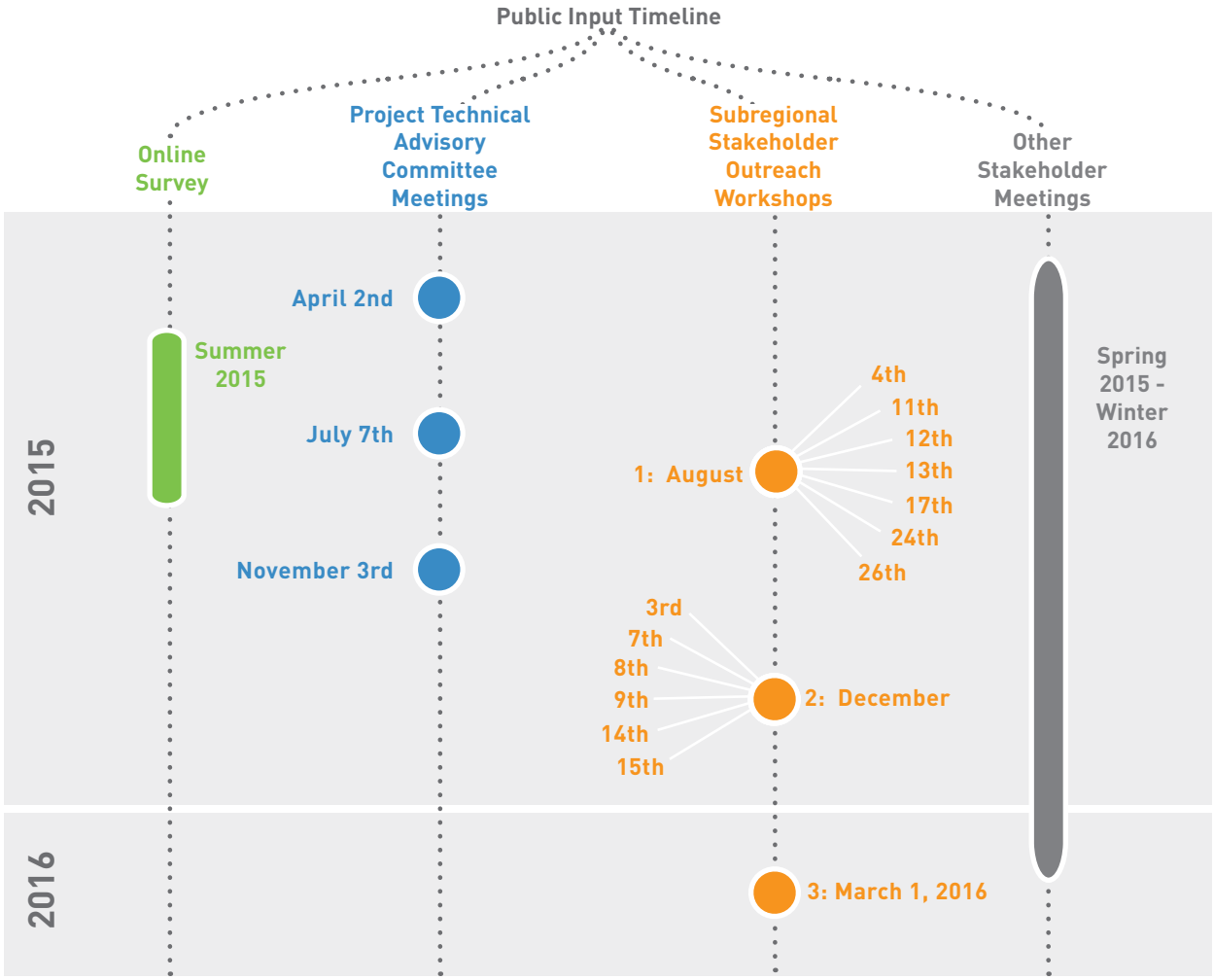


Figure 4.2

STAKEHOLDER INPUT

Throughout the project, we heard key feedback from stakeholders at every level, summarized here.

Figure 4.3

FIRST LAST MILE ACCESS TO MAJOR TRANSIT STATIONS & STOPS

The Active Transportation Strategic Plan (ATSP) uses strategies presented in the Metro First Last Mile Strategic Plan and Planning Guidelines to identify opportunities for improving first last mile access to 661 major station locations, which is intended to improve the journey to and from a transit station or stop for people who walk and bicycle to transit.

Unlike the Regional Active Transportation Network, which recommends countywide corridors for active transportation facilities, the first last mile access strategies refer to walking and bicycling improvements around the 661 station areas (defined in the Existing Conditions section, Chapter 2), which are local in nature but connect to the wider transportation network via transit, thus generating regional benefits.

This section presents a step-by-step guide to assist local jurisdictions and stakeholders in identifying opportunities for first last mile access improvements around a transit area, based on the process established in the First Last Mile Strategic Plan.

The ATSP Volume II: Case Studies companion document uses this process to recommend first last mile improvements around 20 different study areas throughout Los Angeles County. These case studies reflect the diversity of transit areas, geographies, demographics, land uses, building and population densities, and subregions of Los Angeles County. Refer to the ATSP Volume II: Case Studies document to determine which conditions are most similar to your project study area and use these case studies as a helpful guide.

The ATSP has not identified specific first last mile access routes to each station area location, since this should be done at the local level and with applicable stakeholder input. The ATSP is developed to ensure that there is flexibility in local planning, design, and implementation that suits the context of the community. Key first last mile recommendations are summarized in this section and presented in more detail in the ATSP Volume II: Case Studies companion document.

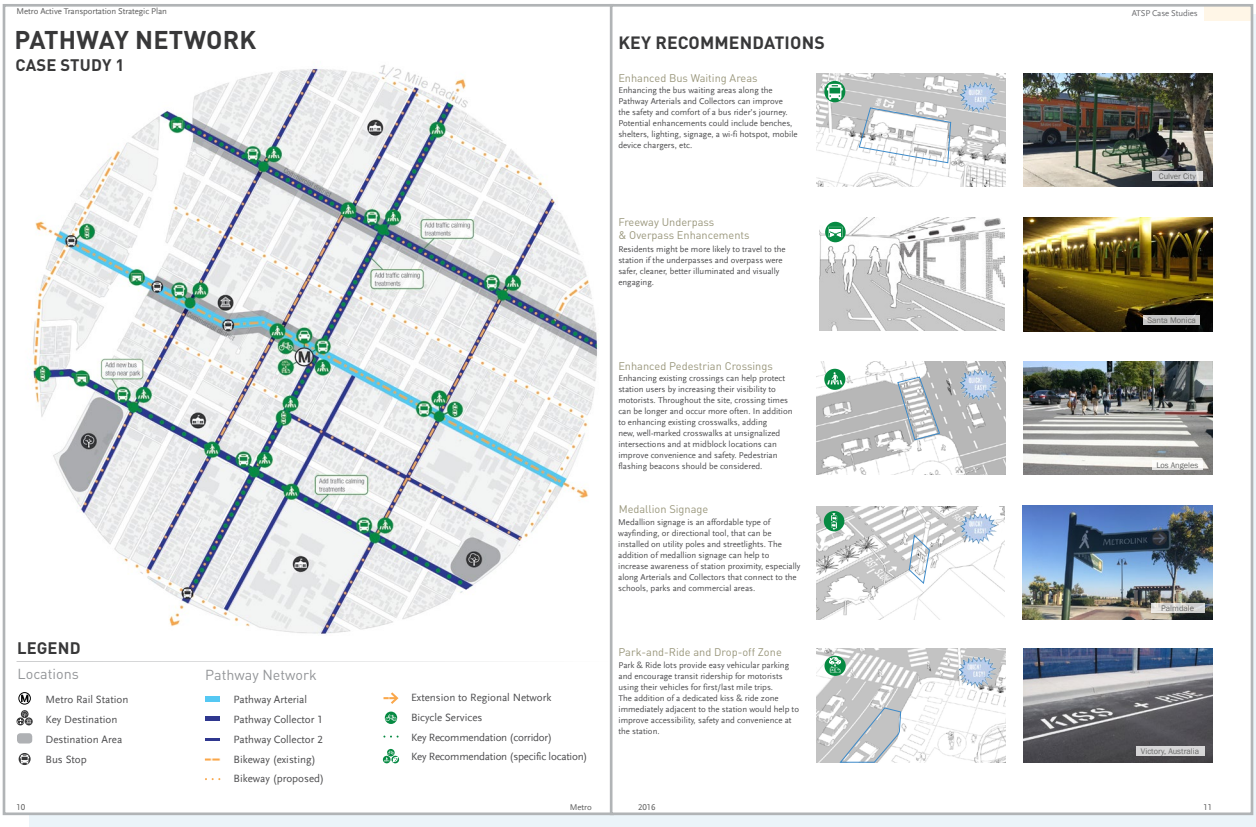
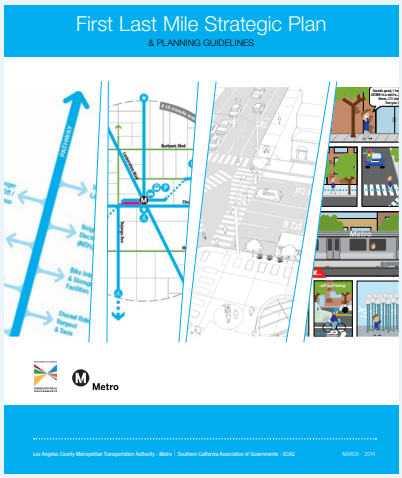


Figure 4.4: Pages from the ATSP Volume II: Case Studies

First Last Mile Strategic Plan & Planning Guidelines



The First Last Mile Strategic Plan & Planning Guidelines (2014) provides municipal organizations, community groups, and private institutions with a planning tool that strategically focuses infrastructure investments around a transit station or stop, with the ultimate goal of improving transit ridership. The Plan serves as guidance to create and implement a Pathway Network, which is a strategy that addresses first last mile challenges. Infrastructure investments are concentrated along the Arterials, Collectors, and Cut-Throughs of a particular Pathway Network. Arterials are the main streets that extend from transit locations and support maximized throughput and efficiency for active transportation users. Collectors include routes that both feed into Arterials and support general station area permeability. Cut-Throughs are supporting paths, often used as shortcuts that feed into Arterials and Collectors. These classifications do not supersede roadway designations assigned by the local jurisdiction.

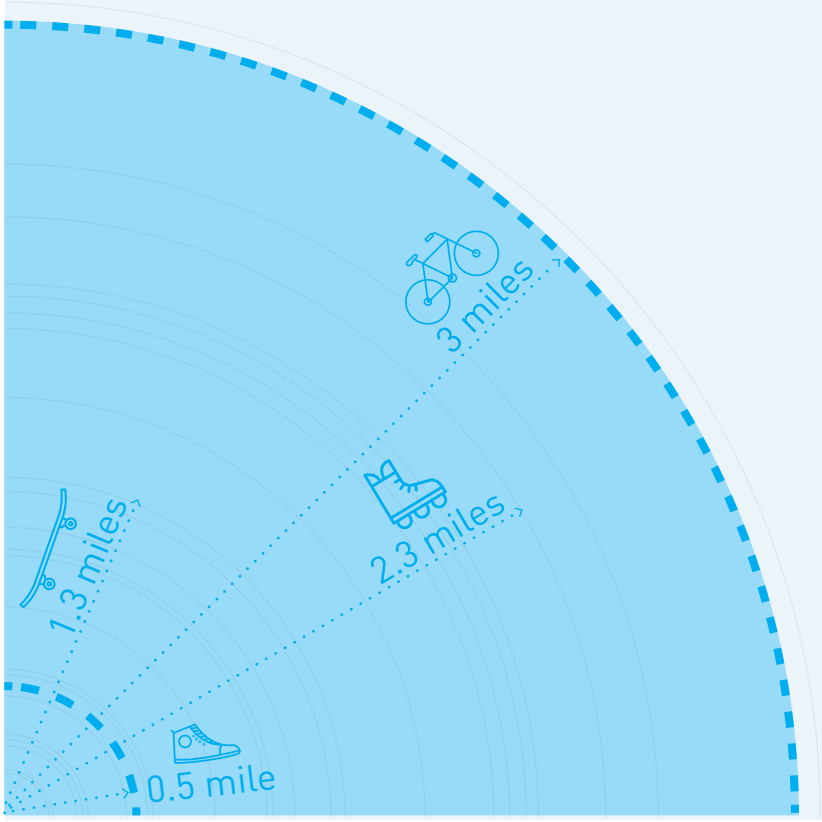


Figure 4.5: First last mile access shed

Access Shed

The First Last Mile Strategic Plan requires identification of an access shed, which is the average distance a person is willing to travel to a transit station or stop. The size and shape of an access shed depends on the type of active transportation that the project seeks to accommodate as well as typical access barriers such as topography, block size, and freeways.

How to Use the First Last Mile Strategic Plan

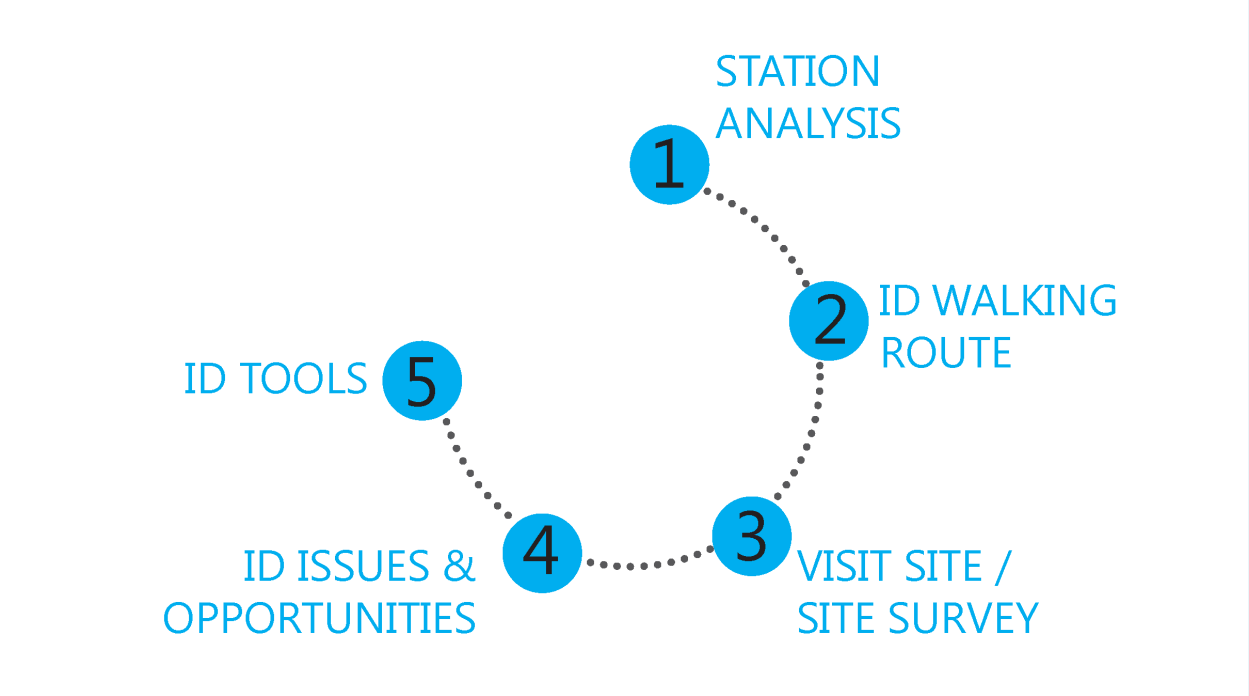
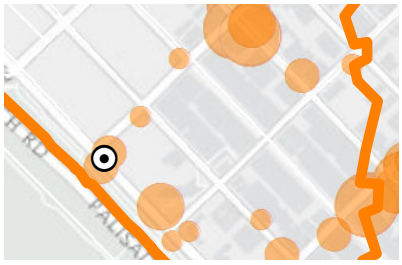


Figure 4.6: Simplified First Last Mile Process

Metro riders boarding a bus at a high ridership stop



1. Conduct Preliminary Station Analysis

First last mile planning requires a comprehensive understanding of the study area, which is the space within the access shed of a transit stop or station. The access shed is defined by several measures, including distance, topography, block size, and freeways; these conditions serve as barriers or opportunities to first last mile connectivity.

1. Browse the existing conditions analysis online portal available at: http://gis.fehrandpeers.com/metroatsp.

2. Identify a Metro transit station or stop for the first last mile analysis

3. Study the existing conditions analysis summary

2. Determine Walking Route

Site visits offer first-hand knowledge of existing conditions within a study area. One way to conduct an effective site visit is by creating a walking route from a transit stop or station that passes by important destinations such as schools, commercial districts, and residential areas. Also consider routes that have high levels of activity, existing and planned bicycle routes, and areas where collisions have been reported.

1. Determine a walking route in the study area, based on elements from the existing conditions analysis summary

2. Make sure to visit local destinations such as points of interest, bicycle facilities, and areas where collisions have occurred

Recommendation: Talk to people who are familiar with the area to get a better sense of where and how people are travelling; consider organizing a walking audit

3. Visit Study Area & Complete Checklist

Now that the walking route has been planned, visit the study area to document the existing conditions. The First Last Mile Strategic Plan includes a station area checklist that qualitatively focuses on the safety, accessibility, and aesthetics of a station area. Fill out the checklist after your site visit has been completed; it helps if multiple people complete the checklist to get more balanced results.

1. Visit the study area and conduct site visit; repeat visits at different times of the day

2. Fill out a station area checklist found in the Metro First Last Mile Strategic Plan

3. Take photographs and notes of both barriers and local assets to first last mile connectivity

4. Identify Issues & Opportunities

Every study area is unique, but there are typical first last mile issues including gaps in the bicycle network, street conditions barriers (e.g. lack of sidewalks), land use barriers (e.g. long blocks), connectivity gaps(e.g. freeways), and lack of amenities (e.g. bus stop benches). Typical access strengths include transit stations, key destinations (e.g. schools), destination corridors (e.g. retail areas), existing bikeways, corridor assets (e.g. shade), and specific assets (e.g. enhanced crosswalks).

1. Identify the key issues and assets relating to first last mile connectivity based on the existing conditions analysis, site visits, and station area checklist results

2. Refer to the First Last Mile Strategic Plan to identify typical issues and assets in Los Angeles County

3. Make the message clear and concise to stakeholders and funders by prioritizing key issues and assets

5. Choose First Last Mile Improvement Tools

The First Last Mile Strategic Plan has a list of improvement tools that help to address barriers to connectivity. Start by creating a Pathway Network and focusing improvements along those routes. Tools may include sidewalk addition or widening, landscaping and shade, enhanced pedestrian crossings, bikeway improvements, enhanced bus waiting areas, underpass and overpass enhancements, medallion signage, and kiss-and-ride locations.

1. Create a Pathway Network (refer to First Last Mile Strategic Plan)

2. Choose improvements from the First Last Mile Strategic Plan that relate to priority issues

3. Recommendations: Choose improvements that are more affordable and quick to install; implement temporary pilot projects or long-term infrastructure projects

Key First Last Mile Recommendations

ATSP Volume II Symbol	Term	Further Description
	Bike Share Station	Provides numerous strategic locations where users can rent bicycles for short-term use; bike share stations located at transit stations and stops make bicycling a convenient option for first last mile trips; other stations are typically placed at strategic locations close to destinations; corporate sponsorships and other public-private coordination can help make bike share a relatively inexpensive intervention for municipalities
	Sidewalk Widening or Addition	Improves safety, comfort and convenience for people of all ages and abilities; wider sidewalks create more room for streetscape elements that enhance comfort and convenience, such as street furniture, bus waiting areas, landscaping, and trees
	Enhanced Pedestrian Crossings	Protects transit users by increasing their visibility to motorists; crossing times can be longer and occur more often; in addition to enhancing existing crosswalks, adding new, well-marked crosswalks at unsignalized intersections and at midblock locations can improve convenience and safety; pedestrian flashing beacons may be considered
	Enhanced Bicycle Facility	Improves safety and increase comfort for people bicycling; these include bicycle lanes physically separated from vehicular traffic, such as buffered lanes, cycle tracks, painted bicycle lanes, conflict zone markings at/approaching intersections, bicycle boxes, and bicycle-prioritized signalization
	Curb Extensions at Intersections	Improves safety by shortening crossing distances, increasing visibility of people walking, and slowing vehicles that are turning; it can also provide room for amenities such as seating areas, bioswales, stormwater management, and other planted areas
	Traffic Calming	Decreases speeds along streets with heavy, fast-moving traffic in order to increase safety and comfort for all users of the street; traffic calming treatments include physical measures such as curb extensions to narrow the roadway, narrowed travel lanes to promote slower driving speeds, and diverters to limit vehicle cut-through traffic on neighborhood streets
	Enhanced Bus Waiting Areas	Improves the safety and comfort of a bus rider's journey; potential enhancements could include benches, shelters, lighting, signage, wi-fi hotspot, mobile device chargers, etc.
	Freeway Underpass and Overpass Enhancements	Traveling to the transit station stop by foot or bike would be more convenient and comfortable if the underpasses were safer, cleaner, better illuminated, and visually engaging.

ATSP Volume II Symbol	Term	Further Description
	New Connection Across Barrier	Designing a new connection across the railroad crossings can improve connectivity to the station; this can manifest as an at-grade signalized crosswalk for people walking and bicycling; a well-designed connection should consider the safety of all people
	Medallion Signage	Medallion signage is an affordable type of wayfinding, or directional tool, that can be installed on utility poles and streetlights; the addition of medallion signage can help to increase awareness of station proximity, especially along Arterials and Collectors that connect to the schools, parks and commercial areas
	Street Furniture	Provides amenities to make active transportation users comfortable while traveling and provide resting places; waste receptacles, pedestrian-scale lighting, water fountains, and bicycle parking are other elements that enhance the sidewalk environment
	Landscaping and Shade	Improves aesthetics, provide pleasant and safe pathways, and offer an attractive buffer between the sidewalk and the roadway; trees and shade structures provide refuge from the sun for people walking, resting, or waiting
	Lighting	Increases safety and aid in night navigation for people walking or bicycling along Pathway routes; install lighting rhythmically and consistently in coordination with tree canopies as not to block the light; consider installing lights that are efficient and/or motion activated/self powered in areas where constant light is not needed
	Car Share	Provides numerous strategic locations where users can rent vehicles for a short term use; vehicle pick-up/ drop-off spaces should be located conveniently nearby the transit station or stop at a highly-visible and location
	Bicycle Services	Includes secure bicycle parking, bicycle hubs, bicycle repair stations, and/or bike share
	Park-and-Ride	Park and Ride lots provide easy vehicular parking and encourage transit ridership for motorists using their vehicles for first last mile trips; the addition of a dedicated drop-off zone immediately adjacent to the station would help to improve accessibility, safety and convenience at the station
	Key Recommendation Along Corridor	Key recommendations that extend throughout the entire length of the corridor

THE REGIONAL ACTIVE TRANSPORTATION NETWORK

The Regional Active Transportation Network (Regional Network) is a countywide system of routes intended to serve active travelers - people walking, riding bicycles and using other non-motorized modes. The purpose of the Regional Network is to deliver an interconnected network of convenient active transportation routes that enable Los Angeles County residents to safely access the places they want to go by the mode of their choosing.

Cities around Los Angeles County are making tremendous progress in constructing active transportation facilities (such as sidewalks and protected bicycle lanes). However, the County has lacked a regional vision for inter-jurisdictional travel, resulting in piecemeal local systems, large network gaps and a wide range of facility comfort. The Regional Network is a low-stress network. This means that facility users will not be expected to share lane space with high-speed or high-volume motor vehicle traffic. The Regional Network is comprised of facility types with high safety performance and the ability to attract and retain users. Metro is committed to realizing this vision, and will support local jurisdictions in implementing the

Regional Active Transportation Network Guiding Principles

Connect cities and communities	The Regional Active Transportation Network emphasizes connectivity between communities, as opposed to connectivity within local jurisdictions. However, regional routes will still play a role in local travel.
Serve desire lines	The Regional Active Transportation Network enables bicycle travel on the routes that people want to use. People generally want routes that are direct and safe.
Serve Main Street	The Regional Active Transportation Network embraces routes that link directly to the cores of cities, serving historic Main Streets and Central Business Districts.
Harness continuous rights-of-way	The Regional Active Transportation Network relies upon continuous rights-of-way (both natural and human-made) to provide unhindered movement for long stretches.
Link to transit	The Regional Active Transportation Network seeks opportunities to connect with major transit hubs, particularly if these hubs are located in population centers.
Address existing safety problems	The Regional Active Transportation Network improves travel conditions along routes with a history of bicycle crashes.
Design for all ages and abilities	The facilities comprising the Regional Active Transportation Network meet a minimum standard of service, suitable for use by children and seniors.

Regional Active Transportation Network progressively over time through funding and technical support.

The Regional Active Transportation Network is intended to serve both people walking and people riding bicycles. However, the network planning process primarily takes cues from best practices in regional bikeway network development, for the following reasons:

> Pedestrian trips are inherently less regional in scale than bicycle trips due to differences in travel speed;

> The Active Transportation Strategic Plan includes detailed transit station area plans that emphasize pedestrian connectivity;

> The Regional Active Transportation Network will directly serve pedestrian travel on all of its recommended Class I (shared-use path) facilities;

> The Regional Active Transportation Network will indirectly improve pedestrian conditions around many of its other facilities (for instance, protected bicycle lanes reduce sidewalk riding, calm traffic and shorten crossing distances, all of which improve pedestrian safety and comfort); and

> The inclusion of sidewalks can be assumed on most on-street facilities with low-stress bikeways, such as protected bicycle lanes (Class IV) or bicycle boulevards (Class III).

Design Flexibility

Metro encourages local jurisdictions to pursue facilities that best fit their communities. The Regional Active Transportation Network has been designed with local implementation in mind, and flexibility in design is a key aspect of this approach.

The generalized facility type identified for each Regional Network project is subject to review, modification and implementation by the relevant local jurisdiction(s). Engineering judgment, feasibility studies or community feedback may identify an alternative facility type for a Regional Network project. Provided that the modified facility meets the eligibility criteria contained in Table 4.1, the facility may be considered part of the Regional Network for the purposes of Metro grant opportunities and regional designation.

The alignments identified are also subject to review and modification by the relevant local jurisdiction(s). The Regional Network is intended to provide local jurisdictions with a high degree of latitude to construct facilities using preferred alignments. If a locally-identified alignment diverges from the identified Regional Active Transportation Network project, it can maintain Regional Active Transportation Network status by serving the same desire line as the original Regional Active Transportation Network facility (i.e. serving the same general corridor or destinations). For instance, a jurisdiction may elect to construct a facility along a parallel urban street or off-street corridor serving the same destinations as the original Regional Network alignment. As described above, these alternative facilities may harness the full range of available facility types and design enhancements, provided that the facility meets the eligibility criteria contained in Table 4.1.

Regional Active Transportation Network Eligible Facility Types

Table 4.1

Regional Active Transportation Network Design Guidance/Standards	Off-Street	Dedicated On-Street	Shared On-Street
Highway Design Manual (HDM) Class[1]	Class I	Class II & Class IV	Class III
HDM Class Eligible Under the Following Conditions[2]	Always	A conventional Class II bicycle lane is only eligible on a low-stress roadway.[3] Class II bikeways with buffers and Class IV protected bicycle lanes (with various barrier types) are always eligible.	A Class III facility is only eligible on a low-stress roadway.[4]
Available Design Enhancements	Bicycle Freeway [5] Floating Bicycle Path [6] Sub-Grade Bicycle Intersection [7]	Various separation methods Two-way or contraflow operation Protected intersection	Various traffic calming methods to maintain low traffic speeds and volumes Bicycle boulevards, bike-friendly streets, neighborhood greenways Advisory Bicycle Lanes

1. California Department of Transportation, 2015. Highway Design Manual.
2. Eligible facility types are those that are consistent with Regional Active Transportation Network design standards. Existing or planned facilities meeting these standards are not necessarily included in the Regional Active Transportation Network.
3. For Class II bicycle lanes, a low-stress roadway is defined as having a bicycle lane adjacent to the curb, rather than parked vehicles, and no more than two general purpose travel lanes.
4. For Class III bicycle boulevards, a low-stress roadway is defined as having average daily vehicle volumes of no more than 2,000 and 85th percentile speeds at or below 20 mph.
5. A Bicycle Freeway is a long-distance bikeway that is separated from auto traffic and other street activity, allowing for high cycling speeds. The goal is to give cyclists the same long-distance access that drivers have on a auto-only freeway.
6. A Floating Bicycle Path is a cantilevered structure that transitions into floating dock pathways to serve as part of a continuous shared use path or bicycle freeway system across or along a body of water. They are built to accommodate fluctuations in water level and are most applicable when sufficient right-of-way is not available to construct the path on land.
7. A Sub-Grade Bicycle Intersection is a subterranean shared use path or bicycle freeway system that allows people bicycling to avoid interacting with motor vehicles at a large intersection or freeway interchange. These connections help save time and distance and reduce conflicts by allowing non-motorized traffic to proceed through the middle of the intersection without having to circumnavigate the facility.

Proposed Regional Active Transportation Network

The Proposed Regional Network is presented as a map series (Maps 1 through 11) and a project list (see ATSP Volume III, Appendix H). The Proposed Regional Active Transportation Network comprises nearly 2,000 miles of low-stress active transportation facilities throughout Los Angeles County and consists of three generalized facility types, as defined in Table 4.1: Dedicated On-Street, Off-Street, and Shared On-Street. Overall, the Regional Network includes 1,390 miles of Dedicated On-Street facilities (70 percent), 510 miles of Off-Street Facilities (26 percent) and 55 miles of Shared On-Street Facilities (3 percent). The Proposed Regional Network also includes about 15 miles of alternative alignments for facilities that are currently under study by Metro. These alignments are included in the overall mileage for the Proposed Regional Network.

Maps 1-11 can be accessed online at https://www.metro.net/projects/active-transportation-strategic-plan/. To explore additional existing and planned bikeway facilities in detail, visit http://gis.fehrandpeers.com/metroatsp.

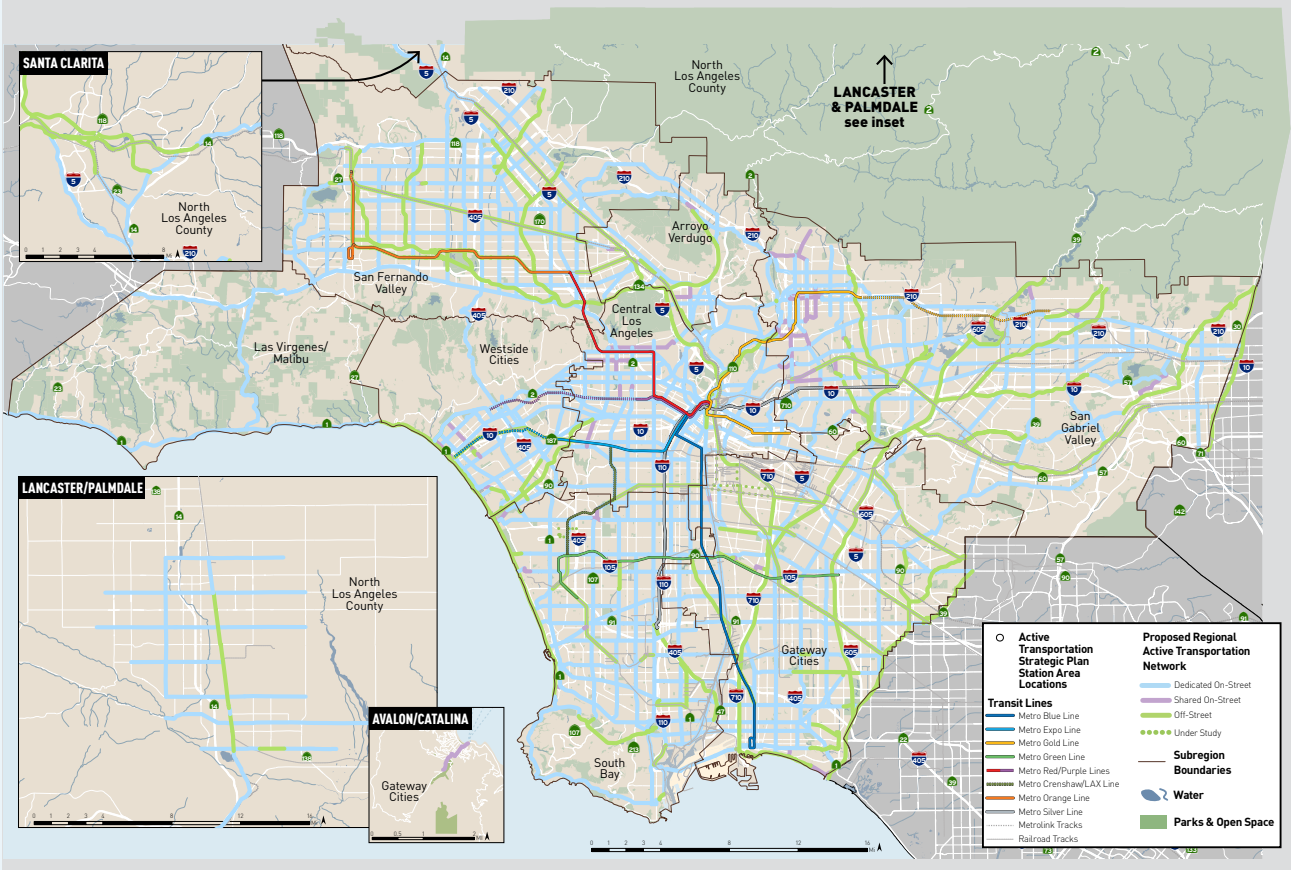
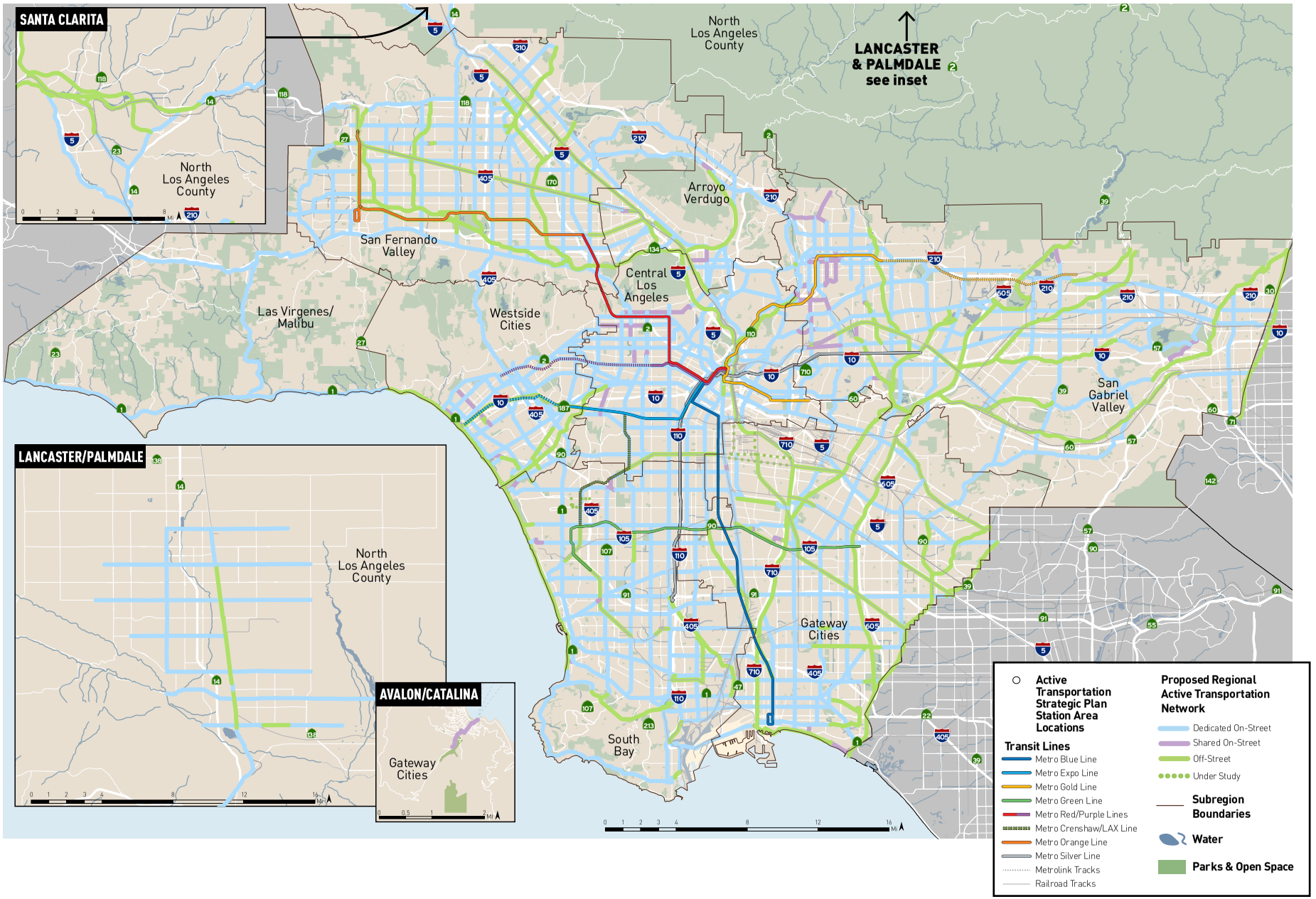
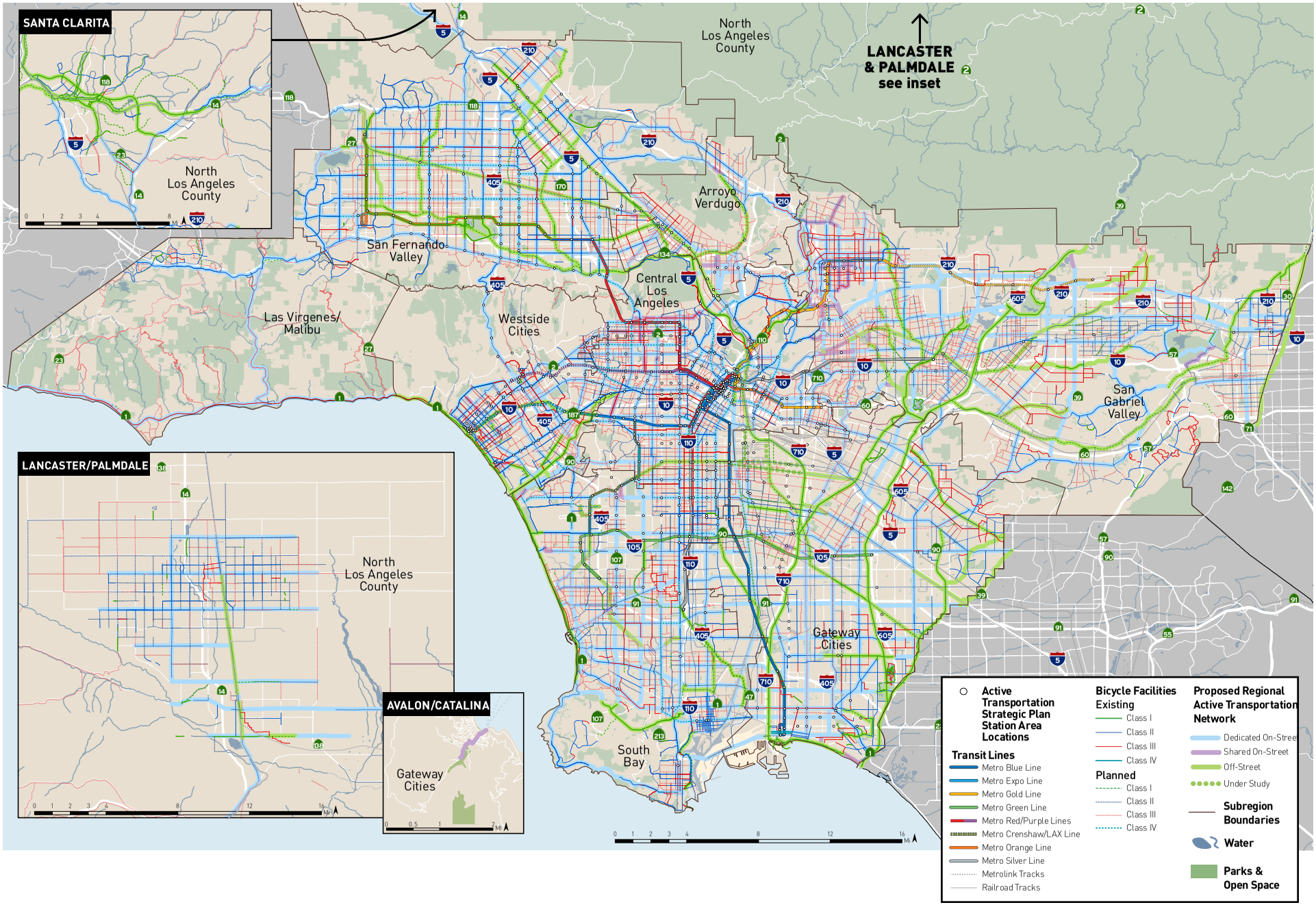


Figure 4.6: Proposed Regional Active Transportation Network (Maps 1-11 show enlargements of this image.)

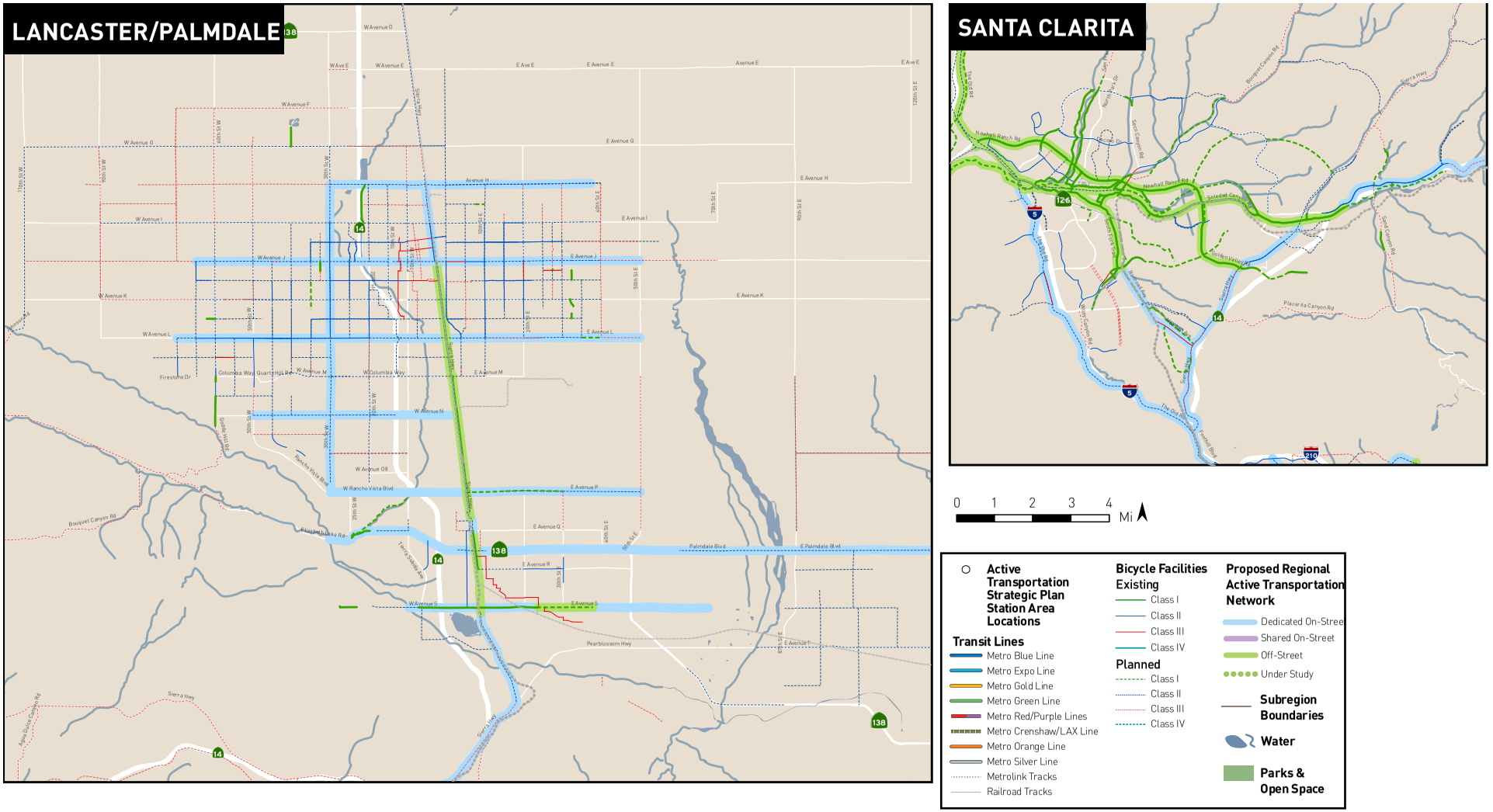
Map 1: Regional Active Transportation Network Overview



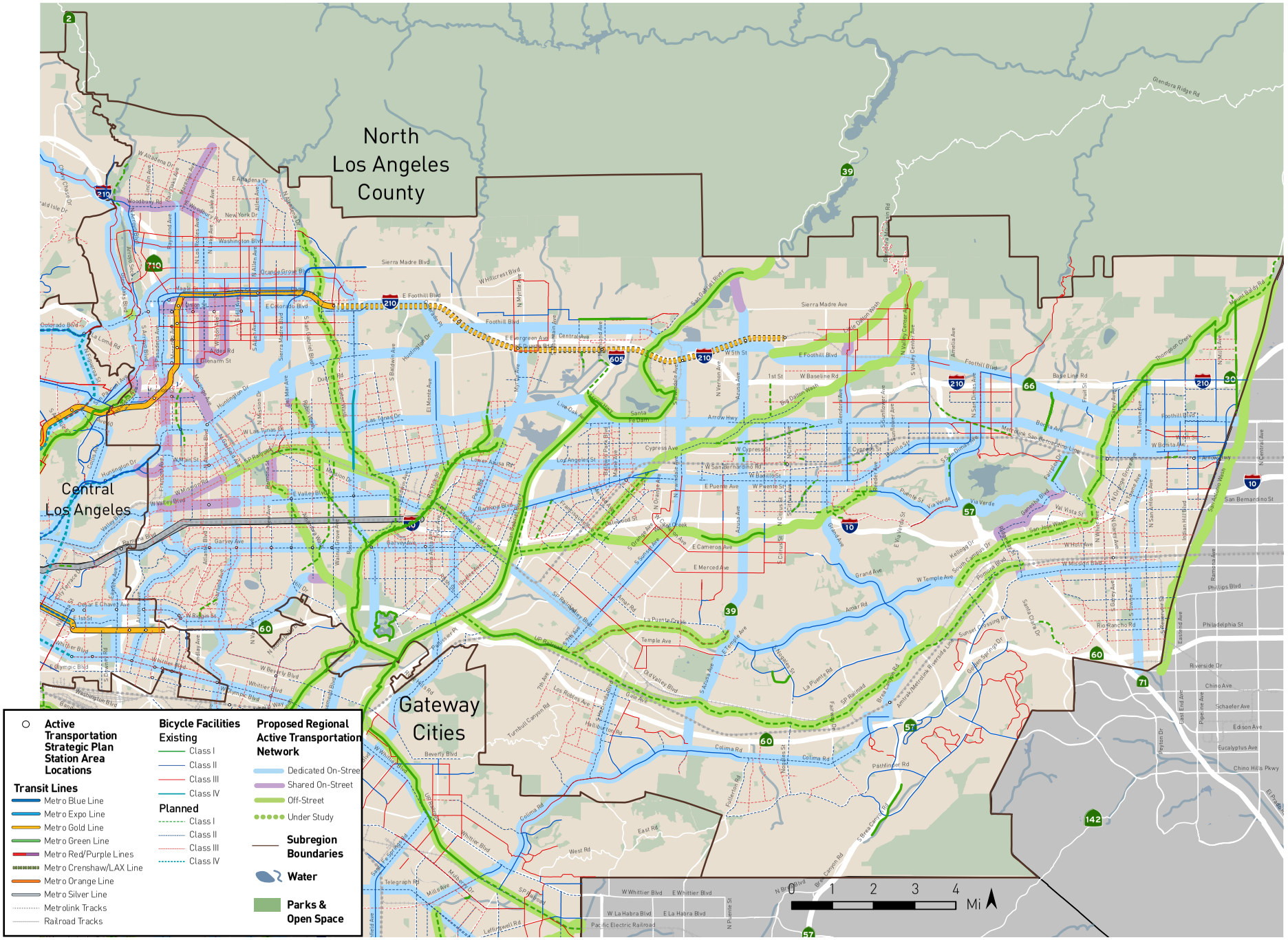
Map 2: Regional Active Transportation Network with Existing and Planned Bicycle Facilities



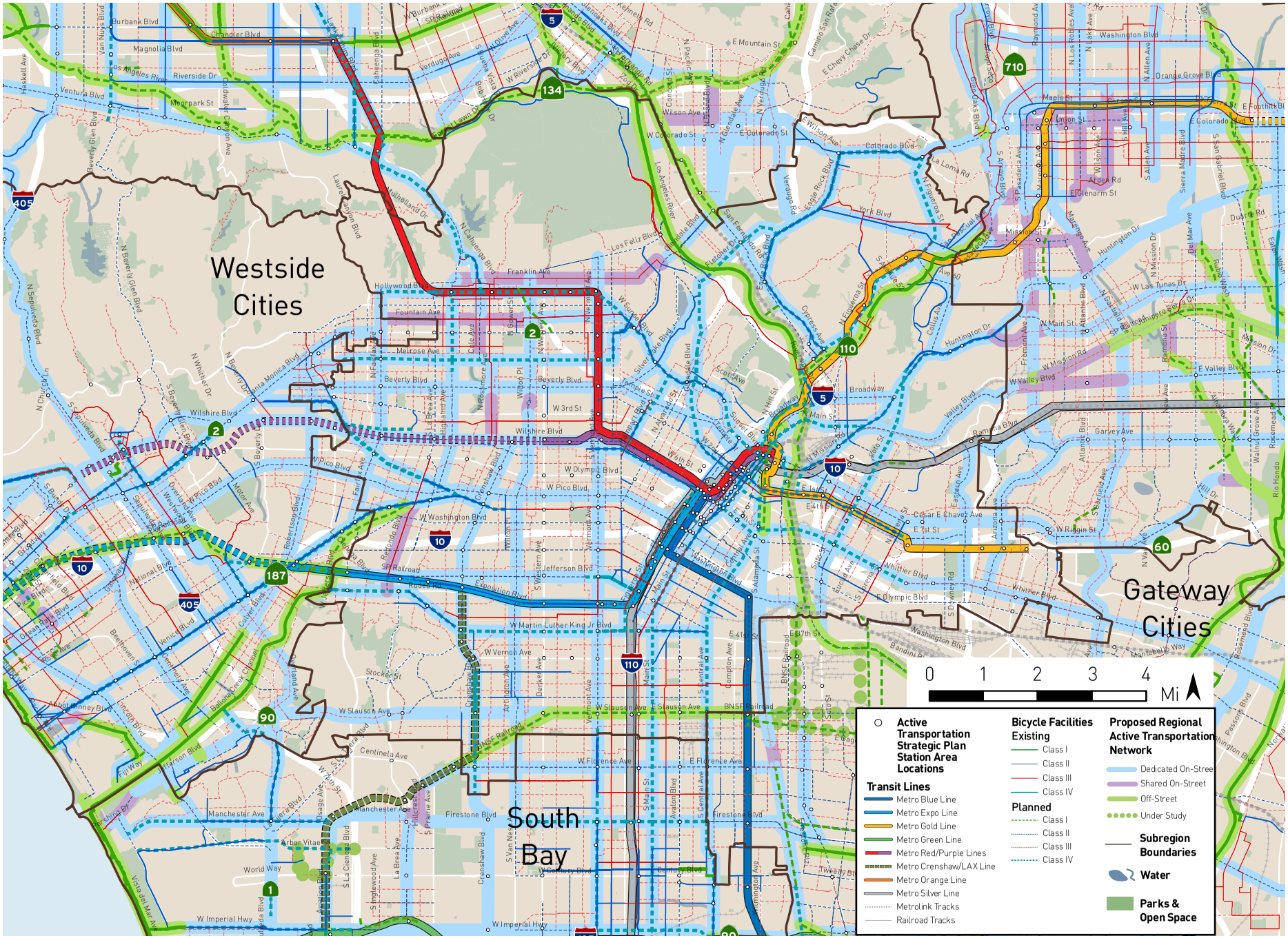
Map 3: North Los Angeles County Proposed Regional Active Transportation Network



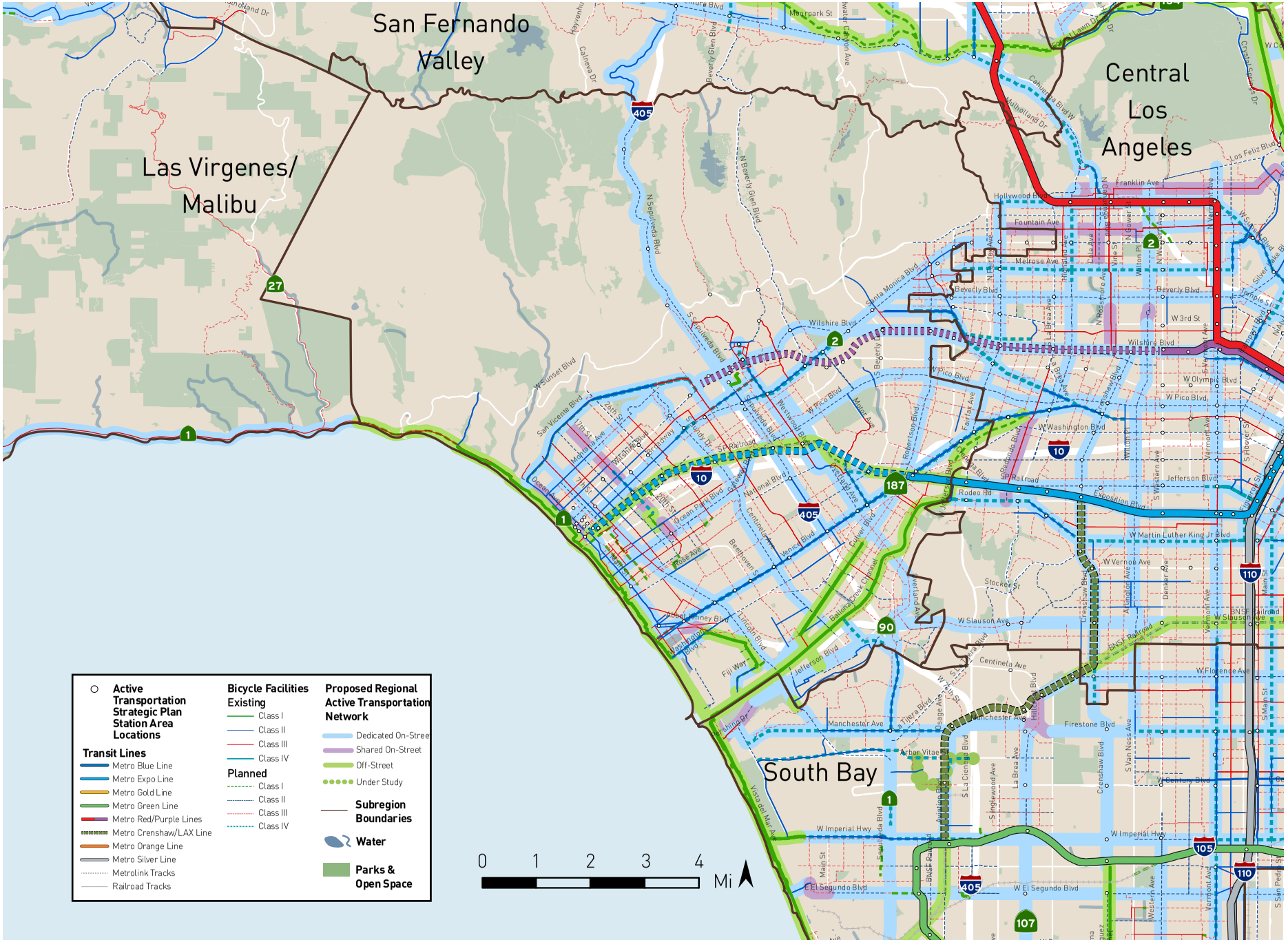
Map 4: San Gabriel Valley Proposed Regional Active Transportation Network



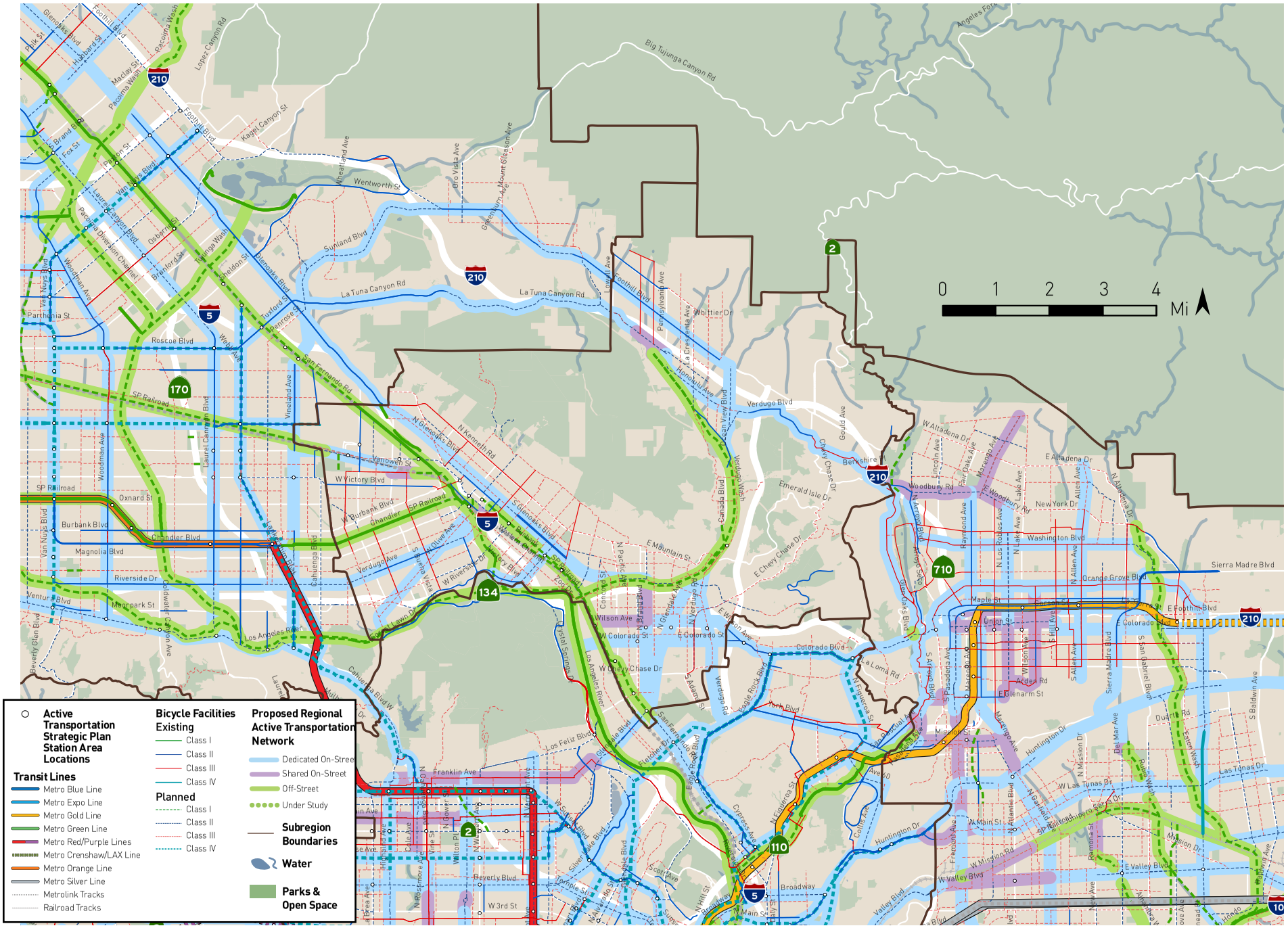
Map 5: Central Los Angeles Proposed Regional Active Transportation Network



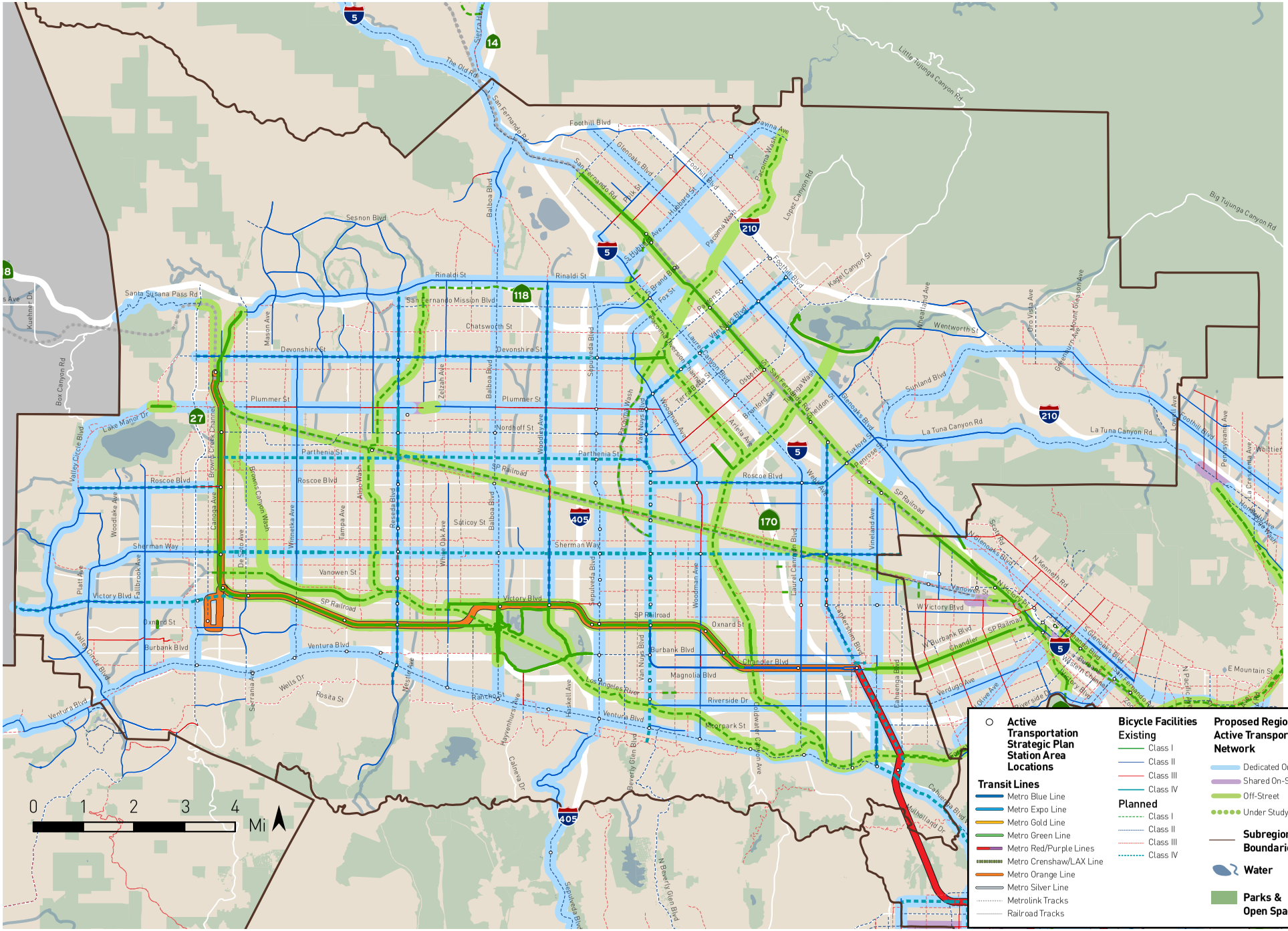
Map 6: Westside Cities Proposed Regional Active Transportation Network



Map 7: Arroyo Verdugo Proposed Regional Active Transportation Network

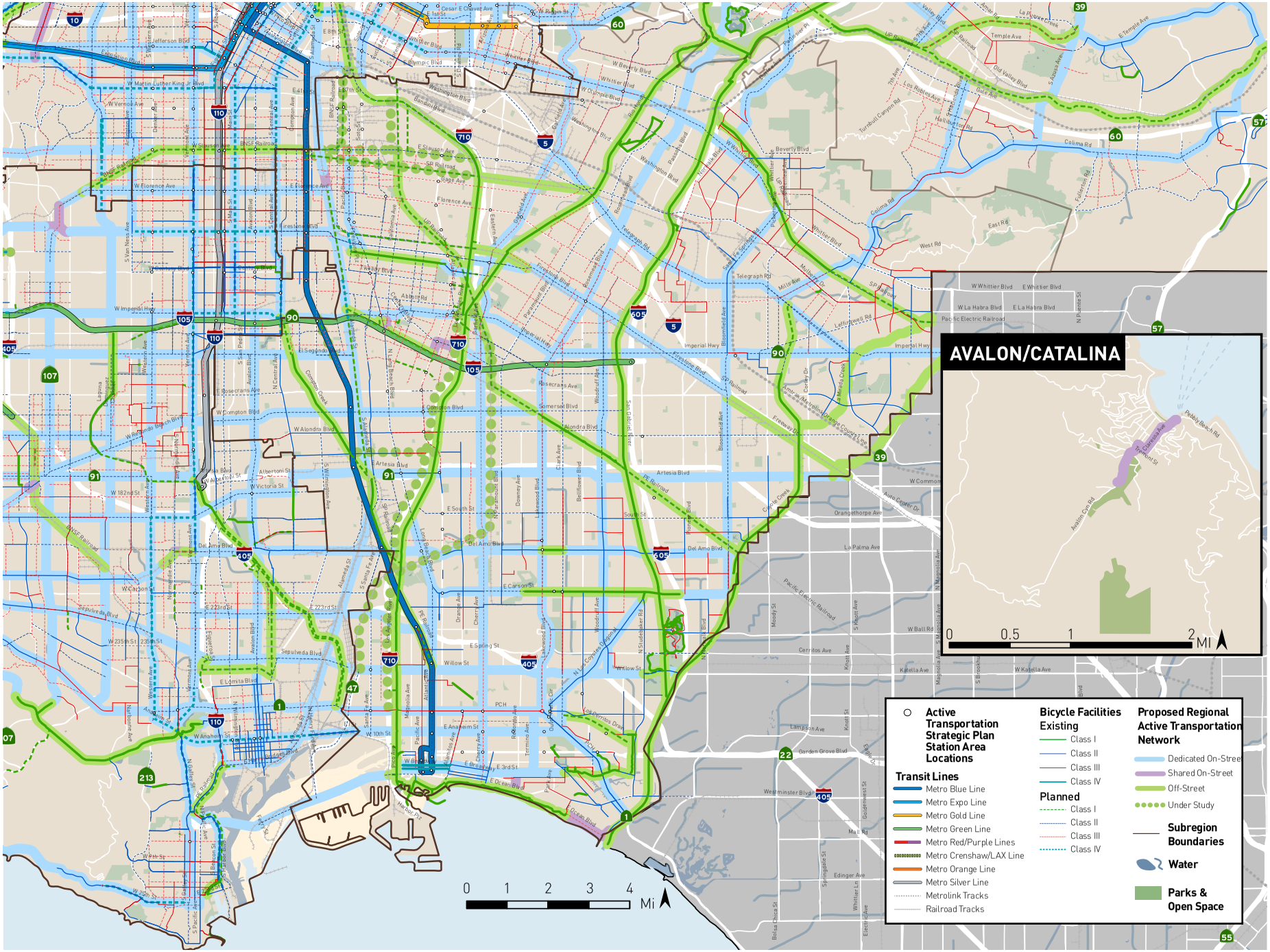


Map 8: San Fernando Valley Proposed Regional Active Transportation Network



Map 9: Las Virgenes-Malibu Proposed Regional Active Transportation Network

Map 10: Gateway Cities Proposed Regional Active Transportation Network



Map 11: South Bay Proposed Regional Active Transportation Network

Table 4.2

Table 4.2 presents a summarized project list for the facilities included in the proposed Regional Active Transportation Network. This network includes nearly 2,000 miles of low-stress active transportation facilities throughout Los Angeles County and consists of three generalized facility types, as defined in Table 4.1: Dedicated On-Street, Off-Street, and Shared On-Street.

Table 4.2 shows the total mileage by type for each subregion in the county, as well as a low, medium, and high cost estimate for the Regional Network based on the mileage. More detail about the specific facilities included in the Regional Network can be found in Appendix H - Regional Active Transportation Network Methodology and Analysis.

Subregion	Milage				Total Cost Estimate		
	Dedi-cated	Off-Street	Shared	Metro Study	Low	Medium	High
Arroyo Verdugo	36	20	4	-	$3,813,436	$61,275,537	$320,652,189
Central Los Angeles	232	24	9	1	$9,937,396	$160,066,589	$837,315,707
Gateway Cities	196	129	5	12	$14,108,395	$226,834,079	$1,186,906,134
Las Virgenes/ Malibu	44	-	-	-	$1,354,114	$21,840,541	$114,226,029
North Los Angeles County	134	47	-	-	$8,547,752	$137,461,688	$719,241,743
San Fernando Valley	230	99	0	-	$18,718,312	$300,843,632	$1,574,245,230
San Gabriel Valley	245	118	27	-	$22,839,528	$367,099,021	$1,920,929,795
South Bay	168	39	3	-	$8,931,079	$143,718,448	$751,906,645
Westside Cities	90	35	8	-	$5,531,081	$88,991,715	$465,598,235
Ports & Airports	15	0	-	2	$501,843	$8,091,489	$42,320,642
Total	**1,390**	**510**	**55**	**15**	**$94,282,934**	**$1,516,222,738**	**$7,933,342,350**

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Users of all ages enjoy bike-related activities in the LA area

Pedestrian and cyclists wait to board a Metro bus

Green bike lanes provide visible cycling access in Santa Monica

Attachment B – Stakeholder Outreach Matrix

Stakeholder Outreach Meetings

MEETING DATE & TIME	ORGANIZATION
Thu, 4/2/2015, 9-11am	Active Transportation Strategic Plan Project Technical Advisory Committee (Meeting #1 Kick-off)
Thu, 6/15/2015, 12pm	San Gabriel Valley Council of Governments - Public Works Technical Advisory Committee
Tue, 6/16/2015, 9:30am	Metro Bus Operations Subcommittee
Thu, 6/18/2015, 9:30am	Metro Streets and Freeways Subcommittee
Mon, 6/25/2015, 12pm	San Gabriel Valley Council of Governments - Planners Technical Advisory Committee
Wed, 7/1/2015, 4pm	Gateway Cities Council of Governments - Transportation Committee
Tue, 7/7/2015, 9am-11am	Active Transportation Strategic Plan Project Technical Advisory Committee (Meeting #2)
Wed, 7/8/2015, 8am	Gateway Cities Council of Governments - Planning Directors
Tue, 8/4/2015, 4pm-6pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 1 (San Gabriel Valley & Surrounding Area)
Tue, 8/11/2015, 4-6pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 1 (Westside & Surrounding Area)
Wed, 8/12/2015, 4-6pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 1 (Central & Surrounding Area)
Thu, 8/13/2015, 4pm-6pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 1 (North County & Surrounding Area)
Mon, 8/17/2015, 4pm-6pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 1 (South Bay & Surrounding Area)
Wed, 8/19/2015, 12pm	South Bay Cities Council of Governments - Infrastructure Working Group
Mon, 8/24/2015, 4pm-6pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 1 (Gateway Cities & Surrounding Area)
Wed, 8/26/2015, 4pm - 6pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 1 (San Fernando Valley & Surrounding Area)
Thu, 9/10/2015, 4pm	San Gabriel Valley Council of Governments - Transportation Committee
Fri, 9/11/2015, 2pm	Natural Resources Defense Council
Wed, 9/16/2015, 2:30pm - 4:30pm	South Bay Cities Council of Governments - Livable Communities Working Group
Wed, 9/23/2015, 6-7:30pm	Metro Bicycle Roundtable

MEETING DATE & TIME	ORGANIZATION
Wed, 10/7/2015, 9:30am	Metro Technical Advisory Committee
Wed, 10/7/2015, 6pm	Gateway Cities Council of Governments Board Meeting
Wed, 10/14/2015, 10:30am	Metro Transportation Demand Management & Sustainability Subcommittee
Wed, 10/14/2015, 11am	Metro Ad Hoc Sustainability Committee
Thu, 10/15/2015, 9:30am	Metro Streets and Freeways Subcommittee
Tue, 10/20/2015, 9:30am	Metro Bus Operations Subcommittee
Thu, 10/29/2015, 2:30pm	Metro Local Transit Systems Subcommittee
Tue, 11/3/2015, 2pm-4pm	Active Transportation Strategic Plan Project Technical Advisory Committee (Meeting #3)
Wed, 11/18/2015, 4:30pm	City of Compton
Thu, 12/3/2015, 4-6pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 2 (North Hollywood)
Mon, 12/7/2015, 4-6pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 2 (Norwalk)
Tue, 12/8/2015. 4-6pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 2 (Torrance)
Wed, 12/9/2015, 4-6pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 2 (Baldwin Park)
Mon, 12/14/15, 9-11am	Active Transportation Strategic Plan Stakeholder Workshops – Round 2 (Los Angeles)
Tue, 12/15/2015, 5-7pm	Active Transportation Strategic Plan Stakeholder Workshops – Round 2 (Santa Clarita)
Tue, 1/5/2016, 10am	County of Los Angeles
Wed, 1/6/2016, 2:00pm	California High Speed Rail Project
Thu, 1/7/2016, 4pm	San Gabriel Valley Council of Governments
Wed, 1/20/2016, 2pm	Metro Planning & Programming Committee
Tue, 2/9/2016, 1pm	City of Los Angeles
Tue, 3/1/2016, 9am-12:30pm	Metro's 2016 Active Transportation Summit
Wed, 3/2/2016, 9:30am	Metro Technical Advisory Committee
Tue, 3/8/2016, 3pm	ENVIROMETRO Coalition
Wed, 3/9/2016, 8am	Gateway Cities Council of Governments, Planning Directors
Thu, 3/10/2016, 10:30am	Metro Accessibility Advisory Committee
Wed, 3/16/2016, noon	South Bay Cities Council of Governments, Infrastructure Working Group
Thu, 3/17/2016, 9:30am	Metro Streets and Freeways Subcommittee
Thu, 3/17/2016, noon	San Gabriel Valley Council of Governments, Active Transportation Working Group
Thu, 3/17/2016, 4pm	San Gabriel Valley Council of Governments, Transportation Committee

Attachment C – Public Comments and Metro's Response

Public Comments and Metro's Response

#	Comment (Main Points)	Metro's Response
1	Active Transportation Summit Discussion (March 1, 2016) How are the needs of seniors and persons with disabilites addressed in the ATSP?	The Plan identifies opportunities and strategies to improve safety and access for people who use transit, walk, and bicycle, which include seniors and persons with disabilities.
2	Active Transportation Summit Discussion (March 1, 2016) Metro needs to improve their accommodations for persons with visual impairments. Announcements on transit should be clear, calling out stops and identifying the transit line.	Metro currently provides such accommodations and is in compliance with all requirements of the Americans with Disabilities Act. We continuously strive to improve services for our customers. We encourage customers to report malfunctioning equipment so it can be repaired. When contacting Metro, please note details like when and where, direction of travel, and, if possible, report the bus number (usually a four digit number on the outside and inside of the bus). Customers can report this information by calling 1-323-GOMETRO or fill out a comment form online at metro.net.
3	Active Transportation Summit Discussion (March 1, 2016) Safety on public transit is very important and needs more attention. What is Metro doing to improve safety?	Metro is in the process of modifying the way security and law enforcement personnel are deployed throughout the transit system. In the coming months, transit patrons will see that additional staffing has been added to patrol our stations, trains and buses.
4	Active Transportation Summit Discussion (March 1, 2016) There needs to be standards for crosswalks; some are fully-striped and others are just a single line across the street.	Crosswalk installation and markings are at the discretion of local agencies. Policies may differ regarding the striping pattern for crosswalks, implementation of uncontrolled crossings, and can be based on unique conditions or locations. Standards for these markings are developed and applied at the City level; however, Metro recognizes the importance of these pedestrian facilities and enhanced crossings are an important component of the first/last mile case studies, which are in Volume II of the ATSP.
5	Active Transportation Summit Discussion (March 1, 2016) Individuals identifying as low-income often use public transit and active transportation modes already. How is Metro addressing the built environment impact of the ATSP on low-income communities?	Metro has identified numerous strategies and partnership opportunities in the ATSP to improve the built environment for people who walk, bicycle, and use transit. The ATSP includes a Countywide Active Transportation Network that serves many low-income communities, including first last mile active transportation improvements to 661 transit station areas and almost 2,000 miles of Regional Active Transportation Network.
6	Active Transportation Summit Discussion (March 1, 2016) Metro should emphasize education and outreach in explaining the ATSP to decision-making stakeholders like municipalities so they can make better informed decisions concerning public health and the environment.	Education and outreach are key components and described in detail in the report. The ATSP includes talking points and graphics to help explain the benefits of active transportation to different stakeholders, including decision-makers. Benefits of active transportation as it relates to health and environemnt are described in the ATSP Report, Volume I, Chapter 2, and in Volume II, Appendix A, Benefits and Effects of Active Transportation.
7	Active Transportation Summit Discussion (March 1, 2016) Metro should improve community outreach before the planning phase to help with community buy-in and support.	Involvement of a wide-range of stakeholders is essential to implementation of successful active transportation projects. Specific outreach strategies are identified during each project's development process. In most instances, active transportation projects are implemented by local jurisdictions. The ATSP includes recommendations for outreaching to communities and identifies potential education and encouragement activities and programs to build community support.

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8	Active Transportation Summit Discussion (March 1, 2016) City and county plans don't necessarily agree on specific bike accommodations for children or for residents in general. Agreement on land use and road design is lacking. Can Metro help find common ground between agencies on bike/bus, capacity improvements?	The ATSP identifies best practices and designs for creating a high-quality, low-stress, safe regional active transportation network for all users, including children and residents in general. Metro is in the early stages of developing a Bike/Bus Interface Study that will establish recommended infrastructure guidelines that enhance safe and efficient mobility for roadway users. Study tasks include performing in-depth technical analyses to understand effects of bicycle infrastructure on transit operations and overall roadway safety, completing a review of national and international best practices and research on bike/bus interactions, developing training guidance and safety tips for transit operators and bicyclists, and identifying appropriate design guidelines.
9	Active Transportation Summit Discussion (March 1, 2016) Will the ATSP affect areas across county borders? What interactions are expected between county borders?	Metro's ATSP is limited to Los Angeles County and this plan identifies a number of potential active transportation corridors that extend to these boundaries. While these plans are limited to Los Angeles County, it may affect areas beyond the county border as adjacent jurisdictions plan and implement facilities that provide active transportation facilities across regional boundaries. At these locations on the borders of the county, it is suggested that cities partner and coordinate to help create a connected and seamless system of active transportation facilities that may manifest themselves by implementating and connecting facilities in one jurisdiction, followed by a subsequent implementation phase in the adjacent jurisdiction.
10	Active Transportation Summit Discussion (March 1, 2016) How do all the Metro plans (i.e. ATSP, First/Last Mile, Complete Streets, etc.) work together?	The ATSP will be updated to provide an overview of these plans and their relationship.
11	Active Transportation Summit Discussion (March 1, 2016) Each of the Metro plans need to identify a reference person for questions and have a list of main contacts.	Individual projects and programs usually have a point of contact. During instances when that information is not apparent, stakeholders are encouraged to contact Metro's Community and Municipal Affairs staff. Contacts for these individuals are posted on Metro's website at https://www.metro.net/about/community-relations/community-and-municipal/.
12	Active Transportation Summit Discussion (March 1, 2016) Metro should make active transportation improvements a standard requirement in transportation corridor projects. For example, X% of all projects should contain certain amount dedicated to first last mile.	The ATSP implementation plan includes next steps for further integrating first last mile and active transportation elements into Metro corridor projects.
13	Active Transportation Summit Discussion (March 1, 2016) Many gaps still exist from the 2006 Bicycle Transportation Strategic Plan (LA River being the most significant). How does the ATSP address this? Gaps need to be prioritized.	The ATSP includes a comprehensive approach to support local municipalities and other stakeholders get to implementation and fill those gaps to create a high-quality, low-stress regional active transportation network.
14	Active Transportation Summit Discussion (March 1, 2016) The upcoming ballot (R2) iniative should include Active Transportation components.	The Proposed Ballot Initiative includes a two-percent set-aside for the Regional Active Transportation Program, with approximately half of those funds allocated for projects that will be consistent with the ATSP. The ballot measure also includes 16% allocation for local return, which can be used for active transportation projects. The draft expenditure plan for the Potential Ballot Measure is currently available for public comment.

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15	Active Transportation Summit Discussion (March 1, 2016) Is Metro considering planning design changes for bikes boarding trains? If so, has conflicts with ADA requirements been addressed (since bikes take up the same space as people)?	Rail car design changes that include bikes and affect ADA access/spaces involve review/approval from Metro ADA/Civil Rights Department. On new light rail vehicles, designated space for ADA and bike/ oversize items have been separated, which also include improved graphic decals for better visibility and access. Metro bike on rail rules include giving priority to passengers with access needs. Metro will continue to monitor bike boardings and address issues through future design updates.
16	Active Transportation Summit Discussion (March 1, 2016) Metro needs to have an evaluation process; regular bike plan revisits and check-ins are recommended to review status and progress on projects.	As part of the implementation plan for the ATSP, Metro plans to review and consider updates to the ATSP at least every five years. Additional benchmarks and monitoring will be conducted to evaluate the progress of ATSP implementation.
17	Active Transportation Summit Discussion (March 1, 2016) Funding: More funding is needed for Active Transportation projects. Is Metro increasing the amount of funding for Active Transportation projects in Call for Projects?	Additional funding for active transportation is recommended as part of the ATSP implementation plan. The actual amount allocated for active transportation will be determined by the Metro Board of Directors. A high level estimate of annual active transportation needs in Los Angeles County has been provided in the ATSP to inform the discussion.
18	Active Transportation Summit Discussion (March 1, 2016) Many municipalities and organizations do not have the staff resources to write or to carry out grant awards. Can Metro provide assistance?	The ATSP outlines opportunities and next steps for Metro to assist municipalities achieve project implementation, including grant-writing technical assistance.
19	ATSP Workshop Round 3 Discussion (March 1, 2016) Funding applications should be streamlined. Metro should coordinate with Caltrans to make applications easier.	Metro continues to identify opportunities to further streamline grant applications for capital grant programs administered by our agency. For grant funding that requires local jurisdictions to work directly with Caltrans, Metro encourages the local jurisdictions to directly contact applicable Caltrans staff.
20	Active Transportation Summit Discussion (March 1, 2016) Can Metro serve as application partner/administrator or provide design assistance?	As part of the implementation plan for the ATSP, Metro has identified a number of next steps for actively engaging with partners to provide assistance.

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21	Active Transportation Summit Discussion (March 1, 2016) In terms of development, is it possible for a portion of the required parking to be redistributed to active transportation?	How Metro can address parking depends on what is meant by “Development”. In terms of commercial development on Metro-owned property or near Metro transit lines, the parking requirements are set by the local municipality, generally the relevant City. Through Metro's Transit Oriented Development (TOD) Planning Grant program, the agency has provided 32 grants across the County to cities with land use regulatory control. These grants are to help cities adopt land use plans that remove regulatory barriers to transit oriented development. One such barrier is parking – reducing parking requirements can reduce the cost to develop and open up space for other transit-supportive uses. However, it is up to each City, and more importantly the stakeholders that will be engaged in the planning process, to determine if they are willing to reduce parking requirements. If by “Development” the reference is to Metro’s development of the transit system, parking requirements are set during the environmental process. Metro takes into account the likely demand for park and ride facilities based on ridership projections and also looks pragmatically at where parking can be located along the transit line. (Please note that park and ride facilities are also part of a first last mile strategy). The proposed parking plan along the transit line is shared with stakeholders throughout the planning and environmental process, and once the environmental documents are certified, Metro is required to provide that level of parking. If, after operating the system, Metro finds that the parking provided is not being used at the capacity anticipated, then Metro can explore repurposing parking for other uses, which could include active transportation. These changes must be approved by the Federal Transit Administration. Metro’s Parking Management Team is currently working on a Supportive Transit Parking Master Plan to develop a long-term strategic plan for Metro to develop a self-sustaining parking management program, which includes assessing every existing park and ride facility to determine if it is at capacity, if additional parking is needed, or if Metro can consider repurposing parking for other transit-supportive uses.
22	Maria Camacho, LA River Revitalization Corporation I reviewed the Draft Plan, and I would love if we can elaborate on the Rail to River project mentioned to be an example of the use of the river as an active transportation linear space that could also be seen as a Regional Network Project. As one of our partner nonprofits (Watershed Conservation Authority) mentioned in today's Summit comment period, gaps along the LA River bike path remain and we want to make sure those are seen as strategic opportunities to also meet Metro's regional network goals.Thanks for including my comments into the comment period.	Comment noted.

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23	Maria Camacho, LA River Revitalization Corporation As you know, my organization is very much pushing for attention to completing the full 51-mile bike/active recreation path along the LA River. Given the proximity of the river to 30% of major transportation stops (within 1 mile), we truly believe the river can act as a spine to our regional transportation options and become a wonderful means for active transportation space.	Comment noted. The LA River is included in the Regional Active Transportation Network.
24a	Metro Technical Advisory Committee (TAC) A motion was made by Larry Stevens (League of California Cities – San Gabriel Valley COG) and seconded by John Walker (County of Los Angeles) to request that Metro staff convey TAC's position to the Board that first last mile and active transportation components become a standard to be considered in conjunction with design of new stations and updates to existing stations for projects that do not have a Life of Project (LOP) budget established.	The ATSP implementation plan has identified a number of next steps to further integrate first last mile and active transportation elements into Metro corridor projects and station improvements. The ATSP implementation plan will be updated to explicitly state "Implementation Action 4.8 Include first last mile and active transportation components as a standard in conjunction with design of new stations and updates to existing stations for projects that do not have a Life of Project (LOP) budget established."
24b	Nicholas de Wolff, City of Burbank Sustainability Task Force Kudos on a very challenging process moved forward with vigor! Looking forward to seeing the results of all your hard work manifest: a more connected, healthier, more community-oriented multimodal transportation infrastructure for the whole of LA County. It will be years in the making, but if more municipalities and agencies demonstrate the same degree of commitment and vision as has been shown by your team, it is eminently doable!	Comment noted.

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25	Richard Parks, Sol Price Center for Social Innovation Looking at the maps, I am glad to see parochial schools included, however, it appears that Charter School locations may have been omitted. For example, the Global Education Academy Middle School at 1374 W 35th St, Los Angeles, CA 90007 [sic] does not appear on the map. Public charters now educate 10% of LAUSD students.	As the on-line portal is updated and data are refreshed, this mapping will be updated.

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26	Richard Parks, Sol Price Center for Social Innovation Looking at the Vermont Ave. / Jefferson Blvd. station [sic] I would note the following: Walkshed Points of Interest • USC does not appear to be represented with a light blue dot; the one blue dot appears at the location of the Hebrew Union College on Hoover St. – Colleges/Universities • USC Engemann Student Health Center (1031 W 34th St, Los Angeles, CA 90089) also hosts faculty practices for a range of medical services available to the public. – Health and Services • Herman Ostrow School of Dentiry of USC Patient Clinic (925 West 34th Street, Los Angeles, CA 90089-0641) – Health and Services • The USC Uytengsu Aquatics Center (home of the McDonalds Swim Stadium) is open to the public (1026 W 34th St, Los Angeles, CA 90089) - Recreation • The USC Dedeaux Field is where USC plays all of its home baseball games which are [sic] open to the public - Recreation	See response to comment #25.
27	Richard Parks, Sol Price Center for Social Innovation Bikeshed Points of Interest: • All of the above • City of Los Angeles Rose Garden (701 State Dr, Los Angeles, CA 90037) - Recreation • Natural History Museum of Los Angeles County (900 Exposition Blvd, Los Angeles, CA 90007) - Arts • California Science Center (700 Exposition Blvd, Los Angeles, CA 90007) - Arts • California African American Museum (600 State Dr, Los Angeles, CA 90037) - Arts • Expo Center (3980 Bill Robertson Lane, Los Angeles, CA 90037) - Recreation	See response to comment #25.

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28	Richard Parks, Sol Price Center for Social Innovation Bikeshed Points of Interest (continued): • LA84 Foundation/John C. Argue Swim Stadium (3980 Bill Robertson Lane, Los Angeles, CA 90037) - Recreation • Ahmanson Senior Center (3990 Bill Robertson Lane, Los Angeles, CA 90037) - Services • USC Fisher Museum of Art (823 W Exposition Blvd, Los Angeles, CA 90089) - Arts • USC Galen Center (3400 S Figueroa St, Los Angeles, CA 90089) - Recreation • Shrine Auditorium (665 W Jefferson Blvd, Los Angeles, CA 90007) – Arts • Los Angeles Memorial Sports Arena (3939 S Figueroa St, Los Angeles, CA 90037) • Los Angeles Memorial Coliseum (3911 S Figueroa St, Los Angeles, CA 90037)	See response to comment #25.
29	Richard Parks, Sol Price Center for Social Innovation I hope this local perspective is helpful. Again, I so appreciate the efforts of you and your team to create a resource that will help organizations and local government apply for active transportation funding.	Comment noted.
30	Michael James Hayes First off, I sincerely appreciate Metro's dedication to an improved Los Angeles, thank you for your efforts. The following suggestions come from my experience visiting and studying in many of the world's greatest cities and working as a professional in architecture and design.	Comment noted.

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31	Michael James Hayes 1. Maximize opportunities around stations by catering to pedestrians rather than vehicles. To continue to provide parking at stations is to perpetuate car dependency and necessity. Stations ought to be destinations in and of themselves, not platforms surrounded by expansive (free) parking. Obviously the move to introduce paid parking at stations has been met with opposition among the vocal minority who drive, but they can't expect to benefit from suburban and urban lifestyles at the expense of the majority (those who don't require parking to ride metro) Provide a comprehensive mixture of uses (commercial, residential, retail, entertainment etc) at each station at the scale of the neighborhood which the station belongs and create inherent appeal at each station with accommodations for more frequent riders, not exclusively for daily commuting.	We agree on the importance of active transportation improvements around stations and seek to balance needs of multiple customers who access our stations using different modes. Metro's transit parking program is an important first last mile strategy and a key service to transit customers who must use our park and ride facilities to connect to our transit network. With a recent focus on improving parking management, it has become increasingly clear that Metro needs to look to industry best practices to maximize availability and quality of transit parking and improve the transit customer experience. Metro is currently working on a Supportive Transit Parking Master Plan to develop a long-term strategic plan for Metro to develop a self-sustaining parking management program and retain our parking resource for transit users. Our Parking Management Pilot Program (paid parking) will be implemented at three upcoming Expo II stations. We are working to develop the card reader and data requirements to allow the parking system to verify proof of fare payment and determine if the parker utilized transit within 96 hours. This Pilot Program will identify the extent of poaching by non-transit parkers at parking facilities along the Metro transit system. This program will utilize innovative parking solutions to provide discount incentives for transit users and minimize violations by non-transit users. The revenue generated from the program will recover a portion of the operating and maintenance cost of the parking management program.
32	Michael James Hayes 2. Introduce Bus only lanes along major N/S E/W corridors that have the flexibility to accommodate emergency vehicles when necessary. At street level, the sight of buses whizzing by gridlocked traffic could be a very powerful motivator for commuters to switch to public transit or at least consider the benefits of transit.	Metro is introducing bus lanes in the region. We just completed the Wilshire Bus Rapid Transit (BRT) Project in August 2015, which includes 7.7 miles of peak period bus lanes along Wilshire Boulevard, the busiest transit corridor in the County. We are also currently conducting two BRT technical studies, one on the Vermont corridor and the other on the North Hollywood to Pasadena corridor. As part of those BRT studies, we will be looking at the feasibility of implementing dedicated bus lanes, including other bus speed improvements.
33	Michael James Hayes 3. Speaking of benefits... there are many that go unnamed, increased safety aboard transit (when compared to driving), decreased cost of mobility, [average transit rider spends ~$1,300 annually, the average car owner spends ~$10,000 annually] increased productivity aboard transit where riders can work, text, read etc, reduced stressed etc.	Comment noted. The benefits of active transportation have also been highlighted in the ATSP Report, Volume I, Chapter 2, and in Appendix A to Volume II.

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34	Michael James Hayes 4. Identify underutilized bus routes near job centers and work closely with employers along route to provide a select number of preloaded TAP cards (round trip fare) to offices that can disseminate among employees. Sort of "free trial" that might expose current drivers to the benefits and convenience of transit.	Metro offers Annual Employer pass programs that are a low-cost, high-value benefit and help to improve employee morale, health and attendance. Employers and employees may qualify for Commuter Benefits, which will significantly reduce the cost of the employee pass and act as a business tax benefit for the employer. Additional information is available at https://www.metro.net/riding/aepp/.
35	Michael James Hayes 5. Enforce full fare payment. I routinely see riders put a few coins in the slot and walk briskly by the driver to avoid being stopped. Perhaps equip buses with a new recording and button that plays "BEEP insufficient fare" loud enough for the bus to hear, the public shame might prevent riders from putting only $0.22 to ride.	We acknowledge that fare evasion and short payments are a problem. To counter the problem, Metro buses announce the fares every time the front door opens. This was done as a reminder to customers that there is a fare and how much they have to pay. Metro Operators are instructed to quote the fare just once (to a non-paying customer) and not to escalate the situation. “Shaming” the rider could lead to verbal or physical altercations between our employees and customers, which is not desirable.
36	Michael James Hayes Overall, the LA metro is a surprisingly decent system that should be more integral to mobility in the area. I sympathize with Metros effort to dissuade drivers because most angelenos have been engrained with driving since they were young. I've been a resident of LA for just over a year and I've introduced some life long Angelenos to the LA metro system (to their pleasant surprise). Metro is fighting an uphill battle with staunch motor enthusiasts whose driving preference is ruining Los Angeles. It might be worthwhile to target younger, millennials who's preferences might not be so devoted to driving.	Comment noted.
37	Danny Gamboa, Empact Communities I may have some issues with the data on the maps from the web portal. Could I ask you to look at some of our ground truthing of these maps when we are ready to provide you with that info? For example The Cal Enviro screen [sic] for this area seems a bit off and while I'll check my figures, this is one of the most impacted areas in Southern California by Truck traffic and Refineries. my [sic] last check was way above this rank.	The mapped CalEnviroScreen data are based on the CalEnviroScreen 2.0 scores. The scores are represented on a 0-100 index, and the top 25% of scores (not scores 75-100) are shown with cross-hatching. Therefore the intensity of impact may appear lower than expected in terms of the color of the Census Tracts; rather, the cross-hatching shows the most severely impacted areas in LA County. As the online portal is updated and new data are available, this mapping will be updated.

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38	Blair Miller, Pasadena Transportation Advisory Commission I live within the bikeshed but outside the walkshed of the Allen Gold Line Station. I live 1.1 miles from the station. I would ride my bicycle to the station every single day if there was a safe place to leave my bicycle for 11 hours every day (I am at work for 9.5 hours a day for the City of Los Angeles on a 9/80 schedule). Because of the length of my work day and family obligations before and after work, I do not have an extra 40 - 50 minutes each day to walk back and forth to the station. Bike racks are not a safe place to leave a bike for 11 hours a day. A determined bike thief can get through any lock, and it's hard to secure seats and lights and front tires. There are usually either 1 or 0 bikes locked to the bike racks at Allen Station when I am there in the morning. Yet there are hundreds, possibly thousands of people who are within the bike shed of Allen Station who commute via Metro.	Comment noted for secure bike parking request. The Gold Line Allen station has limited Metro property and is not suitable for an "attended" Bike Station. However, non- Metro property on the southwest corner of Maple and Allen, where additional bike racks are provided by City of Pasadena, will be reviewed for secure bike parking option.
39	Blair Miller, Pasadena Transportation Advisory Commission My first preference would be for a Bike Station, or for some other secured and/or attended space. My second preference would be for Bike Lockers. Please include funding for this at Allen Station and at all stations as soon as possible.**We are missing opportunities every day for people who would ride back and forth to the station if there was a truly safe place to leave their bicycle.** I am on Pasadena's Transportation Advisory Commission and I am also a leader of Pasadena's Complete Streets Coalition. I promise that there is local support for this idea, and I would be happy to help organize it.	See response to Comment #38.

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40	Ian Pari, City of Santa Clarita Thank you for the opportunity to review Metro's Draft Active Transportation Strategic Plan. Our only comment would be to ensure that the existing and future improvements for the City of Santa Clarita are consistent with Santa Clarita's Non-Motorized Transportation Plan, which is available at this link: http://www.santa-clarita.com/home/showdocument?id=9307 Thank you again.	The existing and proposed bicycle facilities have been checked for consistency against the Santa Clarita Non-Motorized Transportation Plan, and all the existing and planned facilities in that document have been included in the ATSP.
41	Craig Hensley, City of Duarte One of our Councilmembers, John Fasana, noticed the the newly adopted Duarte Bike and Ped Master Plan was not included in the Draft Active Transportation Strategic Plan. I noticed that we still have time to comment on that plan and want to suggest that the Duarte plan be added. I have attached: 1) the pedestrian plan that implements the First-Mile Last-Mile goals in the area near the new Duarte/City of Hope Gold Line Station; 2) the Citywide Bicycle Master Plan.	The existing and planned facilities contained in these documents have been integrated into the existing and planned bicycle facilities layers of the ATSP, and Duarte's plans have been added to the list in Appendix B, ATSP Volume III.
42	Philip Hawkey, San Gabriel Valley Council of Governments Thank you for the opportunity to comment on Metro's Draft Countywide ATSP. This a comprehensive document that provides a roadmap for the development of safer regional active transportation networks that provide transportation alternatives and increases access to transit. The SGVCOG appreciates the time and effort that went into developing this document, including extensive outreach to cities and subregions.	Comment noted.
43	Philip Hawkey, San Gabriel Valley Council of Governments The SGVCOG would like to provide the following comments related to the draft ATSP: 1. Integration of First/Last-Mile Improvements into All Future Light Rail Stations and Transit Hub Designs: The draft ATSP recognizes the importance of providing connectivity to transit and investing in first/last-mile improvements. However, currently, the implementation of first-last mile improvements does not begin until stations are built, limiting the opportunities and funding available to make these improvements.	See response to Comment #24a.

#	Comment (Main Points)	Metro's Response
44	Philip Hawkey, San Gabriel Valley Council of Governments In order to better integrate first/last-mile improvements into planned stations, the SGVCOG recommends that Metro undertake the following: • Establish Active Transportation and First-Last Mile improvements as a "standard" for all capital projects that include new or remodeled stations and that do not have an approved "life of project" budget; • Evaluate appropriate parking standards for stations and divert excess funds from parking structures to Active Transportation and First Mile/Last Mile improvements; and • Conduct station area planning analysis at the earliest stage of project conception.	See responses to Comments #24a and 31.
45	Philip Hawkey, San Gabriel Valley Council of Governments 2. Coordination with Councils of Governments (COGs): COGs can play an important role in coordinating regional projects and programs. The SGVCOG is currently working with a number of member agencies on the implementation of the SGV Regional Greenway Network and in exploring the feasibility of expanding the Countywide Bike Share program into the San Gabriel Valley. The language referencing the role of COGs in the ATSP should be strengthened, and Metro should take a more active role in engaging COGs on regional projects. COGs can play an important role in identifying, coordinating and prioritizing projects. Additionally, COGs can facilitate collaboration between cities within their subregion, manage planning efforts, serve as the lead for regional grant applications, and seek project support from member agencies.	Metro recognizes the key roles that COGs play and will continue to actively engage with COGs on regional projects. The ATSP has been updated to reflect this stakeholder input.

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46	Phlip Hawkey, San Gabriel Valley Council of Governments 3. Explore Opportunities to Coordinate and Collaborate with Additional Stakeholders: The ATSP should highlight the potential role of school districts, water districts, and other stakeholders to identify and implement multi-benefit, multi-agency projects. This could include actively engaging and encouraging school districts to identify and implement active transportation projects and working with stakeholders to identify and implement multi-benefit corridor improvements (i.e. Complete Streets and Green Streets) in a coordinated manner.	The ATSP has been updated to reflect this input in Chapter 3, Volume I.
47	Philip Hawkey, San Gabriel Valley Council of Governments 4.Priority Funding for Regional Active Transportation Network Projects: The regional active transportation network is intended to serve as the “backbone” for County’s bicycle and pedestrian facilities. Therefore, it is critical that these projects be given priority in implementation and funding. The SGVCOG recommends assigning additional points to Regional Active Transportation Network Projects in the Call for Projects evaluation process and that Metro work with COGs and local agencies to pursue State and Federal funding for these projects. Metro should develop specific funding strategies for the Regional Networks within each respective COG sub-region.	Projects identified as part of the Countywide Active Transportation Network, which includes the Regional Active Transportation Network and first last mile access to 661 station area locations, will be prioritized for funding in Metro's capital grant programs. Specific guidelines and updates to funding criteria and programs will be part of the next steps to implementing the ATSP.
48	Philip Hawkey, San Gabriel Valley Council of Governments 5. SGV Regional Greenway Network: One of the SGVCOG’s priority active transportation projects is the development of a comprehensive SGV Regional Greenway Network, which would create a bicycle and pedestrian “superhighway” along the San Gabriel Valley’s rivers, creeks and washes. While a number of the projects that comprise the SGV Greenway Network have been included in the Regional Active Transportation Network, the SGVCOG requests that Metro consider revising the selection criteria to incorporate all of component projects of the SGV Regional Greenway Network. Currently, the following projects and corridors are not included in the ATSP: Santa Anita Wash (Arcadia/Monrovia); Saw Pit Wash (Duarte/Monrovia); Arcadia Wash (El Monte/Temple City); San Dimas Wash (Glendora/San Dimas); Little Dalton Wash (Irwindale); Verdugo Wash (La Canada Flintridge); Thompson Creek (La Verne); Live Oak (La Verne); Alhambra Wash (Alhambra/Rosemead); and Rubio Wash (San Marino).	The methodology for identifying the ATSP Regional Active Transportation Network is outlined in Appendix H. There is a lot of overlap with the SGV Greenway network, but there will be instances when the corridors don’t line up exactly due to the differences in methodology and selection criteria. Metro incorporated design flexibility into the implementation of the Regional Active Transportation Network, as indicated in the ATSP Report Volume I, Chapter 4, under the section entitled "The Regional Active Transportation Network" and subsection "Design Flexibility", which states that “The alignments identified are also subject to review and modification by the relevant local jurisdiction(s). The Regional Network is intended to provide local jurisdictions with a high degree of latitude to construct facilities using preferred alignments. If a locally-identified alignment diverges from the identified Regional Active Transportation Network project, it can maintain Regional Active Transportation Network status by serving the same desire line as the original Regional Active Transportation Network facility (i.e. serving the same general corridor or destinations). For instance, a jurisdiction may elect to construct a facility along a parallel urban street or off-street corridor serving the same destinations as the original Regional Network alignment. As described above, these alternative facilities may harness the full range of available facility types and design enhancements, provided that the facility meets the eligibility criteria contained in Table 4.1.”

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49	Hartley Voss 1: Changes to LA's streets are TAKING TOO LONG. Other cities are implementing much more ambitious, comprehensive and high quality active transportation plans. The timeline needs to be sped up.	In most instances, Metro does not control the local roadways, which are usually the responsibility of local municipalities. Through the ATSP, we have identified a comprehensive approach to support these local partners to achieve implementation of active transportation facilities.
50	Hartley Voss 2: The idea that "low-hanging fruit" is valuable is wrong. The real issue is there is no safe bike lane network that connects to each other. This is because a true network like New York or Chicago or Portland or Long Beach is creating, is NOT LOW HANGING FRUIT. Hard political choices must be made, ending delays.	Comment noted. See response to Comment #49.
51	Hartley Voss 3:PROTECTED BIKE LANES should be implemented immediately. There are plenty of places where this should be done for basic safety reasons. Spring street, Main street, 7th street for example in downtown. These are streets where bike lanes should be flipped with parking and barriers should be put between car traffic and bikes.	Comment noted. See response to Comment #49.
52	Hartley Voss 4: Dangerous bike lanes cover Los Angeles. Not only are they unprotected, but the pavement along curbs/street edges is often so unsafe, broken and cracked a bike cannot ride in the lane. While car tires are larger and can deal with this poor type of pavement, a bike cannot. Bike lanes in the city should immediately be REPAVED so they are smooth, safe and comfortable.	Comment noted. See response to Comment #49.
53	Ron Milam, Ron Milam Consulting Thank you for helping develop Metro's Draft Active Transportation Plan. It looks like it's on the right track. Here are a few suggestions based on a quick review of the plan: 1. How do we ensure funds are actually allocated for these projects? Can we allocate more of the proposed LA County transportation ballot initiative to fund active transportation, with 10% of funds raised going towards this? For Metro's role on page three, I would like to see an even more active role for Metro, actively taking the lead, committing to high levels of funding, ensuring an ambitious number of 1st/last mile projects get built, etc.	Comment noted. See response to Comments #14 and 49. Additional language has been added to the ATSP Report, Volume I, to discuss the potential ballot measure. The ATSP identifies a number of funding sources and opportunities to achieve implementation, including leveraging existing resources; better positioning partners for local, regional, state, and federal grant funding opportunities; involving the private sector; coordinating among multiple jurisdictions; identifying partnership opportunities among various entities; and using a Complete Streets approach to transportation planning and implementation. The ATSP assumes that multiple funding sources will be necessary to pay for the extensive active transportation needs in the County.

#	Comment (Main Points)	Metro's Response
54	Ron Milam, Ron Milam Consulting 2. In the performance metrics section, o You have several 100% increases for a potential benchmark, which is good. But to help quantify that, I suggest you also put what the new percentage rate would be assuming it goes up 100%. For example, in the percentage of trips completed by bicycle, after a 100% increase (which to me is not ambitious enough), put 2.4%. I think we need to aim for 10% of all trips made by bicycle and set the other benchmarks to be more ambitious. o Two other benchmarks I don't see in the plan: kids that ride to school and older riders (more vulnerable riding populations). o For the Collision statistics section, I'd like to see Metro Commit to a Vision Zero Goal by 2025 - 0 traffic fatalities in LA County, in partnership with the City. Including a county-wide Vision Zero campaign to promote safer and slower driving. So many drivers drive so fast that even with bicycle infrastructure, it can feel scary for people to ride. o In the Greenhouse Gas reductions, I think you need to put in some sort of benchmark instead of just "to be determined" Ask Climate Resolve and/or the Envirometro Coalition.	The benchmarks take into account performance across the county and set important targets across the region. Additionally, implementation of many of the projects that contribute to meeting these targets are not within Metro's control. As Metro collects addtional data, these subgroups and targets may be reevaluated and updated.
55	Ron Milam, Ron Milam Consulting 3. In section 3.4 in the implementation section, increase bike/ped funding to 10% for call for projects funding.	The most recent Call for Projects cycle (2015) allocated approximately 25% to the pedestrian and bicycle modal categories, which is more than the 10% mentioned by the commenter.
56	Ron Milam, Ron Milam Consulting 4. While the implementation section contains lots of great possibilities and different scenarios, it's not clear to me if anything will actually get implemented. And given the rising concerns around ensuring public investments are equitable, does the plan ensure that communities with the least amount of bicycle infrastructure/lowest-income communities, closest to transit, get funds prioritized for active transportation. These are often the same communities where bicycle use is higher and injuries/deaths while biking are higher.	Metro has identified numerous strategies and partnership opportunities in the ATSP to improve the built environment for people who walk, bicycle, and use transit. The ATSP includes a Countywide Active Transportation Network that serves many low-income communities, including first last mile active transportation improvements to 661 transit station areas and almost 2,000 miles of Regional Active Transportation Network, which will be prioritized for funding in Metro's capital grant programs. One of the guiding principles for the development of the Regional Active Transportation Network includes improving travel conditions along routes with a history of bicycle crashes.

#	Comment (Main Points)	Metro's Response
57	Ron Milam, Ron Milam Consulting 5. I may have missed it, but I may have missed this, but developing a network of bicycle boulevards (quieter, residential streets that give priority to bicycling as opposed to motorized transit) would be nice to include in this.	This type of facility is included in the Regional Active Transportation Network, described as a "shared on-street facility" with more detail found in Volume I, page 102.
58	Pauline Chan, Los Angeles Department of Transportation (LADOT) The City of Los Angeles Department of Transportation (LADOT) congratulates Metro on its effort in developing a regional Active Transportation Strategic Plan (ATSP) to support active modes of transportation. The document provides a very comprehensive overview of the need for and benefits of active transportation in the region and promises to be a valuable tool to local agencies as transportation planning and capital projects move forward.	Comment noted.

#	Comment (Main Points)	Metro's Response
59	Pauline Chan, LADOT The plan should include a discussion on Metro's existing planning documents including but not limited to the Long Range Transportation Plan, Short Range Plan, Congestion Mitigation Plan and note how the ATSP will be integrated into or with the goals of those documents	The ATSP has been updated to reflect this input.
60	Pauline Chan, LADOT The Long Range Transportation Plan priorities should be revised to support the ATSP and thus revise the Call for Projects funding policies to reflect ATSP's goals.	This will be carried out as part of the next steps for implementing the ATSP.
61	Pauline Chan, LADOT First/Last mile scope of work should be incorporated in to Metro's project planning and implementation processes agency-wide to support the goals of the ATSP.	See response to Comment #24a.

#	Comment (Main Points)	Metro's Response
62	Pauline Chan, LADOT Steps should be taken to update Metro's grant funding and reporting processes per the ATSP. Completing grant applications, evaluating, and reporting on projects can have a significant effect on agencies' abilities to compete for funding, as the grant administration requirements are cumbersome and a challenge for many local agencies of various scales.	See response to Comment #19.
63	Pauline Chan, LADOT Metro should engage with local agencies to re-scope any project funded in previous Calls for Projects that may be in conflict with the ATSP.	Rescoping of projects in previous Call for Projects is done case by case. Project sponsors are encouraged to contact the assigned Metro project manager and modal leads to discuss changes to scope.
64	Pauline Chan, LADOT Metro should adopt policies that increase capacity of bicycle racks storage on buses from racks that serve two bicycles to racks that serve three bicycles system-wide. The current racks are vastly overprescribed and are in susfficient to meet the needs of the traveling public who need first-mile last mile solutions to support active commutes. Metro should also support policies that allow bikes to be carried on board buses during off-peak or late travel times when bus ridership is lower.	Metro has adopted policies to support triple bike racks for 40' buses (and shorter) and led legislation for state-wide adoption. Since the Metro Orange Line operates on a dedicated right of way, Orange Line buses have been exempted from triple racks since the line first opened. Metro's current operating procedures allow bikes to be carried on board at late night during low ridership times. Folding bikes (20" wheel or smaller) are allowed on buses outside of these times. Metro is one of the nation's leaders in terms of bike on transit policies and is taking a comprehensive strategic approach for first-last mile access, including providing secure bike parking (bike hubs), bike share, etc, to compement the need for additional capacity for bikes on transit vehicles.
65	Pauline Chan, LADOT *Walkshed Analysis Area* - While people on bicycles share the roadway with people driving cars, people traveling on foot mostly travel on sidewalks. Therefore, the boundaries of walksheds around transit should be based on the existing sidewalk network.	Two of the main purposes of the first/last mile analysis is to identify the likely catchment area for people walking and biking around a transit station and to identify the geographic boundary for which existing conditions data was collected and analyzed. There are a number of communities where people may walk in an area that does not have sidewalks by choice or necessity. Rather than limiting or excluding these areas from the catchment and analysis areas, Metro's intent is to identify these as areas that are likely to serve pedestrians due to their proximity to transit and use this to highlight the need and prioritization of addressing deficiencies, such as missing sidewalks. The point that sidewalk presence is important for pedestrian comfort and safety is well taken and this approach reflects areas that serve this activity and should be considered priorities for improvement.

#	Comment (Main Points)	Metro's Response
66	Pauline Chan, LADOT Page 12: *Add* to Countywide Transportation Goal and graphics:" Establish active transportation modes as integral elements of the countywide transportation *system and determine order of magnitude cost estimates for the countywide regional implementation of facilities and improvements to support active transportation as a viable mode choice.*	Planning-level cost estimates have been developed for each corridor of the Regional Active Transportation Network and available in Appendix H of Volume III. Cost estimates for first last mile improvements for different types of station location areas are shown in Volume II Case Studies.
67	Pauline Chan, LADOT Page 15 and 36-37: Using the ATSP: It should be recognized and acknowledged that many agencies (Los Angeles, Long Beach, Santa Monica, Pasadena etc.) in the region have already "picked" the low-hanging fruits, so as not to present expectations to elected officials and the public that there are still a number of treatments that can be easily implemented.	Low-hanging fruits also include continuously using a Complete Streets approach, in which all transportation improvements are viewed as opportunities to create safe, more accessible public streets for all users. Local municipalities are encouraged to coordinate Complete Streets improvements with roadway repaving, re-striping, rehabilitation, renovation, and maintenance planned or underway, in addition to coordinating with private development when applicable.

#	Comment (Main Points)	Metro's Response
68	Pauline Chan, LADOT Page 19: Refers to an increase of use when bike facilities are safe and easy to use. *Convenience* is also a significant factor. It is important to plan and implement bike facilities that actually serve businesses and other destinations to which users want and need to travel.	Comment noted.

#	Comment (Main Points)	Metro's Response
69	Pauline Chan, LADOT Page 25-30: *Add* to Walkshed or Bikeshed Analysis--Existing Conditions and *Public Safety Considerations-determine if older, younger and/or women will walk or ride if they have the option to drive, if the area to the transit node or transit itself is uncomfortable or perceived as a vulnerable mode of travel from a public safety perspectives."* Public safety is a major concern for users in their mode choice and should be considered in the analysis. Walk/Bikeshed should be expanded to include major obstacles that may impede active travelers outside of the capture are, i.e., if the transit station is located on an arterial that is bisected by a freeway and associated freeway ramps are severly limited. While some of the concerns are addressed in the Case Studies Volume II, the areas should be visited much more holistically as each station will have design obstacles specific to each individual location.	It is recognized that personal safety and perceptions of safety impact mode choice for some users and this plan is intended to serve them, as well as those for whom a mode other than transit may not be a choice. There is no available metric or factor that can be applied to this analysis that is anticipated to accurately reflect varying conditions and perceptions around the county with respect to personal safety. The use of crime data would have major limitations and could ignore the needs of many transit patrons who use transit out of necessity, despite also having concerns over safety. The walk/bikeshed analysis is based on the street network and would therefore reflect some of the major barriers described, such as freeways without over- or underpasses. It is agreed that each location should be visited much more holistically and the varying needs and preferences of communties will best be reflected by local planning efforts, which the ATSP supports and complements.
70	Pauline Chan, LADOT Page 51-57: Add Innovation 4 --Vision Zero and High Injury Network(s) text about the City of Los Angeles' Vision Zero Initiative and High Injury Network. Vision Zero and the High Injury Network are referred to in the sub-regional projects and warrant a section in the text that is applicable regionally for prioritization of projects.	Metro supports the pursuit and implementation of local Vision Zero efforts. At this point, this is an innovation that is limited to a few jurisdictions and the strategies identified in one community may not suit another community; therefore, this is discussed as a sub-regional innovation.
71	Pauline Chan, LADOT Page 58-60: Cost Estimates. Comment: Define Regional Network. Limiting the cost estimates to only the walk/bikeshed areas around transit stations severely limits the network development and the ability of active travelers to actually get to the station/stops.	See response to Comment #66.

#	Comment (Main Points)	Metro's Response
72	Pauline Chan, LADOT Page 69: Performance Metrics/Metro capital funding allocated to bicycle/pedestrian improvement: Break into several metrics by facility type and projected per mile cost to equal regional per mile benchmarks.	The ATSP identifies a number of funding sources and opportunities to achieve implementation, including leveraging existing resources; better positioning partners for local, regional, state, and federal grant funding opportunities; involving the private sector; coordinating among multiple jurisdictions; identifying partnership opportunities among various entities; and using a Complete Streets approach to transportation planning and implementation. The ATSP assumes that multiple funding sources will be necessary to pay for the extensive active transportation needs in the County. Setting Metro capital funding allocation targets by facility type would add additional funding and administrative constraints without necessarily helping Metro understand the overall, county-wide effects of active transportation investments. Additional refinements to the benchmarks will occur as the ATSP gets updated in the future.

#	Comment (Main Points)	Metro's Response
73	Pauline Chan, LADOT Page 77: Programs: Organize trainings on bicycle, pedestrian and roadway safety. Replace with: *Identify roadway safety experts in the State of California and Los Angeles County via law enforcement and subject matter experts to develop a curriculum for the implementation of roadway safety in Los Angeles County.*	The ATSP has been updated to reflect this input (Volume 1, page 77).
74	Pauline Chan, LADOT Page 90: Change Class III Bicycle Route to *Bicycle Boulevard Neighborhood Friendly Traffic Calming measures or Corridors.*	The ATSP has been updated to reflect this input (Volume 1, page 90).

#	Comment (Main Points)	Metro's Response
75	Pauline Chan, LADOT Page 100-115: Add to Regional Active Transportation Network - Los Angeles River Bikeway Design Completion. The City of Los Angeles has prioritized completion of the Los Angeles River Bicycle Path to improve regional livability by providing active transportation options with new access to transit, home, schools, jobs and retail. The proejct will complete the design of the Los Angeles River Bicycle Path through the Valley and prepare the project for construction. Also, include language about the need for grade-separated crossings for bike path projects and special attention to arterial intersection treatments that support, protect and prioritize walking and bicycling, especially in high-collision areas.	The LA River Bike Path is included in the proposed Regional Active Transportation Network.
76	Pauline Chan, LADOT The Case Studies should include secure long-term bike parking in all versions. Metro should require secure bicycle parking at new and existing stations to prevent theft and vandalism, as this is a major barrier to riding to the stations and using rail or bus transit. It should not be assumed that the installation of short-term bicycle racks in the public right-of-way is sufficient or considered secure bicycle parking. Space should be dedicated at each station specifically for secure, long-term bicycle parking.	For the Case Studies, some of the transit service and locations are operated by other agencies, so Metro can only offer guidance. However, Metro does require secure bike parking for Metro's new stations through design criteria for transit line development. And in a few instances, some stations have limited adjacent Metro property, where stations exist in the median only, for example. In such cases Metro provides guidance for nearby Metro properties idenitfied for joint development to provide secure bike parking. Metro also monitors demand for bike lockers at existing stations and relocates lockers where needed.
77	Pauline Chan, LADOT **Appendix F:** Performance Metrics - Collision statistic performance metric's potential benchmark should establish a goal to reduce the number of traffic fatalities in the County to zero.	In most instances, Metro does not control the local roadways, which are usually the responsibility of local municipalities. Therefore, achieving vision zero requires commitment from local municipalities. Through the ATSP, we have identified a comprehensive approach to support the benchmark of local municipalities with Vision Zero policies.
78	Pauline Chan, LADOT An Appendix should present public comments gathered through Metro's outreach events with accompanying responses from Metro to improve document's transparency and benefit to local jurisdictions.	The ATSP, Volume III, Appendix C Stakeholder Outreach Appendix has been updated to include meeting notes from the first two rounds of stakeholder workshops. The input received at these meetings informed the development of the ATSP. The third round of stakeholder workshop (Active Transportation Summit) was designed to gather feedback on the Draft ATSP. Public comments to the Draft ATSP and Metro's responses are reflected in this matrix.

#	Comment (Main Points)	Metro's Response
79	Inez Yeung, County of Los Angeles, Department of Public Works 1. The ATSP should consider LA County Public Works' "Suggested Routes to School" (http://dpw.lacounty.gov/tnl/schoolroute/) maps and other pedestrian-related planning documents prepared by cities. These pedestrian planning documents may include pertinent information on pedestrian usage and mobility requirements.	Comment noted. This is an excellent resource for local municipalities to refer to when developing pedestrian improvements.
80	Inez Yeung, County of Los Angeles, Department of Public Works 2. The ATSP should consider Metro's "Los Angeles County Strategic Goods Movement Arterial Plan." The transportation network managed by LA County and other cities accommodates goods movement as well as trucks used in the service, utility, and construction services. The implementation of facilities intended to support active transportation may conflict with the needs of trucks for wider travel lanes, adequate intersection widths to support turning movements, and designated parking/loading zones. (http://media.metro.net/projects_studies/call_projects/images/15_Final_Report.pdf)	Comment noted.
81	Inez Yeung, County of Los Angeles, Department of Public Works 3. The ATSP should consider LA County's "Traffic Signal Synchronization Program (TSSP)." The TSSP improves the mobility through signalized intersections for all vehicles including automobiles, buses, trucks, and bicycles, thereby reducing fuel consumption and air emissions. (http://dpw.lacounty.gov/traffic/tssp.cfm)	Comment noted.

#	Comment (Main Points)	Metro's Response
82	Inez Yeung, County of Los Angeles, Department of Public Works 4. Volume I Page 37: We recommend including the following language under “Helpful Tips”: “Consider the value of active transportation within the holistic framework of sustainability. Use a rating system, such as Envision developed by the Institute for Sustainable Infrastructure, that will reward active transportation improvements and encourage other elements of sustainability. Envision provides framework of criteria and performance objectives to help project teams identify sustainable approaches during planning, design, construction and operation.”	Comment noted. Recommending sustainability rating systems or frameworks is outside the scope of the ATSP given the broad thematic and technical goals of such frameworks.
83	Inez Yeung, County of Los Angeles, Department of Public Works 5. Volume I Page 60: “*Prioritize projects submitted for Call for Projects funding which implement projects and programs identified in the Metro Active Transportation Strategic Plan*” Local agencies should not be penalized for including bikeway facilities in the Call for Projects applications that are inconsistent with the ATSP, especially where the local agency’s bicycle plan or active transportation plan proposes a different class of bikeway facility.	The ATSP is intended to inform Metro's capital grant programs, including the Call for Projects Program. Projects that implement the Countywide Active Transportation Network identified in the ATSP will be prioritized for funding. Specific guidelines and updates to funding criteria and programs will be part of the next steps to implementing the ATSP.
84	Inez Yeung, County of Los Angeles, Department of Public Works 6. Volume I Page 74:Marina Del Rey is also a County unincorporated community.	The ATSP has been updated to reflect this input.

#	Comment (Main Points)	Metro's Response
85	Inez Yeung, County of Los Angeles, Department of Public Works 7. Volume I Page 82: “Update Proposition A, C, and Measure R Local Return Guidelines…” LA County currently maintains approximately 100 miles of Class I bikeway with a limited funding source. Under ATSP, 510 miles of Class I bikeways are proposed. Since gas tax cannot be readily used for routine maintenance of off-road facilities, we request Metro attempt to either: 1) add routine maintenance of Class I bikeway used mainly for transportation purposes as an eligible use of Proposition C and/or Measure R local return funds, or 2) identify another source of funding in the ATSP for the routine maintenance of the additional Class I bikeway infrastructure proposed.	Specific guidelines and updates to funding criteria and programs will be part of the next steps to implementing the ATSP.
86	Inez Yeung, County of Los Angeles, Department of Public Works 8. Volume I Page 101: “The inclusion of sidewalks can be assumed on all on-street facilities with low-stress bikeways, such as protected bicycle lanes (Class IV) or bicycle boulevards (Class III).” This does not apply to all areas of LA County, i.e. rural areas with low pedestrian traffic and communities that prefer a more rural look without sidewalk.	The ATSP has been updated to reflect this input.

#	Comment (Main Points)	Metro's Response
87	Inez Yeung, County of Los Angeles, Department of Public Works 9. Volume I Page 102: "Floating Bicycle Path" should be moved to the "On-Street" category based on its description. Please clearly define "Sub-Grade Bicycle Intersection".	The ATSP has been updated to reflect this input on page 102 of the ATSP Volume I.
88	Inez Yeung, County of Los Angeles, Department of Public Works 10. Volume I Page 103-114: The ATSP proposes bikeway facilities that are inconsistent with the Los Angeles County Bicycle Master Plan (LACBMP). Many of the proposed bikeway facilities on the maps are inconsistent: · Some bikeway facilities identified in the LACBMP as Class II or III are identified in the ATSP as Class I or II. · The ATSP identifies bikeway projects not identified in the L ACBMP.	The Regional Network goes beyond the extent of currently-planned bikeways to prioritize low-stress facilities. In some cases, these are on corridors that already have proposed bikeways and the Regional Network proposes lower-stress facilities than what is currently proposed, and in some cases, they are on corridors that do not yet have proposed bikeways.
89	Inez Yeung, County of Los Angeles, Department of Public Works 11. Appendix B: Add "Unincorporated Los Angeles County Pedestrian Plans, IN PROGRESS".	The ATSP has been edited to reflect this input (Volume III, Appendix B).

#	Comment (Main Points)	Metro's Response
90	Barry Bergman, Rails-to-Trails Conservancy, Western Region 1. On behalf of Rails-to-Trails Conservancy, I respectfully submit the following comments on the Metro Active Transportation Strategic Plan. Rails-to-Trails Conservancy is a national nonprofit organization dedicated to creating a nationwide network of trails from former rail lines and connecting corridors to build healthier places for healthier people. We have worked with many communities in Los Angeles County to support the development of trails and trail networks, and it is exciting to see Metro taking the initiative to develop a regional approach to active transportation. Metro is the primary planner, funder, designer, and builder of the region's transportation system. As such, Metro has a unique role in making sure that all of the elements of the transportation system - even those built and operated by other agencies - work together to provide safe, accessible, and reliable transportation options. Because Los Angeles is one of the country's largest, most populous counties, Metro has a unique opportunity to lead the nation by example by prioritizing healthy active transportation modes. People walking and biking are at the greatest risk of injury and death while traveling, and therefore deserve increased attention from the region's transportation agency to ensure that their needs are met. We commend the draft ATSP for its comprehensive approach to planning for active transportation in Los Angeles County, recognizing the respective roles of Metro and partner agencies to deliver critical transportation improvements for residents. As Metro updates its Long Range Transportation Plan and considers how to allocate the revenue from a potential additional ballot measure, it is critical for Metro to continue this comprehensive approach to ensuring that the most basic mobility needs of all Los Angeles County residents are met.	Comment noted.

#	Comment (Main Points)	Metro's Response
91	Barry Bergman, Rails-to-Trails Conservancy, Western Region 2. RTC commends Metro for its identification of a Regional Active Transportation Network in the ATSP, consisting of nearly 2,000 miles of low-stress active transportation facilities, including over 500 miles of off-street facilities. We strongly support the inclusion of key trail projects that have been included in the plan, such as the San Gabriel Valley Greenway Network and the Los Angeles River Bike Path. However, while the plan specifically calls out the potential opportunities for trail corridors along waterways and utility corridors, **we strongly recommend highlighting the potential for additional trails that may be available through conversion of unused or abandoned rail lines as well as potential rail-with-trail projects along active rail line.** The Rail-to-River project is one example of how such corridors can provide key linkages in a highly developed urban environment.	Metro incorporated design flexibility into the implementation of the Regional Active Transportation Network, as indicated in the ATSP Report Volume I, Chapter 4, under the section entitled "The Regional Active Transportation Network" and subsection "Design Flexibility", which states that “The alignments identified are also subject to review and modification by the relevant local jurisdiction(s). The Regional Network is intended to provide local jurisdictions with a high degree of latitude to construct facilities using preferred alignments. If a locally-identified alignment diverges from the identified Regional Active Transportation Network project, it can maintain Regional Active Transportation Network status by serving the same desire line as the original Regional Active Transportation Network facility (i.e. serving the same general corridor or destinations). For instance, a jurisdiction may elect to construct a facility along a parallel urban street or off-street corridor serving the same destinations as the original Regional Network alignment. As described above, these alternative facilities may harness the full range of available facility types and design enhancements, provided that the facility meets the eligibility criteria contained in Table 4.1.”
92	Barry Bergman, Rails-to-Trails Conservancy, Western Region 3. We also applaud Metro for developing a plan that includes not only a list of active transportation projects, but also recommended policies to support the implementation of the plan and assistance to local jurisdictions to enhance their capacity to implement the active transportation vision. Other elements included in the plan will further bolster the likelihood of projects being implemented, such as the recommendation to implement an automated bicycle and pedestrian counter program. Developing a robust data set to document the usage and value of active transportation will provide useful performance metrics for Metro and enable projects to better compete for funding at the state level.	Comment noted.

#	Comment (Main Points)	Metro's Response
93	Barry Bergman, Rails-to-Trails Conservancy, Western Region 4. To ensure that the ATSP vision is successfully implemented requires two key things: development of an implementation plan with clearly identified priorities, and the funding to complete the plan. **While trails and separated bikeways are included as a significant part of the regional network, the prioritization methodology needs to ensure that these projects are more than just lines on a map.** The ATSP highlights the need to develop a network that serves people of all ages and abilities, and trails will be an important part of making that a reality.	Comment noted.
94	Barry Bergman, Rails-to-Trails Conservancy, Western Region 5. The availability of funding will ultimately determine whether the vision of the ATSP is realized. The plan identifies a range of $11.0 to $29.5 billion needed to make all communities in Los Angeles County safe and accessible for walking and biking, with annual expenditures between $737 million and $1.69 billion for building a high quality network throughout the county. Considering the need for safer streets especially safe, reliable, and affordable transportation options for individuals with disabilities, older adults, and youth, it will be important that funding from the potential 2016 transportation ballot measure addresses the need identified in this plan. In addition to the sales tax measure, we encourage Metro to continue pursuing other local, regional, state, and federal funding opportunities, to align transportation investments with the needs as outlined in the draft ATSP.	See response to Comment #53.

#	Comment (Main Points)	Metro's Response
95	Maria Sipin, MCM 1. Multicultural Communities for Mobility (MCM) is pleased to provide comments on Metro's Draft Active Transportation Strategic Plan. MCM advocates for safe, equitable streets for and with low-income people of color who walk, bike and use public transit in Los Angeles. We applaud Metro's leadership in envisioning a high-quality active transportation network and would like Metro to consider the following recommendations to increase first -last mile mobility options for low-income street users: **Prioritize investments in low-income communities.** Metro should ensure that mobility, economic, health, and safety benefits produced by active transportation are accessible to low-income communities and communities of color. Metro's accompanying Station Area Existing Conditions Maps highlights active transportation infrastructure gaps in the lower income and traditionally underserved neighborhoods of East Los Angeles, South Los Angeles and Northeast San Fernando Valley. These same neighborhoods rely on biking, walking and taking transit as their primary method of transportation yet face disproportionate rates of traffic-related injuries and fatalities and poor health and socioeconomic outcomes. Metro should recognize the unique barriers faced by underserved communities and design street improvements to address these needs. This can also mean creating criterion that will prioritize these treatments in areas of high poverty. In the future, Metro should regularly re-evaluate where infrastructure is being prioritized, in case of major geographical shifts of where low-income residents live due to displacement and an affordable housing crisis.	See responses to Comments #16, 47 and 56.
96	Maria Sipin, MCM 2. **Incorporate model practices that allow meaningful community engagement.** We urge Metro to consider how the planning process could be made more accessible to community members and community-based organizations who do not have the capacity to learn active transportation technical language and advocate for themselves in those terms. We noticed that in the draft plan, typically, only groups with active transportation policy professionals on staff are looked to as community stakeholders. While it is laudable that Metro has been open to collaboration with active transportation advocates, we would like to see a greater recognition that these groups do not represent the diversity of the region. Metro should adopt community-based planning guidelines to ensure stakeholders from underserved groups, including renters, low-income families, people of color and immigrants are included in the planning process.	See response to Comment #7.

#	Comment (Main Points)	Metro's Response
97	Maria Sipin, MCM 3. **Develop measures to ensure community economic security.** We recommend adding community economic security to Metro's list of Regional Active Transportation Network Guiding Principles. Vulnerable families should benefit from the economic benefits for active transportation infrastructure highlighted in the draft plan. The focus on infrastructure investment (for example, the section entitled "If you build it...") should be accompanied by an equal focus on community security in order to ensure that Los Angeles' most vulnerable residents will be able to remain in place and have expanded mobility choices. As stated in the draft plan, "Simply put, more people choose to walk and ride their bicycles when infrastructure investment enables them to do so safely and easily." Given the region's affordability crisis, there has never been a more crucial time for ensuring that these investments do not push people further away from employment and lengthen their commutes, reducing rather than expanding their mobility choices. We recommend the Northwestern University Dukakis Center for Urban and Regional Policy's "Policy Toolkit for Equitable Transit Rich Neighborhoods" as a resource for research based strategies to mitigate unintended impacts of transportation related investments on neighborhoods. As an organization that works with individuals that depend on biking, walking and taking transit, we advocate for community based solutions to address real concerns around gentrification and displacement that can result from infrastructure investments. We have been developing strategies that bridge the gap between low-income street users and active transportation planning since our inception in 2008, and we hope to continue working with Metro staff and partners to ensure all communities can experience a seamless, safe, and affordable multi-modal travel experience.	Metro is one of the participants in the Los Angeles County Transportation Equity Technical Working Group, which is comprised of public agency staff, equity and public health focused-stakeholders and community- and university-based transportation experts. The purpose of this group is to identify, analyze, and recommend equity indicators and suggest policy definitions for social equity in the region's long-range regional transportation plans. The effects of active transportation investments at the local level can be evaluated as part of partnerships with partner organizations to inform future policies.
98	Chau Vu, City of Bell Gardens Class III Bikeway is planned along Gage Ave., Florence Ave, and Garfield Ave. per METRO Active Transportation Strategic Plan. Although the City has not formally adopted a Bike Master Plan, our Citywide Safety Enhancement study supports Class III Bikeway installation along the above roadways as well as Eastern Ave. and Florence Pl. Staff would also recommend expanding other existing bike corridors like Randolph and Firestone for connectivity. Additional community outreach & studies are required for the City of Bell Gardens to solidify a bike masterplan. Staff would disagree with your terminology for a "low-stress" bike path where you have identified many arterials for Class 3 bikeways.	The ATSP includes planned and existing bicycle facilities that are part of an adopted planning document. The corridors mentioned in this comment are eligible for consideration in the Regional Active Transportation Network provided they are sufficiently low-stress. Class III facilities are only considered low-stress if they are implemented with substantial traffic calming elements, and/or are located on low-speed, low-volume streets.

#	Comment (Main Points)	Metro's Response
99	David Kriske, City of Burbank I am writing to express the City of Burbank's support for Metro's Active Transportation Strategic Plan and to provide additional comments on the draft document and resources. The Plan provides many useful talking points, graphics, and other resources for cities to utilize in planning for active transportation. The existing conditions online analysis tool is a good source of data, but we would like to see what plans Metro has for maintaining the online portal and providing updated data as it becomes available in the future.	Further refinements and updates to the existing conditions online analysis will be carried out as part of the next steps for implementing the ATSP.
100	David Kriske, City of Burbank Map 7 of the Proposed Regional Active Transportation Network includes proposed facilities in the City of Burbank. The City wishes to correct to existing conditions to show Class II bike lanes on Victory Boulevard from Burbank Boulevard to Clybourn Avenue. The City requests Metro add the following existing or proposed Class II street segments to the Dedicated On-Street Network: • Third Street from Amherst Drive to Providencia Avenue • Verdugo Avenue from Glenoaks Boulevard to Front Street • Front Street from Verdugo Avenue to Burbank Boulevard • San Fernando Boulevard from Cypress Avenue to Interstate 5 • Empire Avenue from Interstate 5 to Buena Vista Street	These planned and existing facilities have been incorporated into the ATSP's existing conditions, but have not been included as part of the recommended Dedicated On-Street Network. See response to Comment #91.
101	David Kriske, City of Burbank 3. The plan should also acknowledge (if it doesn't already) planned Class I bike facilities that could be integrated into the Off-Street network: • Los Angeles River Bike/Ped Bridge at Bob Hope Drive • Downtown Bike/Ped Bridge between First Street/ Palm Avenue and the Downtown Burbank Metrolink Station	These facilities are not included in the Regional Active Transportation Network, but should be considered as part of the first/last mile improvements for the Metrolink station.

#	Comment (Main Points)	Metro's Response
102	David Kriske, City of Burbank 4. We also support the Plan's proposed implementation strategies including ways the Metro Board can better support funding for active transportation projects. We would like to see more details on City, County and Community Programs and other non-infrastructure strategies, including how non-infrastructure programs can supplement improvements recommended in the case studies, additional resources and ways Metro can fund or support these programs.	The ATSP has been updated to reflect this input.
103	David Kriske, City of Burbank 5. Also, the Metro Potential Ballot Measure includes dedicated funding for Active Transportation Projects and references the Active Transportation Strategic Plan as a reference for funding. The Plan should clarify how the Potential Ballot Measure, if adopted, would use this Plan as funding guidance or project priority.	Additional language has been added to the ATSP Report, Volume I, to discuss the Potential Ballot Measure. The ATSP identifies a number of funding sources and opportunities to achieve implementation, including leveraging existing resources; better positioning partners for local, regional, state, and federal grant funding opportunities; involving the private sector; coordinating among multiple jurisdictions; identifying partnership opportunities among various entities; and using a Complete Streets approach to transportation planning and implementation. The ATSP assumes that multiple funding sources will be necessary to pay for the extensive active transportation needs in the County. Update of funding criteria and guidelines would be part of the next steps of the implementation plan for the ATSP.
104	Christian Vasquez, City of Beverly Hills 1. Thank you for giving us the opportunity to provide input on the Active Transportation Strategic Plan (ATSP). Below are comments/suggestions we have regarding the plan: The ATSP GIS map does not show Beverly Hills' bike facilities. We have two streets with bikeways in the City. Please see the attached map. (Sent in email)	The existing bikeways have been updated to reflect Beverly Hills' facilities.

#	Comment (Main Points)	Metro's Response
105	Christian Vasquez, City of Beverly Hills 2. How does the plan address autonomous vehicles (driverless cars)?	The ATSP does not explicitly address autonomous vehicles.

#	Comment (Main Points)	Metro's Response
106a	Nate Hayward, City of Los Angeles, Office of Council Member Jose Huizar, Council District 14 I would like to transmit our comments and suggested edits to the ATSP. Please see below. After each addition is rationale for why it should be added: - ConnectUS streets: To help facilitate implementation of ConnectUS - Santa Fe Avenue between Center Street and 7th Street: Santa Fe Ave will be the major connection between the 6th St Bridge/LA River Bike Path entrance and the Regional Connector; heavy bicycle and pedestrian use is expected along this corridor. it is also on the Bicycle Lane Network. - Mission Rd between Cesar Chavez and 7th Street: Mission Rd is the major north/south spine just east of the LA River. The 6th St Bridge will connect to this via a bicycle/ped ramp from the bridge deck above. Additionally, protected bicycle facilities are being constructed between 6th St and 7th St. This street is on the city's Bicycle Lane Network - 4th Street/4th Pl between Alameda St and Indiana St: 4th St/4th Pl are in the ConnectUS plan in the Arts District. East of the LA River, 4th St is a major east/west thoroughfare and has multiple schools located next to it. The city anticipates making major capital improvements to Hollenbeck Lake, which is a major destination in the neighborhood. - Boyle Avenue between Cesar Chavez and Olympic Blvd: Boyle Avenue is another major north/south corridor in Boyle Heights. Currently, ATP projects are funded between Cesar Chavez and 4th St. Boyle Ave also runs parallel to Hollenbeck Lake and is a major access point. - 8th Street between Soto St and Olympic Blvd: 8th St is a east/west corridor in southern Boyle Heights. It is located next to the Wyvernwood Housing Development, a low income housing project. 8th St is frequently used by residents who need to get to Lorena on the east or Soto on the west to access major transit lines	There are two components to the ATSP Countywide Active Transportation Network: 1) first last mile access to 661 station area locations and 2) Regional Active Transportation Network. The ATSP has not identified specific first last mile access routes to each station area location, since this should be done at the local level and with applicable stakeholder input. The ATSP is developed to ensure that there is flexibility in local planning, design, and implementation that suits the context of the community. Union Station and stations along the Regional Connector, which are mentioned by the Commenter, are included in the 661 station area locations identified in the ATSP for first last mile improvements. Metro has incorporated design flexibility into the implementation of the Regional Active Transportation Network as well, which is reflected in the ATSP Report Volume I, Chapter 4, under the section entitled "The Regional Active Transportation Network" and subsection "Design Flexibility", which states that "The alignments identified are also subject to review and modification by the relevant local jurisdiction(s). The Regional Network is intended to provide local jurisdictions with a high degree of latitude to construct facilities using preferred alignments. If a locally-identified alignment diverges from the identified Regional Active Transportation Network project, it can maintain Regional Active Transportation Network status by serving the same desire line as the original Regional Active Transportation Network facility (i.e. serving the same general corridor or destinations). For instance, a jurisdiction may elect to construct a facility along a parallel urban street or off-street corridor serving the same destinations as the original Regional Network alignment. As described above, these alternative facilities may harness the full range of available facility types and design enhancements, provided that the facility meets the eligibility criteria contained in Table 4.1."

#	Comment (Main Points)	Metro's Response
106b	Nate Hayward, City of Los Angeles, Office of Council Member Jose Huizar, Council District 14 (Continued) - Olympic Blvd between Santa Fe Ave and Indiana St: Olympic Blvd is an east/west corridor in southern Boyle heights as well. It is located next to Wyvernwood and the future Sears Redevelopment Project which will add 1,000 units to the neighborhood. This street is on the city's Bicycle Enhanced Network - Lorena St between Olympic Blvd and Cesar Chavez: Lorena is the eastern north/south corridor in Boyle Heights. It connects Cinco Puntos in the north with the Whittier/Lorena intersection to the south. - Eastern Avenue between Huntington Drive & Valley Blvd: Eastern Ave is the major north/south corridor in El Sereno. It has multiple schools, a senior center, a recreation center, and small businesses located along the corridor. The city will be conducting an Eastern Ave Vision Plan in conjunction with the community to make the street more bicycle/pedestrian friendly. This street is on the city's Bicycle Lane Network - Alhambra Ave between Valley Blvd and the city boundary with Alhambra: Alhambra Ave, like Valley Blvd to the south, parallels the Union Pacific Railroad tracks. Recently, coffee shops and art galleries have moved in adding pedestrian volume to the street. It also has a very popular playground at Lowell Ave that is a major attraction in the neighborhood. Finally, it connects to Mission Rd in Alhambra and the large shopping center on Fremont Ave	See response to Comment #106a.
106c	Nate Hayward, City of Los Angeles, Office of Council Member Jose Huizar, Council District 14 (Continued) - Monterey Rd between Huntington Dr and the city boundary with South Pasadena: Monterey Rd is a north/south corridor that connects El Sereno with Monterey Hills, Hermon, and South Pasadena. This street is on the city's Bicycle Enhanced Network - Yosemite Dr between Eagle Rock Blvd and Figueroa St: Yosemite Dr is a neighborhood street in Eagle Rock that passes by the high school, a recreation center, and an elementary school. It is frequently used by cyclists and pedestrians due to the slower vehicle traffic and neighborhood feel.	See response to Comment #106a.

#	Comment (Main Points)	Metro's Response
107	Jessica Meaney, Investing in Place; Caro Jauregui, California Walks; Tamika Butler, Los Angeles County Bicycle Coalition; Manal J. Aboelata, Prevention Institute 1. On behalf of Investing in Place and the undersigned Los Angeles County-based organizations, we thank Metro for the opportunity to comment on the draft Active Transportation Strategic Plan (ATSP). Investing in Place works with partners across Los Angeles County to support equitable transportation investments, support great neighborhoods, and improve safety and access for all – especially for those traveling by bus, rail, walking and bicycling. We look forward to supporting Metro in their efforts to implement the ATSP and a Long Range Transportation Plan that meets the mobility needs of all. Metro is the primary planner, funder, designer, and builder of the region's transportation system. As such, Metro has a unique role in making sure that all of the elements of the transportation system – even those built and operated by other agencies – work together to provide safe, accessible, and reliable transportation options. Because Los Angeles is one of the country's largest, most populous counties, Metro has a unique opportunity to lead the nation by example by prioritizing healthy active transportation modes. People walking and biking are at the greatest risk of injury and death while traveling, and therefore deserve increased attention from the region's transportation agency to ensure that their needs are met. We commend the draft ATSP for its comprehensive approach to planning for active transportation in Los Angeles County, recognizing the respective roles of Metro and partner agencies to deliver critical transportation improvements for residents. As Metro updates its Long Range Transportation Plan and considers how to allocate the revenue from a potential additional ballot measure, it is critical for Metro to continue this comprehensive approach to ensuring that the most basic mobility needs of all Los Angeles County residents are met.	Comment noted.
108	Jessica Meaney, Investing in Place; Caro Jauregui, California Walks; Tamika Butler, Los Angeles County Bicycle Coalition; Manal J. Aboelata, Prevention Institute 2. Specifically, we applaud Metro's draft ATSP for addressing first and last mile implementation. The case studies, cost estimates, infographics, and cost-benefit analyses provide actionable information for local agencies seeking to improve access to bus and rail stops. These are useful tools that will help stakeholders implement this plan. With over 83% of Metro bus riders accessing transit by walking, these cost estimates can inform future Metro capital projects and retrofits for the transit and highway network. The draft ATSP's existing conditions analysis of over 660 bus stops and rail stations will help Metro plan and prioritize projects, bringing the agency one step closer to developing shovel-ready projects to improve safe access to transit and local destinations.	Comment noted.

#	Comment (Main Points)	Metro's Response
109	Jessica Meaney, Investing in Place; Caro Jauregui, California Walks; Tamika Butler, Los Angeles County Bicycle Coalition; Manal J. Aboelata, Prevention Institute 3. Investing in Place and its partners want to underscore the need for a social equity policy definition at Metro to enable prioritization and implementation of these infrastructure needs for the stops and stations outlined in the draft ATSP. The ATSP provides a wealth of data indicators, but we see the need for Metro to define its areas of high investment based on social equity benchmarks. The City of Los Angeles' Safe Routes to School program can be a case study for creating a project prioritization plan that includes social equity metrics. Their plan successfully quantified the need for safe routes to over 500 schools, leveraged funding, and created a sequencing plan that was based on need, not political geographic boundaries.(For more information, please visit http://investinginplace.org/2015/10/28/cityof-lasrtsbestpracticefunding/ and http://saferoutes.lacity.org/) For implementation of its first and last mile planning, we believe Metro should follow a similar prioritization process that is methodical and prioritizes high-needs communities.	See responses to Comments #47 and 97.

#	Comment (Main Points)	Metro's Response
110	Jessica Meaney, Investing in Place; Caro Jauregui, California Walks; Tamika Butler, Los Angeles County Bicycle Coalition; Manal J. Aboelata, Prevention Institute 4. To further help with defining social equity needs, Investing in Place is pleased to be working with Metro staff, researchers, and practitioners throughout the County in our Transportation Equity Technical Working Group.(For more on Investing in Place's Transportation Equity Technical Working Group, please visit http://investinginplace.org/2016/03/10/announcing-our-los-angeles-county-transportation¬equity-technical-working-group/) We are developing recommendations for the Metro Board of Directors to define social equity at the neighborhood and regional level in order to prioritize high-needs investment areas. Investing in Place and its partners aim to have these policy recommendations for the Metro Board to review this year and we welcome Metro staff input throughout the process. To ground our approach, Investing in Place strongly supports transportation equity definitions written by the USC Program for Environmental and Regional Equity. They write that transportation equity is: 1. Equitable access to quality, affordable transportation options and, therefore, employment, services, amenities, and cultural destinations. 2. Shared distribution of the benefits (e.g., jobs) and burdens (e.g., pollution) of transportation systems and investments. 3. Partnership in the planning process that results in shared decision-making and more equitable outcomes for disadvantaged communities, while also strengthening the entire region. Reference:USC Program for Environmental and Regional Equity. (2013). An Agenda for Equity: A Framework For Building a Just Transportation System in Los Angeles County. https://dornsife.usc.edu/assets/sites/242/docs/Executive_Summary_Agenda_for_Equity_PERE_A.pdf	Comment noted.
111	Jessica Meaney, Investing in Place 5. That said, we understand a plan is only as good as its available funding. The plan identifies a range of $11.0 to $29.5 billion needed to make all communities in Los Angeles County safe and accessible for walking and biking, with annual expenditures between $737 million and $1.69 billion for building a high-quality network throughout the county. Considering the need for safer streets – especially safe, reliable, and affordable transportation options for individuals with disabilities, older adults, and youth – we hope funding from the potential 2016 transportation ballot measure addresses the need identified in this plan.	See responses to Comments #14, 49, and 53.

#	Comment (Main Points)	Metro's Response
112	Jessica Meaney, Investing in Place; Caro Jauregui, California Walks; Tamika Butler, Los Angeles County Bicycle Coalition; Manal J. Aboelata, Prevention Institute 6. Overall, we believe the draft ATSP is an exemplary blueprint for building out Los Angeles County's active transportation network. Investing in Place and its partners recommend that the draft ATSP be adopted with a prioritization plan for the over 660 bus stops and rail station improvement areas. Identifying social equity benchmarks at an early stage of the first and last mile planning in the draft ATSP can help inform revenue discussions and the Long Range Transportation Plan update. We encourage Metro to continue pursuing local, regional, state, and federal funding opportunities, including the potential 2016 transportation sales tax measure, to align transportation investments with the needs as outlined in the draft ATSP.	See reponses to Comments #14, 49, and 53.

Attachment D – Motion #25: Developing an Active Transportation Finance Strategy

25

Motion by Directors Bonin, O'Connor, Fasana and Ridley-Thomas

Developing an Active Transportation Finance Strategy

Planning & Programming Committee
July 16, 2014

Metro is considering adopting a 10-year Short Range Transportation Plan (SRTP) that reiterates its commitment from the 2009 Long Range Transportation Plan (LRTP) to invest in a rapid expansion of fixed-guideway transit and modernization of our freeway system.

The SRTP provides an investment strategy for all revenues controlled by Metro, including Propositions A and C, Measure R, and state and federal funds, to ensure the timely delivery of transportation projects throughout the county.

The Highway and Transit programs in the SRTP undergo a rigorous planning and needs assessment process that aid Metro in defining both the projects and the resources necessary to meet identified needs. However, the same process is not applied to the active transportation program.

Metro plans to spend close to a billion dollars on walk/bike projects in the next ten years absent a comprehensive planning process or an assessment of countywide needs.

Further, the draft SRTP does not adequately reflect MTA's Countywide Sustainability Planning Policy and joint work program with SCAG to expedite active transportation funding and implement the recently adopted First-Last Mile Strategic Plan.

While the SRTP does integrate sustainable principles and practices into planning activities using an evolving set of performance metrics, critical sustainability metrics, including safety and accessibility measures for walking and biking are not included in the plan.

The SRTP as drafted demonstrates shortcomings in countywide walk and bike planning that Metro should address to ensure that the full range of sustainable mobility options are incorporated into countywide planning efforts.

I THEREFORE MOVE that the MTA Board direct the CEO to:

A. Develop an Active Transportation Finance Strategy for Los Angeles County by January 2015 that:

1. Defines performance metrics to measure improvements for walking and biking, including: access to walking and biking infrastructure, access to education and encouragement programs, rates of Metro customers walking and biking to transit, collision and injury/fatality rates and greenhouse gas reductions from active transportation

2. Sets benchmarks based on the developed performance metrics and identifies what level of annual investment is necessary to meet those goals

3. Inventories available funding sources to meet the investment need

4. Recommends possible changes to Metro, state, and federal policies to increase access to existing funding sources if the need exceeds available funding, including but not limited to an analysis of the funding priorities of Metro's Call for Projects and the state Active Transportation Program.

B. Report back in October on what steps are necessary to incorporate walking and biking in Metro's travel demand model, with an assessment of best practices by other regional transportation agencies for accounting for active transportation with interim off-model approaches, and expanding data sets to include all trips not just commute data.

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Attachment E - Preliminary Estimate of Annual Active Transportation Needs in Los Angeles County

Description	Cost [1]		
	Low	*Medium*	*High*
Total Active Transportation Network - Annual Capital Costs [2]	$698,245,426	$1,013,418,783	$1,613,352,965
First Last Mile Access to Major Transit Stops/ Stations [3]	$347,306,213	$468,699,344	$604,622,152
Regional Active Transportation Network [4]	$4,714,147	$75,811,137	$396,667,117
Local Active Transportation Networks [5]	$346,225,067	$468,908,301	$612,063,696
Metro Bike Services - Annual Capital Costs [6]	$1,068,100	$2,205,900	$3,496,500
Metro Bike Services - Annual Operations and Maintenance [6]	$13,635,000	$26,921,000	$40,016,000
Education & Encouragement Programs - Annual Costs [7]	$24,357,776	$30,010,552	$35,734,663
Total Annual Cost Range	$737,306,302	$1,072,556,235	$1,692,600,128

Notes:

1. Costs are in 2015 dollars and not escalated. Cost estimates are subject to change based on further refinements and economic conditions.
2. Assumes total build out by 2035. Includes planning, design, engineering, environmental clearance, construction, and contingency costs. Cost range considers intensity of infrastructure improvement elements. Includes annual capital costs for first last mile access improvements to major transit stops/stations, regional active transportation network, and local active transportation network.
3. Includes first last mile active transportation improvements to 661 total station areas, which consist of existing and under construction Metro Rail, Metro Rapid, Metrolink, and high ridership local bus stops served by Metro and municipal transit operators. Each station area location may consist of multiple bus stops and rail stations that are close to each other - this enabled stops that are on opposite sides of the streets, rail stations that have bus stops nearby, or stations that have more than one portal to be treated as one area rather than multiple areas with duplicative analysis.
4. Regional active transportation network consists of bikeways and mixed use paths that connect cities and communities, major destinations, and transit hubs. These include local projects with regional benefits.
5. Local active transportation networks provide connections to local destinations and feed into the regional network.
6. Metro bicycle services include bike share and secure bike parking, such as bike hubs, lockers, and racks. Cost range considers scale of services.
7. Cost range considers scale and intensity of activities for Metro-sponsored Adult Bicycle Safety Skills Classes, Metro sponsored community rides, Metro Open Streets grant program, and Safe Routes to School non-infrastructure programs at public schools, which may be implemented by local municipalities or other external stakeholders.

Eligible Formula Local Funding Sources

Funding Source and Annual Amount [1] (approx.)	Description	Eligible Uses	Opportunities/ Constraints
Transportation Development Act (TDA) – Article 3 $7.5 million	2% of TDA Article 3 funds are allocated to local jurisdictions based 85% on population and 15% to City of LA and LA County to maintenance of regionally significant Class I bicycle facilities.	Bicycle and pedestrian facilities are eligible.	TDA Article 3 funds are directly allocated to local jurisdictions.
Proposition C 10% $75.2 million	10% Commuter Rail/Transit Centers/ Park-n-Ride – To increase mobility and reduce congestion by providing funds for Commuter Rail and the construction of Transit Centers, Park-and-Ride Lots, and Freeway Bus Stops. Allocated directly by the Metro Board to Metrolink and through the Metro Call for Projects process to other eligible agencies for specific eligible projects.	In terms of active transportation, access improvement projects are eligible as well as bicycle lockers and other improvements to Metrolink rail stations.	Bond debt service and commuter rail operations have first priority for these funds. Board action in June 2015 further restricted these funds to only be available to projects which directly benefit Metrolink operations. These funds may not be used to improve access to Metro Rail or Bus stations.
Proposition C 20% $150.4 million	20% Local Return – Distributed to cities on a per capita basis for public transit-related purposes.	Proposition C 20% Local Return can be used for Transportation Demand Management, commuter bikeways and bike lanes, and street improvements supporting public transit service.	Declines in gas tax subventions from the state have led to cities using a larger portion of Local Return for street maintenance.
TDA Article 8 $22 million	For areas within LA County not served by Metro, North County unincorporated area, Palmdale, Lancaster, Santa Clarita, and Avalon. Allocated to the eligible local jurisdictions based on population. Requires annual public hearings.	Transit and paratransit programs to fulfill unmet transit needs in areas not served by Metro.	If there are no unmet transit needs, may be used for street and road improvements.

Eligible Formula Local Funding Sources (continued)

Funding Source and Annual Amount [1] (approx.)	Description	Eligible Uses	Opportunities/ Constraints
Proposition C 25% $188.0 million	25% Transit-related Improvements to Freeways and State Highways and Public Mass Transit Improvements to Railroad Rights-of-Way – To provide essential countywide transit-related improvements to freeways and State highways. To facilitate transit flow, the operation of major streets and freeways will be improved by providing preference and priority for transit.	In terms of eligible active transportation projects, transportation demand management, Class I and Class II bicycle facilities, roadway improvements which support transit use, like first last mile improvements are eligible.	Bond debt service has first priority for funds. The majority of these funds are assumed to be programmed to rail and HOV projects. The balance is typically allocated through the Metro Call for Projects.
Measure R 15% $112.8 million	15% Local Return - Distributed to the incorporated cities within Los Angeles County and the County of Los Angeles for the unincorporated area of the County on a per capita basis.	Major street resurfacing, rehabilitation, reconstruction, bikeways, pedestrian improvements, streetscapes, and other active transportation improvements.	Declines in gas tax subventions from the state have led to cities using a larger portion of Local Return for street maintenance.
Repayment of Capital Project Loans Fund 3562 $ variable	Metro established the Repayment of Capital Project Loans (fund 3562) to account for capital reimbursements from the State for advances that Metro made in lieu of capital project funding that the State could not provide on the originally programmed schedule.	The Long Range Transportation Plan (LRTP) assumes that these funds must be used for capital purposes only and are allocated at the discretion of the Metro Board.	This source is typically used to cover cost increases on rail projects which are under construction. This fund source can also be programmed in the Metro Call for Projects when other eligible funds are not available.
Metro ExpressLanes Net Toll Revenue Grant Program $ 19.6 million (Cycle 1)	The objective of the Program is to increase mobility and person throughput through a series of integrated strategies (transit operations, transportation demand management, transportation systems management, active transportation, and capital investments) in the I-10 and I-110 corridors.	First last mile connections to transit facilities, focusing on multimodal elements recommended as part of the First Last Mile Strategic Plan including investments that might support 3rd party mobility solutions (car-share, bike-share), complete streets projects which emphasize multi-modalism, bicycle infrastructure including bicycle lanes and secured bicycle parking facilities, and pedestrian enhancements including on/off-ramp safety improvements.	This source is flexible, but limited by Board policy to areas within three miles of the ExpressLanes facilities. Funding for this program is subject to availability of net toll revenue.

Eligible Formula State Funding Source[2]

Funding Source and Annual Amount [1] (approx.)	Description	Eligible Uses	Opportunities/Constraints
Regional Improvement Program $ variable	Regional Improvement Program – 75% of State Transportation Improvement Program Funds are distributed to the counties and RTPA's.	Capital projects including bicycle, pedestrian projects, safety projects, TDM, and intermodal facilities.	Funding from this source has been limited and volatile due to inflation and legislative and market changes in the price of gasoline and the taxes on gasoline.

Eligible Competitive State Funding Sources

Funding Source and Annual Amount [1] (approx.)	Description	Eligible Uses	Opportunities/Constraints
Active Transportation Program (ATP)[3] $120 million available statewide $33 million available to LA County	The Active Transportation Program is a consolidation of five previous programs which funded active transportation. This program is exclusively devoted to funding active transportation projects, particularly those that improve health and safety, benefit disadvantaged communities, and promote increased use of active modes.	Bicycle and pedestrian improvement project, Safe Routes to School, bicycle and pedestrian planning, non-infrastructure projects, safety and encouragement campaigns. Highest priority projects demonstrate ability to increase walking and biking, improve health and safety, reduce GHG, and ensure benefit to disadvantaged communities.	Projects are selected based on a statewide as well as regional competition. Funds are now programmed several years out and are not available for immediate active transportation needs. Metro has provided ongoing technical grant-writing assistance to local municipalities to compete for this funding source.
Affordable Housing and Sustainable Communities (AHSC)[3] $ is 20% of overall Greenhouse Gas Reduction Fund	Supports reduction of GHG emissions by improving mobility options and increasing infill developments. Funds are administered by the Strategic Growth Council.	Active transportation and complete streets that are linked to affordable and infill developments.	Active transportation improvements must be linked to an affordable housing development.
Transit and Intercity Rail Capital Program (TIRCP) $ is 10% of overall Greenhouse Gas Reduction Fund	Administered by Caltrans in collaboration with California State Transportation Agency (CalSTA). The TIRCP provides grants for capital improvements and operational investments that modernize California's transit system.	Active transportation projects are eligible as project elements.	Funds are typically reserved for bus or rail projects. However, bicycle and pedestrian improvements are eligible project expenses as long as they are part of a transit expansion or modernization project.

Eligible Formula Federal Funding Sources [4]

Funding Source and Annual Amount [1] (approx.)	Description	Eligible Uses	Opportunities/Constraints
Congestion Mitigation and Air Quality Improvement Program (CMAQ) $138 million	An FHWA program. CMAQ funds are used for projects and programs which have a demonstrable impact on reducing criteria pollutants and relieving congestion. Funds are allocated based on weighted population formula, which takes into account air pollution severity, and are typically awarded through the Metro Call for Projects.	Bicycle, pedestrian, and TDM projects are eligible so long as they can demonstrate air quality benefits.	Funds from this source are typically allocated to rail expansion, HOV projects, and rail operation start-up. A limited amount of CMAQ is also programmed through the Metro Call for Projects to the Bicycle, Pedestrian, and Transit Capital modes. Projects must clearly demonstrate air quality benefits. Landscaping and street furniture are not eligible.
Regional Surface Transportation Program (RSTP) $81.6 million	An FHWA program. A flexible funding source which is apportioned to states on a per capita basis. Metro programs LA County's share to LRTP projects or through the Metro Call for Projects.	Bicycle, pedestrian, and TDM projects	Funds from this source are currently used primarily to operate Access Services as well as some highway and transit projects.
Surface Transportation Program – Local (STP-L) $31.7 million	Part of RSTP. Metro allocates $31.7 million per year of RSTP	Bicycle, pedestrian, and TDM projects; typically used for rehabilitation and maintenance	Funds from this source are apportioned to each municipality by population. Municipalities are responsible for selecting projects under this program.
Federal Transit Administration (FTA) Grants Section 5307 - $247.1 million Section 5310 - $0.4 million Section 5311 - $0.18 million Section 5337 - $84.5 million Section 5339 - $24.8 million	FTA MAP-21 programs.	Active transportation projects must meet the following criteria: 1) Be elements of a larger transit project. 2) Be within a 3-mile bikeshed or a 1/2-mile walkshed of a transit station. 3) Enhance economic development or incorporate private investment; effectiveness of public transit project, or establish new or enhanced coordination between public transit and other transportation; and provide a fair share of revenue for public transit.	Use of these funds for active transportation requires showing connectivity and a demonstrable benefit to the transit system (i.e., attracting new riders). Use of these funds is likely easier for new transit projects than existing transit facilities due to high FTA threshold.

Eligible Competitive Federal Funding Sources

Funding Source and Annual Amount (approx.)	Description	Eligible Uses	Opportunities/Constraints
Highway Safety Improvement Program (HSIP) $2.4 billion available nationwide	An FHWAY MAP-21 program. The program purpose is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.	Any strategy, activity, or project on a public road with the data-driven State Strategic Highway Safety Plan (SHSP) and corrects or addresses a highway safety problem. Funds are administered by the state.	Projects must be identified in the SHSP.
Transportation Investment Generating Economic Recovery (TIGER) $500 million available nationwide	A competitive grant program for surface transportation capital project	All bicycle and pedestrian projects.	This is an extremely competitive grant program. Projects will need to demonstrate economic value as well as multi-modal transportation improvements.
Federal Transit Administration Section 5309 $ variable	A component of the New Starts program. A discretionary grant program from the Federal General Fund. Maximum Federal share is generally 80%.	See eligible uses under FTA Section 5307.	See opportunities/constraints under FTA Section 5307.

Notes:

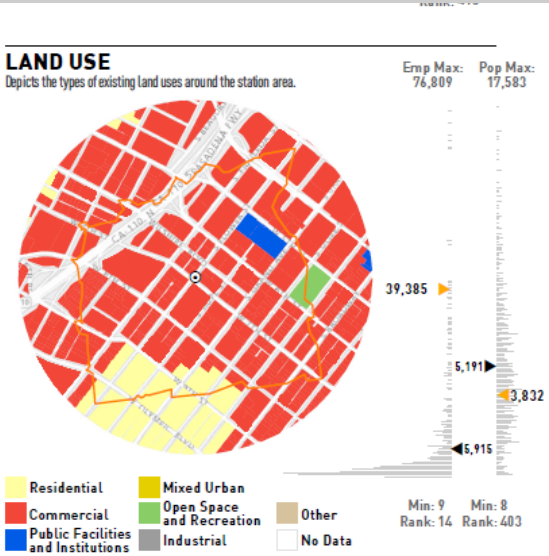
[1] *Amount shown is after administrative costs.*
[2] *Eligibility and available funding amounts of state funds may have changed due to passage of the new federal transportation bill, the FAST Act.*
[3] *ATP and AHSC funds are not directly controlled by Metro. However, Metro has provided grant assistance for recipients and has received ATP and AHSC funding for Metro-sponsored projects.*
[4] *Federal amounts reflect MAP-21 funding levels. Amounts will be updated once the FAST Act and state enabling legislation are analyzed.*

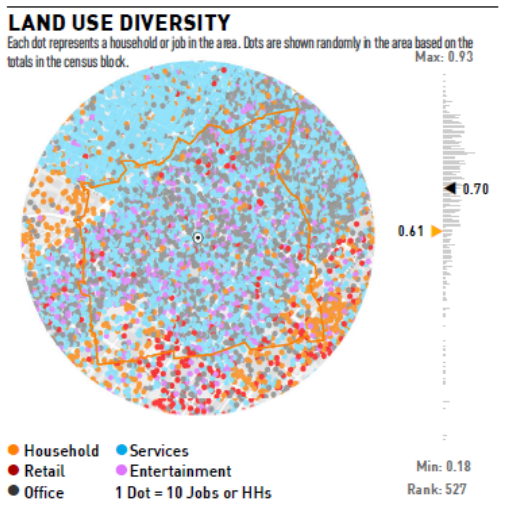
Active Transportation Strategic Plan

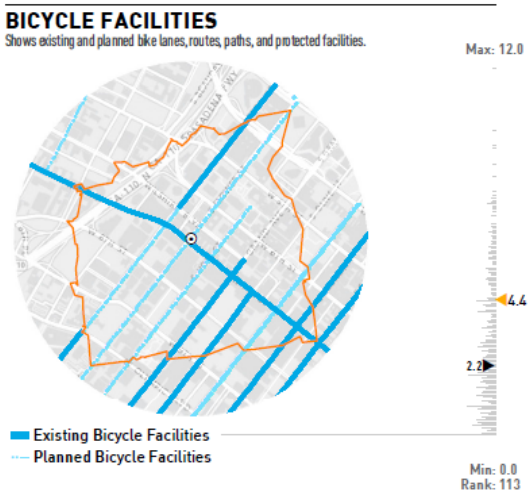
The Active Transportation Strategic Plan:

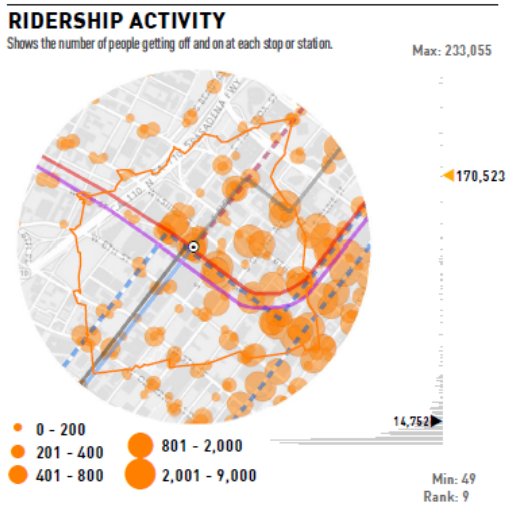
- Provides clarity on the process of implementation
- Informs Metro's capital grant programs
- Identifies a countywide active transportation network
- Pulls together best practice design resources
- Shows by example how to scope projects to improve station area access
- Shares cost estimates and related tools

First Last Mile Station Area Analysis









WALK SCORE (1-100)
Reports the Walk Score for the area

97

BIKE SCORE (1-100)
Reports the BikeScore for the area

59

TRANSIT SCORE (1-100)
Reports the Transit Score of the area

100

ROUTE DIRECTNESS
Represents the amount of out of direction travel needed to get to destinations in the walkshed. Higher scores are more direct.

4.4

INTERSECTION DENSITY
Measures the number of intersections within walkshed.

119 Count
40 Score (1 - 100)

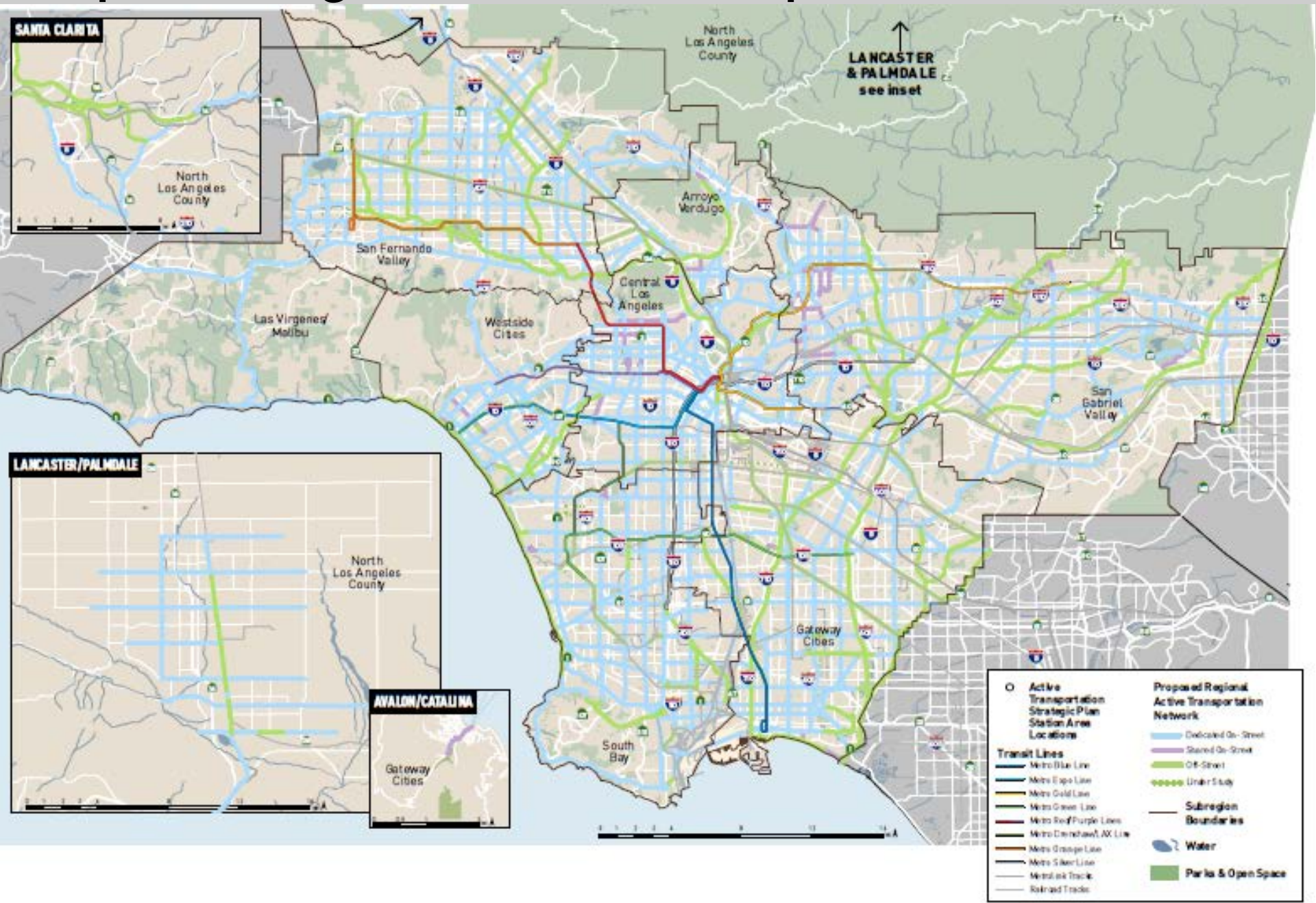
JOURNEY TO WORK
Shows how people who live in the walkshed typically get to work.

21.1% Walk

Metro

http://gis.fehrandpeers.com/metroatsp/

Proposed Regional Active Transportation Network



Estimate of Countywide Annual Active Transportation Needs

Description	Cost Per Year (2015 $)		
	Low	Medium	High
Active Transportation Network – Capital Costs	**$698.2 M**	**$1 B**	**$1.6 B**
First Last Mile Access	$347.3 M	$468.7 M	$604.6 M
Regional Active Transportation Network	$4.7 M	$75.8 M	$396.7 M
Local Active Transportation Networks	$346.2 M	$468.9 M	$612 M
Metro Bike Services* – Capital Costs	**$1.1 M**	**$2.2 M**	**$3.5 M**
Metro Bike Services* – Operations & Maintenance	**$13.6 M**	**$26.9 M**	**$40 M**
Education & Encouragement Programs	**$24.4 M**	**$30 M**	**$35.7 M**
Total Cost Range	**$737.3 M**	**$1.1 B**	**$1.7 B**

*Before local bike share reimbursement revenues

Proposed Next Steps

- Issue Call for Partners
- Consider emphasis of Active Transportation in various Metro funding programs
- Update local funding guidelines
- Provide grant-writing technical assistance
- Coordinate first last mile improvements in transit corridor planning and implementation
- Seek partnerships to create active transportation education and research center in LA region
- Incorporate ATSP into the 2009 Long Range Transportation Plan update

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

File #: 2016-0116, **File Type:** Contract **Agenda Number:** 15.

REGULAR BOARD MEETING
MAY 26, 2016

SUBJECT: RAIL TO RAIL (RIVER) SEGMENT A PROJECT

ACTION: AWARD PROFESSIONAL SERVICES CONTRACT

RECOMMENDATION

AUTHORIZE the Chief Executive Officer (CEO) to award a one-year firm fixed price Contract No. AE470670022889 to Cityworks Design in the amount of $2,003,317 for the **Rail to Rail Active Transportation Corridor Environmental Review, Clearance and Design - Segment A Project.**

ISSUE

In December 2015, a Request for Proposals (RFP) was released to acquire a professional service contract for the development of 30% design drawings and environmental review and clearance under the National Environmental Protection Act (NEPA) and the California Environmental Quality Act (CEQA), for the 6.4 mile section of Metro owned Harbor Subdivision rail right-of-way (ROW) in South Los Angeles also referred to as Rail to Rail or Rail to River Active Transportation Corridor Segment A. Board authorization to execute the contract is needed.

DISCUSSION

The Rail to Rail Active Transportation Corridor (ATC) - Segment A Project (Project) spans 6.4 miles along an east-west alignment from the future Metro Crenshaw/LAX Fairview Heights station at Florence Avenue and West Boulevard to just east of the existing Metro Blue Line Slauson station on the Metro owned Harbor Subdivision rail (ROW (Attachment C). The Burlington Northern Santa Fe Railroad currently holds operating easements on the corridor. However, only very limited service exists on a portion of the ROW beyond the Segment A project limits.

The Project will improve multimodal connectivity in historically disadvantaged communities in South Los Angeles. The Project will link together three regionally significant north-south transit lines in Metro's system (the Crenshaw/LAX Light Rail Transit (LRT)), the Silver Line Bus Rapid Transit (BRT) located on the 110 Harbor Transitway, and the Blue Line LRT, increasing mobility options, and enhancing access to community-identified destinations locally and regionally.

The Project area is home to residential population density more than six times the county average. Over two-thirds of the area residents are minority; more than one-fifth of households within one half

(1/2) mile of the Project corridor do not own a vehicle; and over sixteen percent (16.8%) of area workers commute to work via public transit, bicycling, and/or walking. There are no bicycle facilities currently on or connecting directly to Slauson Avenue. Those cyclists using Slauson are cycling in constrained, unsafe on-street conditions, and competing with heavy and fast moving vehicular traffic. Reducing the high rate of both pedestrian and bicycle collisions and improving pedestrian crossings are key goals and benefits of the construction of the Project. Advancing project development will significantly improve transit safety and connectivity in several disadvantaged communities in South Los Angeles.

In October 2014, the Board directed staff to allocate funding in the amount of $2.85 million to facilitate the environmental, design, and outreach efforts required to move the project forward, and to identify funding sources for construction of the project. In May 2015, the Board approved a Metro commitment of $10.8 million in local funds to facilitate competitive match requirements authorizing staff to submit two grant applications. Subsequently, successful attainment of both the Caltrans Active Transportation Program and USDOT TIGER VII Discretionary Grant Program was achieved for the construction of Rail to Rail ATC, from the LAX/Crenshaw line to just east of the Blue Line.

In December 2015, a Request for Proposals (RFP) was released to acquire an architectural & engineering services contract for the development of 30% design drawings and environmental review and clearance under the NEPA and the CEQA, for the 6.4 mile section of Metro owned Harbor Subdivision rail ROW in South Los Angeles also referred to as Rail to Rail or Rail to River Active Transportation Corridor Segment A. Board authorization to execute the contract is needed.

Awarding this Contract will facilitate project advancement allowing the development of engineering and environmental clearances in order to meet key Project milestones and remain on schedule per Metro's grant commitments.

Public Outreach and Rail to River Segment B Alternatives Analysis

In December 2015, Requests for Proposals to acquire professional services to conduct Public Outreach for Segment A and Segment B; and to conduct and Alternatives Analysis for Rail to River Segment B were also released.

A Notice of Intent to Award has been issued to conduct Public Outreach for Segment A and B. The recommendation is under protest by one of the proposing firms. The protest is under review by staff.

A Notice of Intent to Award has been issued for Rail to River Segment B Alternative Analysis.

DETERMINATION OF SAFETY IMPACT

The Project has no adverse safety impacts on Metro employees and patrons.

FINANCIAL IMPACT

FY16 budget includes $110,000 for this Contract in Cost Center 4360, Active Transportation, under Project 405509, Rail to Rail/River ATC. Since this is a multi-year contract, the cost center manager

and the Chief Planning Officer will be accountable for budgeting the cost in future years, including any option exercised.

Impact to Budget

The source of funds may include Measure R 2%, Proposition C 25% or other eligible revenues, which are not eligible for bus or rail operating or capital expenses.

ALTERNATIVES CONSIDERED

The Board may choose not to award and execute the contract for the Project. This option is not recommended as it would delay the Project, preventing timely achievement of environmental clearance and ultimately successful completion of construction as committed.

NEXT STEPS

After approval from the Board, staff will execute Contract No. AE470670022889 with Cityworks Design, and begin the environmental review and clearance and design work for the Rail to Rail Active Transportation Corridor - Segment A Project.

ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - DEOD Summary
Attachment C - Rail to Rail/River Active Transportation Corridor Project Segment Map

Prepared by: Alice Tolar, Transportation Planning Manager, (213) 922-2218
Robert Machuca, Transportation Planning Manager, (213) 922-4517
Laura Cornejo, Deputy Executive Officer, (213) 922-2885
Diego Cardoso, Executive Officer, (213) 922-3076

Reviewed by: Ivan Page, Interim Executive Director, Vendor/Contract Management (213) 922-6383
Therese W. McMillan, Chief Planning Officer, (213) 922-7077

Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY

RAIL TO RAIL (RIVER) SEGMENT A PROJECT/ AE470670022889

1.	**Contract Number**: AE470670022889	
2.	**Recommended Vendor**: Cityworks Design	
3.	**Type of Procurement (check one):** ☐ **IFB** ☐ **RFP** ☒ **RFP–A&E** ☐ **Non-Competitive** ☐ **Modification** ☐ **Task Order**	
4.	**Procurement Dates**:	
	A. Issued: 12/04/15	
	B. Advertised/Publicized: 12/04/15	
	C. Pre-Proposal/Pre-Bid Conference: 12/10/15	
	D. Proposals/Bids Due: 01/14/16	
	E. Pre-Qualification Completed: 03/18/16	
	F. Conflict of Interest Form Submitted to Ethics: 02/17/16	
	G. Protest Period End Date: 05/25/16	
5.	**Solicitations Picked up/Downloaded**: 87	**Bids/Proposals Received**: 11
6.	**Contract Administrator**: Ben Calmes	**Telephone Number**: (213) 922-7341
7.	**Project Manager**: Robert Machuca	**Telephone Number**: (213) 922-4517

A. Procurement Background

This Board Action is to approve Contract No. AE470670022889 issued in support of the Rail to Rail Active Transportation Corridor Project Environmental Review, Clearance and Design – Segment A for professional Architectural and Engineering (A&E) services.

This is an A&E qualifications based Request for Proposal (RFP) issued in accordance with Metro's Acquisition Policy and Procedure Manual and the contract type is firm fixed price. This RFP was issued under the Small Business Set-Aside Program and was open to Metro Certified Small Businesses only.

Five amendments were issued during the solicitation phase of this RFP:

- Amendment No. 1, issued on December 11, 2015, provided pre-proposal attendee sign-in sheets;
- Amendment No. 2, issued on December 17, 2015, extended the proposal due date, and provided federal certifications forms;
- Amendment No. 3, issued on December 28, 2015, revised the Letter of Invitation to delete identification of NAICS codes, corrected DEOD contact information, and provided questions/requests for clarification and answers;
- Amendment No. 4, issued on December 31, 2015, provided additional questions/requests for clarifications and answers; and
- Amendment No. 5, issued on January 8, 2016, provided additional questions/requests for clarifications and answers.

A pre-proposal conference was held on December 10, 2015 attended by 50 participants representing 44 companies. There were 21 questions asked and responses were released prior to the proposal due date.

A total of 87 firms downloaded the RFP and were included in the planholders' list. A total of eleven proposals were received on January 14, 2016.

B. Evaluation of Proposals/Bids

A Proposal Evaluation Team (PET) consisting of staff from Metro Countywide Planning and Projects Engineering was convened and conducted a comprehensive technical evaluation of the proposals received.

The proposals were evaluated based on the following evaluation criteria and weights:

- Project Understanding 25 percent
- Team Qualifications 20 percent
- Qualifications & Experience of Key Personnel 20 percent
- Project Work Plan 35 percent

The evaluation criteria are appropriate and consistent with criteria developed for other, similar A&E design services. Several factors were considered when developing these weights, giving the greatest importance to the project work plan and project understanding. The PET evaluated the proposals according to the evaluation criteria established in the RFP.

This is an A&E qualifications based procurement. Price cannot be and was not used as an evaluation factor pursuant to state and federal law.

The Diversity & Economic Opportunity Department (DEOD) reviewed the firms that submitted proposals in order to confirm their Metro Small Business Enterprise (SBE) certification status. All eleven proposals received were deemed eligible Metro SBE certified firms and are listed below in alphabetical order:

1. AIM Consulting Services, Inc.
2. Anil Verma Associates/UltraSystems Joint Venture
3. Axiom Engineering & Science Corporation
4. Base Architecture Planning & Engineering
5. Cityworks Design
6. JMDiaz dba JMD
7. KTU+A
8. MARRS Services
9. PacRim Engineering, Inc.
10. Sapphos Environmental, Inc.

11. TEC Management Consultants, Inc.

During January 15, 2016 through January 27, 2016, the PET completed its independent evaluation of the proposals. The PET determined that five firms were outside the competitive range and were not included for further consideration. A sampling of reasons for exclusion from the competitive range include but are not limited to: proposals did not demonstrate thorough understanding of the project, did not provide specific experience relevant to active transportation corridors, lacked a thorough understanding of the project's environmental challenges and grant funding, lacked details on how to maintain schedule, did not address all statement of work requirements, and did not provide a specific work plan.

The remaining six proposers determined to be within the competitive range are listed below in alphabetical order:

1. AIM Consulting Services, Inc.
2. Anil Verma Associates/UltraSystems Joint Venture
3. Base Architecture Planning & Engineering
4. Cityworks Design
5. JMDiaz dba JMD
6. MARRS Services

On February 2 and 3, 2016, the PET met and interviewed the firms. The firms' proposed project managers and key personnel had an opportunity to present their team's qualifications and respond to the PET's questions.

In general, each team's presentation addressed the requirements of the RFP, experience with engineering and design work for rail corridors that impact residential communities and proposed solutions for the environmental clearance of the project. Also highlighted were work plans and strategies to keep the project on schedule. Each team was asked questions relative to each firm's qualifications and understanding of the project issues.

The final scoring, after interviews, determined Cityworks Design to be the highest qualified proposer.

Qualifications Summary of Recommended Firm:

Cityworks Design (CWD) specializes in landscape and urban design and transit integration with a special focus on transportation projects. CWD demonstrated innovation in its proposed approach to environmentally clear the corridor, a strong understanding of the time constraints and design challenges of the project with strong sustainable design approaches. CWD's work plan and project understanding proposed was the most comprehensive and realistic.

Relevant projects that CWD has worked on include the design of innovative access plans for Metro's Gold Line Eastside Access Improvements in Boyle Heights, Connect US Walk-Bike Action Plan for Union Station and the Little Tokyo Regional Connector Station. CWD's performance on Metro projects has been satisfactory.

A summary of the PET scores is provided below:

	FIRM	Average Score	Factor Weight	Weighted Average Score	Rank
1	**Cityworks Design**				
2	Project Understanding and Approach	93.33	25.00%	23.33	
3	Team Qualifications	90.00	20.00%	18.00	
4	Qualifications and Experience of Key Personnel	91.67	20.00%	18.33	
5	Project Work Plan	95.00	35.00%	33.25	
6	**Total**		**100.00%**	**92.91**	**1**
1	**AIM Consulting Services**				
2	Project Understanding and Approach	90.00	25.00%	22.50	
3	Team Qualifications	90.00	20.00%	18.00	
4	Qualifications and Experience of Key Personnel	91.67	20.00%	18.33	
5	Project Work Plan	86.67	35.00%	30.33	
6	**Total**		**100.00%**	**89.16**	**2**
1	**BASE Architecture Planning, and Engineering**				
2	Project Understanding and Approach	86.67	25.00%	21.67	
3	Team Qualifications	86.67	20.00%	17.33	
4	Qualifications and Experience of Key Personnel	91.67	20.00%	18.33	
5	Project Work Plan	81.67	35.00%	28.58	
6	**Total**		**100.00%**	**85.91**	**3**
1	**Anil Verma Associates/ UltraSystems Joint Venture**				
2	Project Understanding and Approach	83.33	25.00%	20.83	
3	Team Qualifications	81.67	20.00%	16.33	
4	Qualifications and Experience of Key Personnel	86.67	20.00%	17.33	
5	Project Work Plan	81.67	35.00%	28.58	
6	Total		**100.00%**	**83.07**	**4**

1	**MARRS Services**				
2	Project Understanding and Approach	83.33	25.00%	20.83	
3	Team Qualifications	80.00	20.00%	16.00	
4	Qualifications and Experience of Key Personnel	80.00	20.00%	16.00	
5	Project Work Plan	81.67	35.00%	28.58	
6	**Total**		**100.00%**	**81.41**	**5**
1	**JMD**				
2	Project Understanding and Approach	83.33	25.00%	20.83	
3	Team Qualifications	81.67	20.00%	16.33	
4	Qualifications and Experience of Key Personnel	78.33	20.00%	15.67	
5	Project Work Plan	76.67	35.00%	26.83	
6	**Total**		**100.00%**	**79.66**	**6**

C. Cost Analysis

The recommended price of $2,003,317 has been determined fair and reasonable based upon Metro's Management and Audit Services audit findings, an independent cost estimate, cost analysis, technical analysis, fact-finding, and negotiations.

During the course of negotiations, it became apparent that additional emphasis on cultural, historical and soil testing services was necessary to ensure a completely thorough environmental clearance. Increased level of effort for the landscape component of the project was added to emphasize placemaking to ensure a compelling vision for the corridor. As a result, there is an increase between the proposed price and final negotiated amount.

Proposer Name	Proposal Amount	Metro ICE	Negotiated Amount
Cityworks Design	$1,884,825	$2,029,263	$2,003,317

D. Background on Recommended Contractor

The recommended firm, Cityworks Design (CWD), with headquarters in Pasadena, California, is a Metro certified Small Business Enterprise founded in 2006. The firm provides landscape design, urban design and architecture services and specializes in community-based planning and design including pedestrian/bicycle access, transit-oriented development, and transit alignment. CWD has successfully led projects related to corridor planning for Metro, the Exposition Line Construction Authority, and for the cities of Long Beach, Glendale, and Pasadena.

The proposed team is comprised of staff from CWD and 8 subcontractors (3 SBE and 5 non-SBE firms). CWD's project manager and principal has over 25 years of experience in landscape design, urban design and architecture. The project manager has worked in national design practices in Los Angeles and San Francisco and gained experience in the design and management of a variety of landscape, urban, public, commercial, residential, and retail projects. The project manager has considerable experience working with city agencies, elected officials, and local stakeholders, especially on community-based planning projects. The project manager served as a National Peer Reviewer for federal design projects at the invitation of the General Services Administration. The project manager has been a member of the Mayor's Vision Panel for Downtown Los Angeles, and the CRA/LA's Downtown Arts Advisory Panel.

DEOD SUMMARY

RAIL TO RAIL ACTIVE TRANSPORTATION CORRIDOR PROJECT ENVIRONMENTAL REVIEW, CLEARANCE & DESIGN – SEGMENT A/ AE470670022889

A. Small Business Participation

Effective June 2, 2014, per Metro's Board-approved policy, competitive acquisitions with three or more Small Business Enterprise (SBE) certified firms within the specified North American Industry Classification System (NAICS) as identified for the project scope shall constitute a Small Business Set-Aside procurement. Accordingly, the Contract Administrator advanced the solicitation, including posting the solicitation on Metro's website, advertising, and notifying certified small businesses as identified by NAICS code(s) that this solicitation was open to **SBE Certified Small Businesses Only**.

Cityworks Design, an SBE prime, is performing 38.70% of the work with its own workforce and made a total SBE commitment of 58.52%. The prime listed three (3) SBE subcontractors, and three (3) major firms, Fehr & Peers, KPFF and STV Inc., as subcontractors on this project.

	SBE Firm Name	SBE % Committed
1.	Cityworks Design (Prime)	38.70%
2.	Terry Hayes Associates	10.55%
3.	Lyric Design & Planning	6.00%
4.	Lenax Construction	3.27%
	Total Commitment	58.52%

B. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to this contract.

C. Prevailing Wage Applicability

Prevailing Wage requirements are applicable to this project. DEOD will monitor contractors' compliance with the State of California Department of Industrial Relations (DIR), California Labor Code, and, if federally funded, the U S Department

of Labor (DOL) Davis Bacon and Related Acts (DBRA).Trades that may be covered include: surveying, potholing, field, soils and materials testing, building construction inspection and other support trades.

D. Living Wage Service Contract Worker Retention Policy

The Living Wage and Service Contract Worker Retention Policy is not applicable to this contract.

ATTACHMENT C

Rail to Rail/River Active Transportation Corridor Project: Segment Map

Rail to Rail (River) Segment A

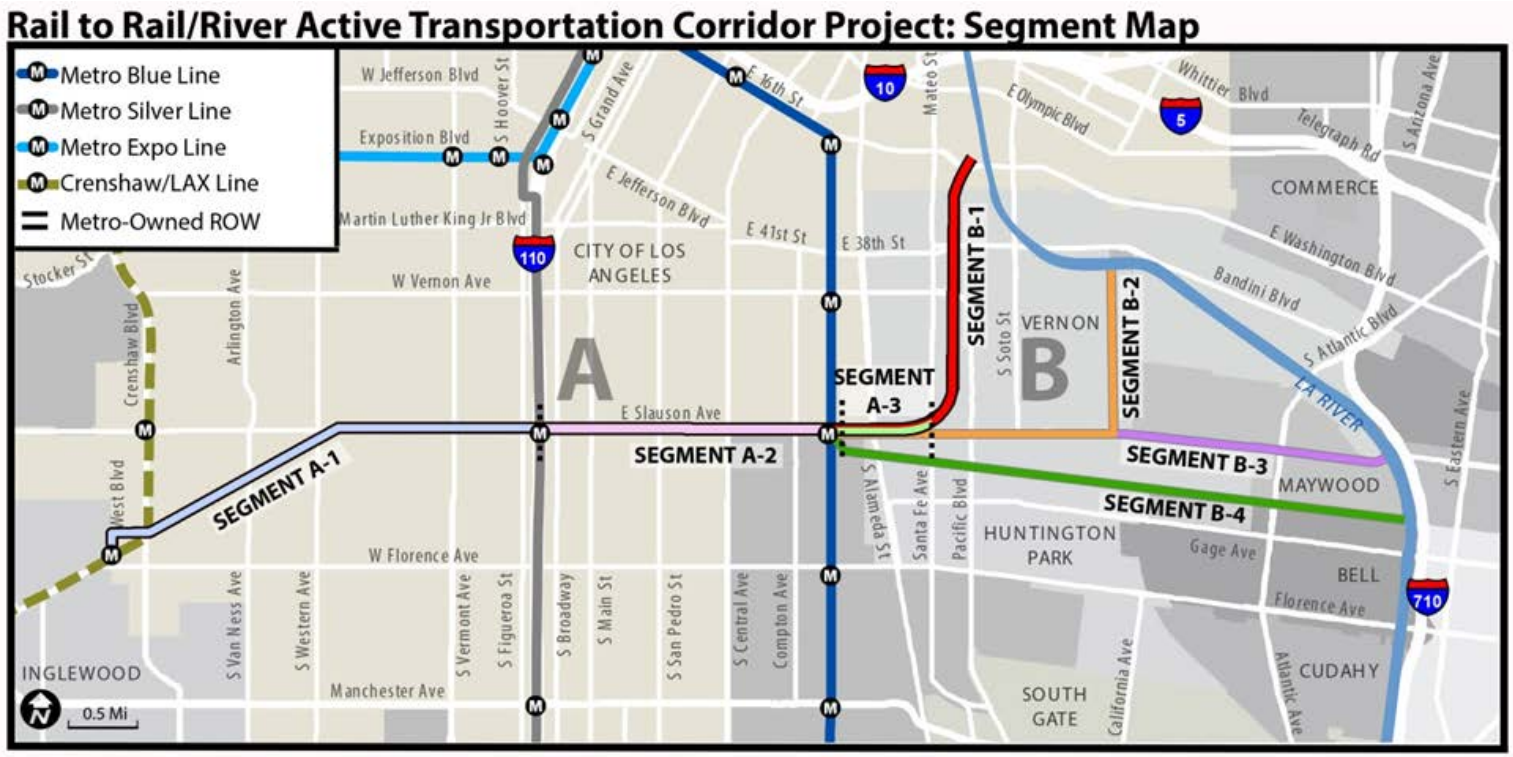
Recommendation

A. Authorize the CEO to award a one-year firm fixed price to Cityworks Design in the amount of $2,003,317 for the Rail to Rail Active Transportation Corridor-Segment A Environmental Review, Clearance and Design.

Metro

Rail to Rail Segment A

- 6.4 mile east-west corridor along Metro owned Harbor Subdivision ROW
- Will extend from the future Metro Crenshaw/LAX Fairview Heights station to just east of Metro Blue Line Slauson station



Metro

Project Funding

- October 2014 Board allocated $2.85m towards environmental, design and outreach efforts for Rail to River
- TIGER VII- Awarded $15m for construction of Segment A
- ATP, Cycle 2- Awarded $8.326m for construction of Segment A-1

Metro

Next Steps

- **Upon Board approval, execute Contract No. AE70670022889 with Cityworks Design**

Metro

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

Metro

Board Report

File #: 2016-0171, **File Type:** Contract **Agenda Number:** 29

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE
MAY 19, 2016

SUBJECT: GAS DETECTION ANALYZER SYSTEM

ACTION: AWARD CONTRACT

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to award contract No. PS21904205074 to **Reliable Monitoring Systems (RMS), in the amount of $1,159,860, to provide a Gas Detection System (GDS) for Metro Red Line (MRL) and Metro Gold Line (MGL)**.

ISSUE

In order to ensure the safety of our passengers and staff in the underground stations and right-of-way, a complete replacement of the Gas Detection System equipment is required. This procurement is for the parts and installation of the new system.

Metro rail underground stations are equipped with gas detection equipment. The gas detection devices were installed throughout the stations and cross passages. In the event that harmful gases are present, an alarm is triggered at the Rail Operations Control (ROC). Staff is immediately dispatched to assess and mitigate the issue. The current GDS devices were installed throughout the MRL in 2002 and underground MGL stations in 2003. In addition, the GDS' main controller interface boards and peripheral equipment are obsolete, and replacement parts are difficult and expensive to obtain.

DISCUSSION

The new GDS will replace and upgrade the current MRL and MGL equipment. This new microprocessor-based system performs functions including management of sensor modules, alarm relays, and interface with front panel display. The current equipment requires a labor-intensive system calibration every three months.

New GDS equipment has an original equipment manufacturer recommendation of bi-annual calibration resulting in operating cost savings by reducing the labor cost by half. This system will improve the speed of data information communications and accuracy of incident response time. Also, the system will be connected to the Supervisory Control and Data Acquisition (SCADA) system.

The contractor shall provide the work covered by the proposed specifications including engineering

services, which incorporates system audit and analysis. Following the award of the contract, the contractor will install the equipment within a year and a half. Installation requires replacing all sensors, control boards, power supplies, and data lines as necessary.

DETERMINATION OF SAFETY IMPACT

The Gas Detection System will provide additional safety features such as faster response time to incidents in the tunnel. The current response time is 5 to 10 seconds; the new response time will be improved to 2 to 5 seconds. The new system will report incident via Emergency Maintenance Panel, Fire Control Panel, Rail Operations Control, and SCADA interface module, utilizing the Remote Terminal Unit and Programmable Logic Units modules for immediate alarm recognition. A safe and reliable system is the key advantage to this new Gas Detection digital system.

FINANCIAL IMPACT

The funding of $1,159,860 is included in the Life of Project budget 205074 - Gas Analyzer Upgrade in cost center 3960.

Since this is a multi-year contract, the cost center manager, project managers, and Executive Director, Maintenance will ensure that the balance of funds is budgeted in future years.

Impact to Budget

The source of funding for this contract comes from Prop A 35%, which is eligible for bus and rail Operating and Capital Projects. No other funds were considered or eligible for this activity.

ALTERNATIVES CONSIDERED

The alternative is to not award a contract for the GDS. However, based on the potential impact on Public Safety, this option is not recommended. The GDS provides a security measure to Metro Rail ridership. Metro demonstrates its commitment to putting Public Safety as a priority through the installation of this new system.

NEXT STEPS

After approval of the Board, staff will execute Contract No. PS21904205074 with Reliable Monitoring Systems to provide GDS services for Metro Red Line and Gold Line.

ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - DEOD Summary

Prepared by: Roger Largaespada, Wayside Systems Manager, (213) 613-2115
Chris Reyes, Transportation Planning Manager, (213) 922-4808

Reviewed by: Ivan Page, Interim Executive Director, Vendor/Contract Management, (213) 922-6383
James T. Gallagher, Chief Operations Officer, (213) 922-4424

Phillip A. Washington
Chief Executive Officer

ATTACHMENT A

PROCUREMENT SUMMARY

GAS DETECTION ANALYZER SYSTEM / PS21904205074

1.	**Contract Number**: PS21904205074	
2.	**Recommended Vendor**: Reliable Monitoring Services	
3.	**Type of Procurement**: (check one): ☒ IFB ☐ RFP ☐ RFP–A&E ☐ Non-Competitive ☐ Modification ☐ Task Order	
4.	**Procurement Dates**:	
	A. Issued: 12/4/2015	
	B. Advertised/Publicized: 12/4/2015	
	C. Pre-proposal/Pre-Bid Conference: N/A	
	D. Bids Due: 1/20/2016	
	E. Pre-Qualification Completed: 3/16/2016	
	F. Conflict of Interest Form Submitted to Ethics: 3/11/2016	
	G. Protest Period End Date: 4/21/2016	
5.	**Solicitations Picked up/Downloaded**: 8	**Bids Received**: 3
6.	**Contract Administrator**: Linda Rickert	**Telephone Number**: (213)922-4186
7.	**Project Manager**: Roger Largaespada	**Telephone Number**: (213)613-2115

A. Procurement Background

This Board Action is to approve Contract No. PS21904205074 issued to provide a Gas Detection Analyzer System (GDAS) for Metro Red Line (MRL) and Metro Gold Line (MGL) stations.

The IFB was issued in accordance with Metro's Acquisition Policy and the contract type is a Firm Fixed Price. Award is made to the lowest responsive, responsible bidder.

One amendment was issued during the solicitation phase of this IFB; amendment No. 1 issued on January 5, 2016, extended the deadline. Nine questions were asked and answered during the procurement.

A total of three bids were received on January 20, 2016.

B. Evaluation of Bids

The firm recommended for award, Reliable Monitoring Services (RMS), was found to be in full compliance with the bid requirements.

	Bidder/Proposer Name	Bid Amount
1.	Reliable Monitoring Services (RMS)	$1,159,860.00
2.	JM Fiber Optics	$1,336,354.40
3.	EFS West	$1,366,824.00

C. Price Analysis

The recommended price has been determined to be fair and reasonable based upon adequate competition and technical evaluation.

Bidder Name	Bid Amount	Metro ICE
Reliable Monitoring Services	$1,159,860.00	$2,001,688

D. Background on Recommended Contractor

The recommended firm, RMS, located in Calabasas, California, has been in business for ten years, and is a leader in gas detectors and fire alarms. RMS is a certified dealer for Sierra Monitor Corporation equipment. Ed Crofts, the RMS project manager, has over 30 years of experience in the safety industry.

DEOD SUMMARY

GAS DETECTION ANALYZER SYSTEM / PS21904205074

A. Small Business Participation

The Diversity and Economic Opportunity Department (DEOD) established a 5% Small Business Enterprise (SBE) goal for this solicitation. Reliable Monitoring Services (RMS) did not make an SBE commitment and is not eligible for the SBE preference. Meeting the goal is neither a condition of award nor an issue of responsiveness.

According to guidance provided by County Counsel, SBE goals on non-federally funded IFBs cannot be a condition of award, because Metro can only award to the lowest bidder in accordance with Section 130232(5) of the California Public Utilities Code. Staff is working with Government Relations to seek legislative change to the Public Utilities Code, through Assembly Bill 2690 (Ridley-Thomas). AB 2690 is currently pending referral to the Assembly Local Government Committee.

B. Living Wage and Service Contract Worker Retention Policy Applicability

The Living Wage and Service Contract Worker Retention Policy is not applicable to this contract.

C. Prevailing Wage Applicability

Prevailing Wage requirements are applicable to this project. DEOD will monitor contractors' compliance with the State of California Department of Industrial Relations (DIR), California Labor Code, and, if federally funded, the U S Department of Labor (DOL) Davis Bacon and Related Acts (DBRA).

D. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to this contract.

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

File #: 2016-0392, **File Type:** Program **Agenda Number:** 35.

PLANNING AND PROGRAMMING COMMITTEE
MAY 18, 2016

SUBJECT: UPDATE ON MOTIONS 14.2 AND 39: METROLINK STATIONS EL MONTE, NORTHRIDGE, AND THE NEW RIO HONDO STATION

ACTION: PROGRAM FUNDS FOR STATION LOCATION STUDIES

RECOMMENDATION

PROGRAM $600,000 in **Measure R 3% Funds in the FY 17 budget for Metrolink Station Location Studies for the El Monte, Northridge and Rio Hondo Stations**.

ISSUE

In October 2015, Directors Solis, Antonovich, Najarian and Krekorian approved Motion 14.2 to examine the feasibility of relocating the El Monte Metrolink station near the Metro Transit Center and align it with Metro's Transit Oriented Community program.

Subsequently, Directors Solis, Najarian, Krekorian, Antonovich and DuBois approved Motion 39 in March 2016 to assess the feasibility for creating a new Metrolink station on the Metrolink Riverside Line at the base of Rio Hondo College and examine the potential for a multi-modal transit hub including evaluating the benefits and /or impacts to increasing transit ridership and reducing vehicular traffic on local streets, arterials and highways. Directors Garcetti, Krekorian, Dupont-Walker, Kuehl and Antonovich amended Motion 39 in March 2016 to include examining the feasibility of relocating the existing Northridge Metrolink Station at Wilbur Avenue to Reseda Boulevard to improve connectivity of Metro and local buses and other transit modes to the California State University Northridge.

DISCUSSION

In response to the Board Motions, staff gathered information, prepared preliminary conceptual studies and identified several challenges. Further planning and engineering studies are needed to ascertain the feasibility, benefits, constraints, costs, and potential alternative funding sources associated with these new proposed locations of the Metrolink stations. This Board action will allow staff to hire a consultant to provide three separate in-depth feasibility studies. Staff anticipates these studies will be begin in July 2016 will be completed in 6 to 8 months.

1. El Monte Metrolink Station Relocation Feasibility Study

The Metrolink El Monte Station is located on the Metrolink San Bernardino Line, the busiest line on the Metrolink system with over 11,000 daily riders. The El Monte Bus Transit Center station is the largest bus terminal west of Chicago with daily average boardings between 22,000 and 25,000 served by Foothill Transit, Metro buses, City of El Monte Commuter Shuttles, and the City of El Monte Trolley. The existing El Monte Metrolink Station is located approximately one mile from the Metro El Monte Transit Center with no direct connections between the rail and bus services since Metrolink train travels through an elevated aerial structure that passes the El Monte Transit Center to the Metrolink El Monte Station (refer to Attachment A).

Based on preliminary studies, staff concluded that relocation of the El Monte Metrolink Station could provide a direct connection between the rail and bus system with several challenges such as constrained right of way, construction of a tracks and platforms on aerial structures, issues related to adjacency to the Rio Hondo River viaduct, new bridge structure, construction impacts to adjacent residential developments, and acquisition of real estate property interests. Further discussions with Metrolink will be needed to address any engineering, construction and operational impacts and any differences in accessibility and serviceability.

2. New Metrolink Station on the Riverside Line at Rio Hondo College

The Greater Whittier Narrows area (Area) is home to several regional destinations including Rio Hondo Community College, Rio Hondo Police and Fire Academy, Whittier Narrows Recreation facilities, and Rose Hills Cemetery. The stretch of the Metrolink Riverside Line through the Area is one of the longest stretches of Metrolink track without a station - nearly 20 miles. The closest stations to Rio Hondo College are Montebello/Commerce to the west (approximately 7 miles), and Industry to the east (approximately 13 miles).

Creation of a station at Rio Hondo College, between the Industry and Montebello/Commerce Metrolink stations will provide a more accessible station for the Area, and may promote transit usage and reduce vehicle trips. However, preliminary discussions on the feasibility of creating a new Metrolink Station at Rio Hondo College revealed the following challenges (refer to Attachment B):

- Union Pacific (UP) ownership of the Riverside Line limits Metrolink service
- UP concerns related to locating a new station on their tracks and right-of-way.
- Operational impacts to existing service (how much travel times will be impacted by an additional station/stop)
- Funding constraints for capital improvements and Metrolink operations
- Acquisition of industrial properties would be required which could have negative economic impacts

Further coordination and discussions with Metrolink will be held to 1) assess the operational feasibility of a new station on the line, and 2) identify possible locations for the station. Additionally, a more in-depth assessment will be conducted as part of the Metrolink Stations Location Feasibility

Studies.

3. Northridge Metrolink Station Relocation

Metro staff conducted a high-level conceptual study on the relocation of the Northridge Metrolink Station from Wilbur Avenue to Reseda Boulevard. The study showed the feasibility of relocating the station approximately half a mile east to provide a closer connection with the California State University - Northridge (CSUN) (refer to Attachment C). However, several challenges were identified including the following:

- Major utilities within the railroad corridor
- Union Pacific (UP) ownership in portions of the right-of-way
- Property acquisition to accommodate relocated station and replacement parking
- Community considerations
- Funding constraints for capital improvements and Metrolink operations

The Reseda Boulevard corridor is served by Metro Local Line 240 and Rapid Line 744. Line 240 operates from Devonshire Street in Northridge to Universal City/ Studio City Red Line Station serving local stops along Reseda Boulevard and Ventura Boulevard operating every 20-30 minutes all day beginning at 5:00 AM and providing evening service past midnight. Metro Rapid Line 744 operates from Northridge to Pacoima serving Rapid stops along Reseda, Ventura Boulevard and Van Nuys Boulevard as well as serving the Cal State Northridge Transit Center operating at approximately 5:00 AM and runs till 9:00 PM with a frequency of twenty minutes all day. In June 2016, Rapid Line 744 will be improved by adding two additional trips in the evening. Both Lines provide seamless connections to the Metro Orange Line and at least fourteen other connecting transit lines. LADOT's DASH-Northridge also operates on a segment of Reseda Boulevard between Nordhoff Street and Sherman Way as part of its clock-wise route which includes operating through Wilbur Avenue, Parthenia Street and Nordhoff Street every fifteen minutes in the peak and every twenty minutes in the off-peak period from approximately 5:30 AM to 7:00 PM. The local shuttle-type service connects the Northridge Metrolink Station with Metro bus lines and nearby destinations alike.

An alternative to relocating the Northridge Station is to develop the existing station as a multimodal transit hub by improving bus services and active transportation access to the station. Currently, there is no direct access to the north of the station, requiring access to CSUN through a circuitous path south of the station. However, the stretch of Reseda Boulevard leading to CSUN is one of Mayor Garcetti's "Great Streets" which now includes a cycle track facility. Enhanced access between the Northridge station and Reseda Blvd, especially via the north of the station should be explored in order to create a more comfortable and direct connection between the station and CSUN for cyclists and pedestrians. Such a connection could close the gap between the Northridge station and the facilities already in place on Reseda Boulevard.

Staff will coordinate with Metrolink and CSUN officials to explore both the relocation and enhanced access alternatives. In addition, both alternatives will be further assessed in the Metrolink Stations Location Feasibility Studies.

DETERMINATION OF SAFETY IMPACT

This is a study on the feasibility on the location of stations; therefore, no safety impacts are expected.

FINANCIAL IMPACT

With Board approval of the Measure R 3% funds, $600,000 will be funded in the FY 2016-17 programmed for the Station Locations Studies in cost center 2415, Regional Rail.

Impact to Budget

A. Source of funds: $600,000 in Measure R 3% funds

Measure R 3% funds are designated for Metrolink commuter rail capital improvements in Los Angeles County. These funds are not eligible to be used for Metro bus/rail operating or capital budget expenses. This programming action has no impact to the Proposition A and C, TDA or Measure R administration budgets.

ALTERNATIVES CONSIDERED

An alternative will be not to approve the funding of the Study. This is not recommended as previous Board direction was to conduct feasibility studies for the stations.

NEXT STEPS

After further preliminary assessments and discussions with stakeholders, staff will prepare the scope of work to solicit professional services from the Regional Rail bench, to conduct the Metrolink Stations Location Feasibility Study covering the three stations. The study is anticipated to begin in July 2016. Staff will report back to the Board with updates as part of the Regional Rail Quarterly Update.

ATTACHMENTS

Attachment A- El Monte Station
Attachment B - Rio Hondo Station
Attachment C- Northridge Station

Prepared by: Marie Sullivan, Transportation Planning Manager, County-wide Planning
(213) 922-5667

Jeanet Owens, P.E., Interim Executive Officer, Regional Rail
(213) 922-6877

Reviewed By: Richard Clarke, Executive Director, Program Management
(213) 922-7557

Nalini Ahuja, Executive Director, Finance & Budget
(213) 922-3088

Phillip A. Washington
Chief Executive Officer

ATTACHMENT A

El Monte Metrolink Station Relocation - Preferred Alternative Concept

ATTACHMENT B

ATTACHMENT C

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

File #: 2016-0250, **File Type:** Contract **Agenda Number:** 36.

REVISED
CONSTRUCTION COMMITTEE
MAY 19, 2016

SUBJECT: METRO GOLD LINE INTERSTATE 210 BARRIER REPLACEMENT

ACTION: APPROVE RECOMMENDATION

RECOMMENDATION

AUTHORIZE the Chief Executive Officer (CEO) to:

A. ADOPT a Design Life of Project Budget for $11,078,366 for the **I-210 Barrier Replacement Project to develop a Risk Assessment Study, Environmental Clearance and Final Design documents** for future construction consideration;

B. AMEND FY16 Budget by $553,918 and AMEND FY17 Proposed budget by $9,970,529 to fund aforementioned efforts;

C. AWARD AND EXECUTE a fourteen-month labor hour Task Order No. 12 for Contract No. PS4730-3070. Highway Programs on-call support services, to CH2M Hill Inc. in an amount not-to-exceed $4,799,967 for Architectural and Engineering (A&E) services for the preparation of the Project Report and Environmental Documents (Categorical Exemption) and the Plans, Specifications and Estimates for the Metro Gold Line Interstate 210 Barrier Replacement; and

D. EXECUTE Modification No.1 to Contract No. PS4730-3070 to increase the not-to exceed value by $4,799,967 from $10,000,000 to $14,799,967.

ISSUE

Since the opening of the Metro Gold Line, there have been six accidents in which a big rig vehicle, traveling on the 210 Freeway, has entered into the operating Right-of-Way. The latest incident occurred on Sunday, March 6, 2016. During the incident, the tractor caught fire causing damage to the Gold Line system and a major disruption. The Gold Line required immediate repairs which were not complete until early the following morning. Staff proposes to develop design options for barrier improvements for the Pasadena Gold Line and effectively mitigate the risks of future breaches into Metro's Gold Line Right-of-Way. Once the barrier improvements have been approved by Caltrans, Metro will procure a construction contract for installation of the

improvements.

DISCUSSION

We have provided the Board with two board boxes on this critical safety issue on May 7, 2014 and again on December 3, 2015. In these board boxes, we explained that Metro staff determined the need to proceed with the replacement of the existing barriers and have been working on developing a plan to do so. We explained that Metro Engineers have investigated the various barrier alternatives available which meet Caltrans standards and for which installation will have minimal effect on our
Right-of-Way, and will be sturdy and tall enough to reduce the risk of vehicles breaching the median barrier and colliding with one of our trains or injure Metro patrons on station platforms. We have had several meetings with Caltrans to discuss this issue and to share our findings. Metro Engineering's preliminary view is that there is a need to replace the existing 32" high Type 50 barriers (which do not provide adequate protection) with a taller 56" high, Type 60 G Caltrans barrier. This improved barrier will provide the highest available level of crash test worthiness, TL 5 or Test Level 5 that is currently available and in-use, and will bring the Interstate 210 corridor in line with similar Caltrans improvements already implemented as part of the Interstate 710 center median.

The study and design for which we are seeking Board approval, includes preparation of a Project Report (PR) which will either validate the barrier Type 60 G as appropriate for our needs, or recommend an alternate Caltrans Standard barrier(s) which might better fit our needs.

It should be noted that we have reviewed the possibility of using taller barriers than the Caltrans Type 60 G, and found such an approach to be incompatible with the existing conditions as the existing bridges were not designed to carry such a larger load. Also, when the contractor finally replaces the barriers on the existing bridges, some minor strengthening of the existing girders may be needed. Therefore, staff believes that the final design must limit the amount of additional load added to the bridge to avoid triggering seismic retrofits. Additionally, using barriers taller than 56" may result in reduced sight distance for the drivers on the freeway and require reconfiguration of the freeway lanes to bring sight distance to required code limits; potentially a costly addition to the project's cost.

We are asking the Board to authorize the necessary funding to allow Metro staff to enter into contracts to complete the first phase of the project, which is to prepare a risk assessment study under a separate contract to be issued, while concurrently obtaining environmental clearance (Categorical Exemption) under the recommended Task Order. The second stage of the project will be to develop the final design and a construction cost estimate. The final stage of the project will be to solicit a separate construction contract to install the improvements.

Risk Assessment Study:

Funding will be used to hire a consultant to prepare a risk assessment study, with the objective of developing a plan for protecting the Gold Line from the same kind of accidents that have occurred thus far along the I-210 freeway. The objective is to assess the risks associated with each type of accident, their particular locations and their impacts on the operation of the Gold Line. Impacts of accidents include such things as loss of life, property damage, and short and long-term service disruptions.

New Barriers - Environmental Clearance (Categorical Exemption) Final Design and Construction Cost Estimate

Metro Engineers have prepared two options for the replacement of the existing barrier. The first option (minimal approach) is a partial barrier replacement which would provide only the minimum level of enhanced crash barriers adjacent to stations locations and designated critical equipment (train control cases and bungalows) along the east and west bound directions of the alignment. The second option (full approach) would replace the full 12 miles of barriers in both east and west bound directions.

In the interest of time it was decided that during the development of the risk assessment study, the design for the whole 12 miles (full approach) will be developed and adjusted as a result of the findings and recommendations of the risk assessment study to refine the design at appropriate locations. Upon completion of the final design, it will be included in the solicitation package which will be prepared to bid the job.

Intrusion Detection System

Metro Engineers will evaluate the feasibility of using an intrusion detector which would be installed on the top of the new barriers system; when the intrusion detection system is activated, the signal will serve to stop all trains in the vicinity, thus reducing the probability that a train may be hit by a vehicle breaching into our Right-of-Way. If the solution appears feasible and the level of potential false alarms of this sensitive system is low enough to be acceptable, we will proceed with developing the design of this system and will coordinate the interfaces between the installation of the system and the new barriers systems.

Task Order No. 12 Work and Caltrans Participation

In order to be responsive to this high priority and urgent project, we elected to use the Metro On-Call project management and quality assurance/control support services Contract No. PS4730-3070 with CH2M Hill Inc. (CH2M). CH2M has the experience on this type of work and has

committed to prepare this Phase 1 effort within the required timeframe.

CH2M will use Metro's Preliminary Engineering Package as a starting point to develop a Final Design package (plans, specifications and estimates) for the barriers replacement. CH2M's proposal also includes constructability reviews of their design with the objective of ensuring that their design will minimize the number and types of disruptions to Gold Line Operations during construction. In addition, the risk assessment study results will help determine with more accuracy whether or not there is a need to replace all of the existing barriers along the entire 12 miles alignment (full approach) or only at selected sections of the alignment. CH2M will also develop a more definitive construction cost estimate and Metro staff will come back to the Board in early FY18 with a request to approve funds for Phase 2, construction of the project.

Metro staff met with Caltrans several times in the last year to share their approach and seek a consensus with this important partner for this project. As recently as April 14, 2016 we met with Caltrans executives and sought their comments on CH2M's scope of services, which were then incorporated by CH2M in a revised scope of work. Caltrans' specific request was to increase the number of Alternatives in the Project Report from one to three, to expand the mapping limits of the project, and to add Landscape Architecture services to the scope; which were all incorporated into the revised scope of work. This coordination process culminated in a three way meeting on April 19, 2016 between Metro, Caltrans and CH2M to make sure there was a consensus on the resulting scope for CH2M and on the role of each partner for this project.

In addition Caltrans has made us aware of their plan to design and build an Active Traffic Management (ATM) System on the I-210. This ATM system consists of signs placed above each lane of the freeway, approximately every half a mile and displaying the maximum speed allowed on each lane: Metro agreed that the design work by CH2M for Metro I-210 project will provide for future installation by Caltrans of this ATM equipment. In other words, based on inputs to be provided timely by Caltrans to Metro, CH2M will ensure their design of Metro I-210 project can accommodate Caltrans ATM facilities such as pylons, ductbanks and conduits to be installed by Caltrans at a later stage.

Finally, ~~Further,~~ we have also secured direct participation of Caltrans to support ~~the~~ Metro I-210 barriers replacement project, review the work of CH2M and issue the permit at the end of Phase 1 through the issuance of a work order under the existing Master Cooperative Agreement for $1,815,306.

Phased Construction

Considering the concurrence of activities of this complex project with a risk assessment study prepared while we develop final design and estimate, it is the intention of staff to develop a strategy to be submitted to the board approval at the end of this design phase, which will discuss

a potential phased construction approach. Depending on the results of the risk assessment study and of the project report staff might propose to install these new barriers in a phased way: First phase would very likely covers the stations areas where we have large number of patrons, a second phase would be in areas where sensitive equipment such as signaling bungalows are located, a third phase would include sections of the freeway with a tight radius curves, etc. Staff might also recommend to install the new barriers system for the entire affected 6 miles alignment.

DETERMINATION OF SAFETY IMPACT

This Board's decision to approve this Project is paramount to ensuring public safety along the Metro Gold Line I-210 corridor.

Implementation of this project will be an important step in improving safety and to reduce the likelihood of future breaches into Metro's Gold Line Operational Right-of- Way. The improvements described in this project are necessary for public safety.

FINANCIAL IMPACT

Upon approval of the recommendations, staff will establish a project number and a Life of Project budget for $ 11,078,366 to execute the final design and supplementary requirements as described. Final design budget will be programmed in the FY16, FY17 and FY18 budgets as per Attachment A, Sources and Uses Table. A majority of the budget will reside under cost center 8510 - Construction Procurement, Account number 50316 - Professional and Technical Services.

Since this will likely be a multi-year project, the Project Manager, Cost Center manager, and Executive Director of Program Management will be responsible for budgeting the cost in future fiscal years.

Impact to Bus and Rail Operation or Capital Budgets

The FY16, FY17 and FY18 budget amendments for this action will come from Proposition C 25% (PC25%) as a result of the workscope aligned with Highway related improvements. This fund source is not eligible for Bus or Rail Operations. No other fund source was considered.

ALTERNATIVES CONSIDERED

The Board could choose not to approve this project. However, Metro staff believe that it is necessary to study alternatives to the existing form of barrier that exists along the 210 Freeway corridor through which the Gold Line operates, to reduce the risk of future vehicle intrusions into the Metro Gold Line I-210 median operating area.

NEXT STEPS

Upon Board approval, Metro staff will hire a consultant to prepare a risk assessment study to determine the appropriate level of improvements to the existing barrier, issue Task Order No. 12 to CH2M, and issue a Work Order to Caltrans to coordinate the work, review and approve the work of CH2M.

ATTACHMENTS

Attachment A - Design Life of Project Cost Estimate
Attachment B - Procurement Summary
Attachment C - Task Order Log
Attachment D - DEOD Summary

Prepared by:
Craig Remley, Sr. Structural Engineer (213) 922-.3981

Sam Mayman, Executive Officer, Engineering (213) 922-7289

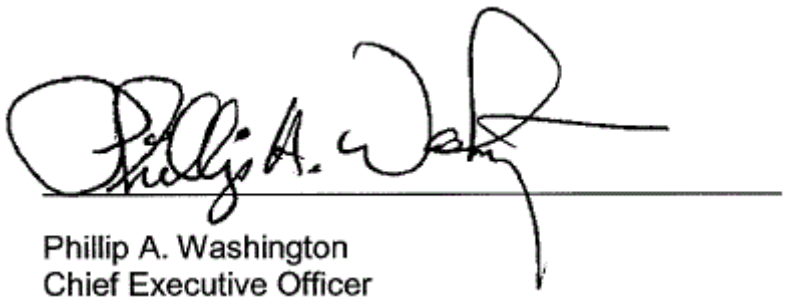
Reviewed by:

Ivan Page, Interim Executive Director, Vendor/Contract Management (213) 922-6383

Greg Kildare, Executive Director, Risk, Safety and Asset Management (213) 922-4971

Jim Gallagher, Chief Operations Officer213) 922-4424

Richard Clarke, Executive Director of Program Management (213) 922-7557



Phillip A. Washington
Chief Executive Officer

ATTACHMENT A

DESIGN LIFE OF PROJECT COST ESTIMATE

METRO GOLD LINE INTERSTATE I-210 MEDIAN BARRIER REPLACEMENT

Use of Funds (in dollars)	**FY16**	**FY17**	**FY18**	**Total Cost**	**%**
Professional Services					
Final Design Consultant	239,998	4,319,970	239,998	4,799,967	43%
Risk Assessment Serivces	50,000	900,000	50,000	1,000,000	9%
3rd Party Reviews / Coord (CalTrans)	90,765	1,633,775	90,765	1,815,306	16%
Design Intrusion Detection system	5,000	90,000	5,000	100,000	1%
CMA	38,576	694,375	38,576	771,527	7%
Total Professional Services	**424,340**	**7,638,120**	**424,340**	**8,486,800**	**77%**
Metro Engineering & Admin	**72,138**	**1,298,480**	**72,138**	**1,442,756**	**13%**
Contingency	**57,440**	**1,033,929**	**57,440**	**1,148,810**	**10%**
Uses Grand total:	**553,918**	**9,970,529**	**553,918**	**11,078,366**	**100%**

Sources of Funds (in dollars)					
Proposition C 25% Debt	**553,918**	**9,970,529**	**553,918**	**11,078,366**	100%

ATTACHMENT C

TASK ORDER LOG

HIGHWAY PROGRAM PROJECT MANAGEMENT AND QUALITY ASSURANCE/CONTROL SUPPORT SERVICES/PS4730-3070

Task Order No.	Description	Date	Amount
1	Assistant Project Management and Engineering Support Services	05/12/14	$221,864
2	Cancelled by Metro		$0
3	State Route 138 Capacity Enhancements Project Management Support	05/13/14	$50,476
4	Risk Management Services for Interstate Route 5 (I-5)	07/15/14	$270,972
5	SR-710 North Study Technical Support Services for Outreach	07/03/14	$385,992
6	Update the Design of Soundwall Package No. 11	07/24/14	$1,053,453
7	Cancelled by Metro		$0
8	Potholing, Utility Coordination, Right-of-Way, Permitting & Environmental Documentation,	08/27/15	$371,405
9	Project Resourcing and Schedule Management (PRSM) Services	08/19/15	$332,119
10	Address City of Los Angeles Requirements	01/19/16	$489,964
11	Cost Estimating Services for Potential Projects	12/30/15	$24,300
12	Preparation of the Project Report and Environmental Documents (Categorical Exemption) and the Plans, Specifications and Estimates for the Metro Gold Line Interstate 210 Barrier Replacement.	**PENDING**	$4,799,967
	Task Order Total:		**$8,000,512**
	Remaining Board Approved Amount:		**$1,999,488**
	Original Contract NTE Amount:		**$10,000,000**
Mod. No. 1	**Increase NTE Contract Amount:**	**PENDING**	**$4,799,967**
	Total Contract NTE Amount:		**$14,799,967**

DEOD SUMMARY

PROJECT MANAGEMENT AND QUALITY ASSURANCE QUALITY CONTROL SUPPORT SERVICES FOR LA COUNTY/PS-4730-3070

A. Small Business Participation

CH2M Hill made a 31% Small Business Enterprise (SBE) commitment. CH2M Hill's current SBE participation is 13.12%, representing a 17.88% shortfall. The contract is for on-call support services. SBE participation is based on the aggregate value of all task orders issued. To date 11 task orders have been issued and the overall contract is currently 64% complete. SBE firms were utilized on 6 task orders, 3 task orders had zero SBE participation, and 2 task orders were cancelled.

In response to the shortfall, CH2M explained, and Metro's Project Manager confirmed, that Task Order No. 3 (Project Management Support Services) had no SBE subcontract opportunities, because the task order required the qualifications of one individual to assist Metro's Project Manager; and there were no SBE subcontract opportunities on Task Order No. 4, because Caltrans requested that they (CH2M) perform the scope of work with their own workforce. Metro's Project Manager confirmed that CH2M continues to identify opportunities for SBE participation on Task Order No. 9, which is approximately 10% complete. CH2M made a 42.67% SBE commitment on Task Order No. 12, which is pending award, and confirmed that their overall SBE participation will increase to 32.67%.

Small Business Commitment	31% SBE	Small Business Participation	13.12% SBE

	SBE Subcontractors	% Commitment	Current Participation[1]
1.	Arellano Associates	2.00%	0.04%
2.	AFSHA, Inc.	1.00%	0.00%
3.	Barrio Planners, Inc.	3.00%	7.21%
4.	Epic Land Solutions, Inc.	4.00%	0.00%
5.	Galvin Preservation Associates	5.00%	0.00%
6.	JM Diaz	7.00%	5.25%
7.	MARRS Services	7.00%	0.00%
8.	Wagner Engineering and Survey, Inc.	2.00%	0.62%
	Total SBE Commitment	**31.00%**	**13.12%**

[1]*Current Participation = Total Actual amount Paid-to-Date to SBE firms ÷Total Actual Amount Paid-to-date to Prime.*

B. Prevailing Wage Applicability

Prevailing wage is not applicable to this contract.

C. Living Wage Service Contract Worker Retention Policy

The Living Wage and Service Contract Worker Retention Policy is not applicable to this contract.

D. Project Labor Agreement/Construction Careers Policy

Project Labor Agreement/Construction Careers Policy is not applicable to this contract.

ATTACHMENT B

PROCUREMENT SUMMARY

HIGHWAY PROGRAM PROJECT MANAGEMENT AND QUALITY ASSURANCE/CONTROL SUPPORT SERVICES/PS4730-3070

1.	**Contract Number**: PS4730-3070: Task Orders No. 1 to 12			
2.	**Contractor**: CH2M Hill Inc.			
3.	**Task Order Work Description**: Task No. 12 – Preparation of the Project Report and Environmental Documents (Categorical Exemption) and the Plans, Specifications and Estimates for the Metro Gold Line Interstate 210 Barrier Replacement.			
4.	**Work Description**: Professional engineering services.			
5.	**The following data is current as of**: 05/06/16			
6.	**Contract Completion Status**:		**Financial Status**:	
			Original Contract Funding NTE Amount:	**$10,000,000**
	Contract Award Date:	**12/5/13**	**Pending Task Order Award Amount**:	**$4,799,967**
			Total Task Orders Approved:	**$3,200,545**
	Original Completion Date:	**01/03/17**	**Value of Task Orders Issued to Date (including this action)**:	**$8,000,512**
	Current Est. Complete Date:	**01/03/17**	**Remaining Board Approved Amount**:	**$1,999,488**
7.	**Contract Administrator**: **Erika Estrada**		**Telephone Number**: **(213) 922-1102**	
8.	**Project Manager**: **Benkin Jong**		**Telephone Number**: **(213) 922-3053**	

A. Procurement Background

This Board Action is to award Task Order No. 12 and increase the total not-to-exceed (NTE) value for Contract No. PS4730-3070 in the equivalent dollar amount to develop the Project Report (PR), prepare the Environmental Documents (ED) (Categorical Exemption), and prepare the Plans, Specifications and Cost Estimate (PS&E) for the Metro Gold Line Interstate 210 (I-210) Barrier Replacement.

The Task Order RFP was issued in accordance with Metro's Acquisition Policy and the contract type is a Labor-Hour Task Order per the original contract terms.

On December 5, 2013 the Metro Board approved and awarded Item 21, a Labor-Hour Task Order Contract No. PS4730-3070 for Highway Program Project Management and Quality Assurance/Control Support Services, to CH2M Hill Inc. for a three-year base period with two, one-year options, for an amount not-to-exceed $10,000,000. To date, 11 task orders have been issued in the amount of $3,200,545.

B. Evaluation of Proposals/Bids

A Proposal Evaluation Team (PET) consisting of staff from Metro's Engineering Management, and Major Capital Project Engineering was convened and conducted a comprehensive technical evaluation of the proposal received for Task Order No. 12.

Qualifications Summary of Recommended Firm:

CH2M Hill Inc. (CH2) has extensive experience in all phases of the highway planning and project development process. The firm has planned, designed and constructed numerous highway projects including some complex, high-priority transportation projects in Southern California for Metro, Caltrans, City of Los Angeles, Orange County Transportation Authority and local counties and municipalities. The proposed CH2 team has a readily accessible pool of personnel resources, trained in a variety of disciplines that have full life-cycle transportation experience and expertise.

CH2 has experience in providing the required PR, ED and PS&E expertise mandated for the Metro Gold Line I-210 barrier replacement project. The CH2 team mapped out a proven project delivery approach (previously provided PR, ED and sound-wall expertise) to execute the work effort required. Further, the proposed Project Manager has 33 years of experience in designing and managing highway projects, including interchange improvement, highway realignment, rehabilitation, grade separation, and widening projects from preliminary engineering to final design and support during construction. CH2's strength is in their proposed management plan, strong personnel, project delivery techniques and a clear understanding of the statement of work. CH2's performance has been satisfactory for the 11 task orders executed to date.

C. Cost Analysis

The recommended, NTE price for Task Order No. 12 has been determined to be fair and reasonable based on the utilization of the existing contract's negotiated labor rates, cost analysis, an independent cost estimate, technical analysis, and fact finding.

The fully burdened rates for the labor classifications required for Contract No. PS4730-3070 were determined to be fair and reasonable based upon MAS audit findings, an independent cost estimate, cost analysis, technical analysis, fact finding, and negotiations.

Proposer Name	Proposal Amount	Metro ICE	NTE amount
CH2M Hill Inc.	$4,799,967	$4,825,027	$4,799,967

D. Background on Recommended Contractor

The recommended firm, CH2M Hill Inc. (CH2) headquartered in Colorado with 28,000 employees and a local office in Los Angeles, is a global leader in engineering, procurement, construction, operations and management for government, civil, industrial and energy clients. CH2 has been providing professional services to private and public agencies since 1946. The firm has experience with highway projects which includes the State Route 710 North Study Alternatives Analysis, PR and ED, I-710 South sound-walls and I-170 and I-405 sound-walls package 11, Caltrans District 7 project development on call contracts, Riverside County's State 79 realignment PR and ED, and program management for City of Los Angeles, 6th Street viaduct replacement. CH2 assembled a highly qualified team with expertise in transportation planning, design, financing, traffic, operations and management.

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

File #: 2016-0372, **File Type:** Public Hearing **Agenda Number:** 38

FINANCE, BUDGET & AUDIT COMMITTEE
PUBLIC HEARING - PROPOSED FY17 BUDGET
MAY 18, 2016

SUBJECT: FISCAL YEAR 2017 (FY17) BUDGET

ACTION: ADOPT THE FY17 BUDGET

RECOMMENDATION

APPROVE:

A. adopting the **FY17 Budget** as presented in the budget document (provided in a separate transmittal and posted on Metro.net) with the amendment of an additional -$5.3 million reduction as a reconciliation item to the proposed budget as shown on Attachment A;

B. the **Reimbursement Resolution declaring Metro's intention to issue debt in FY17 for capital projects** (provided in Attachment B). Actual debt issuance will require separate Board approval;

C. an average 3% merit increase for non-represented employees which will be performance based; and

D. an adjustment to management pay grades and salary bands for the top seven levels H1S through HFF to reflect typical market practice. There is no impact to the budget or to current employees' salaries (see Attachment C).

ISSUE

State Law (Public Utilities Code Section 130105) requires Metro to adopt an annual budget to manage the revenues and expenses of the agency's projects and programs. The budget is the legal authorization to obligate and spend funds and to implement Board policy. It includes all operating, capital, planning and programming, subsidy funds, debt service requirements, and general fund activities for the fiscal year. Budget detail is a management plan for financial activity and is prepared at the fund, project, department and expenditure level. The legal level of control is at the fund level. Total annual expenditures cannot exceed the final appropriation by the Board except for capital expenditures, which is authorized on a life-of-project basis.

Copies of the proposed budget document were made available to the public on May 3, 2016, both electronically at www.metro.net and through the Records Management Center (RMC) at RMC@metro.net. Printed copies of the budget document were made available at the RMC on the Plaza level of the Gateway Building on the same day. The public hearing is scheduled for May 18, 2016. Advance public notification of this hearing was issued through advertisements posted in over two dozen news publications.

The FY17 Budget development process started in January 2016 with monthly updates to the Finance, Budget, &Audit Committee. Additionally, in that time, Metro staff has provided multiple budget briefings to Board staff and has followed up on questions received from Board staff. There has also been 19 meetings held to stakeholders including Service Councils, Citizens Advisory Council, Technical Advisory Committee, Bus Operations Subcommittee and the public both in person and via electronic media outlets such as podcasts, website and social media.

DISCUSSION

The proposed FY17 Budget is balanced at $5.7 billion in total agency expenditures which is a decrease of -$137 million, or -2.4%, from $5.8 billion in FY16. This is a result of efforts to tighten cost controls, increase fiscal discipline and accountability throughout the agency while continuing to deliver on the following agency goals:

1. Advance safety and security for our customers, the public, and Metro employees
2. Exercise fiscal discipline to ensure financial stability
3. Plan and deliver capital projects on time and on budget while increasing opportunities for small business development and innovation
4. Improve the customer experience and expand access to transportation options
5. Increase transit use and ridership
6. Implement an industry-leading state of good repair program
7. Invest in workforce development
8. Promote extraordinary innovation

Assumptions Summary

The FY17 budget is built based on the following assumptions:

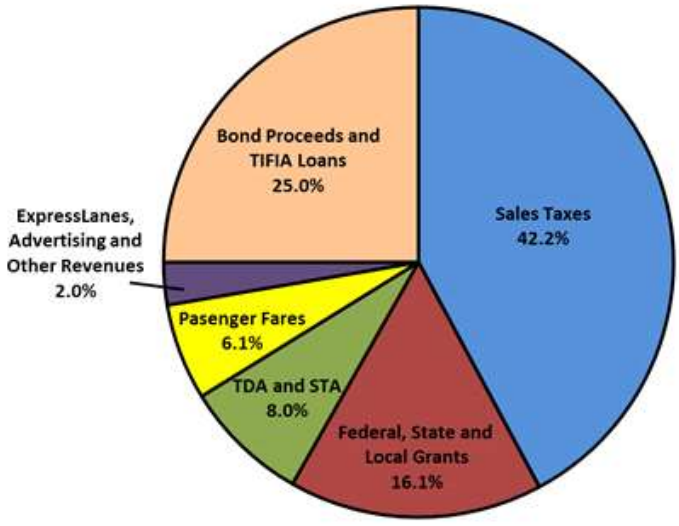
- FY 17 sales tax growth of 3.3% over FY16 Budget based on forecasting sources as well as actual receipts for FY16 YTD through Q2
- CPI of +1.85% based on Beacon Economics forecast
- Bus Revenue Service Hours decrease by 41,828 hours or -0.6% primarily due to increase speed and optimizing service levels

- Rail Revenue Service Hours increase by 168,584 hours or 15.4% from a full year operations of the rail extensions
- The budget reflects negotiated wage and salary provisions for represented employees (SMART, ATU, AFSCME, TCU and Teamsters). The wage increase by these provisions is at least 3.0% for annual wage increase and an additional amount for step increase to reach the maximum pay rate for an annual increase ranging from 3% to 5%.
- No new non represented FTEs requested
- Represented FTEs increase in Transit security department is conditioned upon savings from the new law enforcement contract; any reduction in represented FTE's will be through attrition.

Resources Summary

The table below summarizes the budgeted types of resources available for FY17.

	Resources ($s in millions)	FY17 Proposed	% of Total
1	Sales Taxes (Prop A, C and Measure R)	$ 2,387.1	42.2%
2	Federal, State and Local Grants	910.7	16.1%
3	TDA and STA	450.8	8.0%
4	Passenger Fares	346.2	6.1%
5	ExpressLane, Advertising and Other Revenues	152.6	2.7%
6	Bond Proceeds and TIFIA Loans	1,415.8	25.0%
7	**Grand Total**	**5,663.2**	**100.0%**



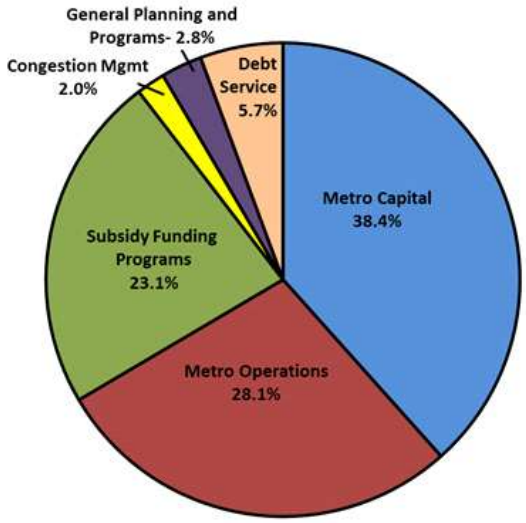
FY17 vs FY16 Expense Summary

The agency implemented a zero-based budget process for FY17 which is a deliverable based

approach in building the budget. Through this process, we were able to prioritize projects and redeploy expenditures and resources to the core needs for the upcoming fiscal year. This reinforces the agency's commitment to tighten budget controls and exercise fiscal discipline in the allocation of limited resources and further drive accountability.

As a result, the FY17 Budget nets to a decrease in total agency expenditures of -$137 million, which is a -2.4% decrease, from $5.8 billion in FY16 to $5.7 billion in FY17. This budget decrease is the net result after absorbing $130 million or 2.2% of cost increases for non-discretionary items and new programs. However cost control and accountability efforts contribute to a decrease from FY16 to FY17 of -$267 million or -4.6%. This further demonstrates the agency's core goal of exercising fiscal discipline to ensure financial stability. The chart below shows the summary of expenditures for FY16 vs FY17.

	Program Type ($ in millions)	FY16	FY17 Proposed	Variance $'s	Variance %	% of Total FY17 Budget
1	Metro Capital	$2,521.4	$ 2,173.8	$ (347.6)	-13.8%	38.4%
2	Metro Operations	1,515.2	1,593.5	78.3	5.2%	28.1%
3	Subsidy Funding Programs	1,159.7	1,306.2	146.5	12.6%	23.1%
4	Congestion Management	99.4	111.0	11.6	11.7%	2.0%
5	General Planning & Programs	175.8	158.5	(17.3)	-9.8%	2.8%
6	Debt Service	328.7	320.1	(8.6)	-2.6%	5.7%
7	**Grand Total**	**$5,800.2**	**$ 5,663.1**	**$ (137.1)**	**-2.4%**	**100.0%**



The major reasons for the $130 million or 2.2% increase is due to increases in labor, insurance and utilities rate inflation, contractual obligations, costs for investing in new programs such as Bike and Active Transportation Programs, studies and projects, and ongoing construction projects such as the Westside Purple Line Extension, Regional Connector and Crenshaw/LAX based on the project LOP and a full year operation of the Gold Line Foothill Phase 2A and Expo Line extensions.

Risk Allocation Matrix (RAM) in FY17 Budget

In January 2016, the RAM was approved by an action of the Metro Board of Directors. RAM is an

ongoing agencywide process to identify a strategic mix of cost saving and revenue generating new initiatives to implement in order to secure Metro's long term financial stability. To monitor the savings and revenues achieved through the RAM new initiatives, the estimated financial impacts of those that will be implemented in FY17 have been included in the proposed budget. Based on current projections, the total savings and revenues to be realized in FY17 are estimated at $128M.

	Category	FY17 Current Budget Amount
1	**New Revenues**	**$436,200**
2	Includes new advertising and film revenue-generation opportunities	
3	**Ongoing Cost Savings**	**$27,697,666**
4	Includes minor adjustments in bus and rail service, and reallocation of cap and trade funds	
5	**One-time Cost Savings**	**$100,000,000**
6	One-time reduction in fund balance reserves	
7	**Total**	**$128,133,866**

FTE Summary

FY17 Budget will have no non-contract FTE additions. Continuing the effort to strengthen fiscal discipline, the agency will redeploy existing vacancies to the priorities for the upcoming year as opposed to requesting new FTEs. In the past couple of years the agency has added positions faster than it can fill them which has led to a growing number of vacant positions to date. Along with the vacancies is the zero-based budget development approach which has allowed the agency to identify and reprioritize the near-time needs accordingly and thereby no new non contract FTE's are requested.

A net 30 new represented FTEs requested for FY17 comprised of the following:

1) 77 additions for the Transit security department (conditioned upon the new law enforcement contract); the 77 addition in security is to increase the control of security deployment and improve results and again will only be filled if there is an offset in savings in the new law enforcement contract
2) 1 addition for communications in managing the bike locker program
3) 48 positions in operations will be reduced through attrition based on Board approved service levels planned for FY17

	Department	FY17	FY16	FY17 Change	FY17	FY 17
1		Non Represented	Represented			Total
2	Board of Directors	38	0		0	38
3	Chief Executive Office	236	219	77	296	532
4	Communications	101	183	1	184	285
5	Congestion Reduction	20	0		0	20
6	Finance & Budget	166	68		68	234
7	Information Technology	92	51		51	143
8	Operations	275	7,580	-48	7,532	7807
9	Planning & Development	163	0		0	163
10	Program Management	234	0		0	234
11	Vendor/Contract Mgmt	158	162		162	320
12	**Total**	**1,483**	**8,263**	**30**	**8,293**	**9,776**

Non Represented FTE's Merit Increase

In line with negotiated wage rates for represented FTEs, an average 3.0% merit increase is requested for non-represented employees which will be distributed based on a merit based performance system.

Classification and Compensation Pay Grade and Salary Band Adjustment

In order to reflect market practice, HR will be consolidating and adjusting the current pay grade level bands to reflect consistent progression and spreads which will align customary compensation packages. There will be no impact to budget or current employees' salary. Please refer to Attachment C for more details.

Public Outreach

A comprehensive public outreach program for the FY17 budget is in place to ensure the greatest level of engagement from the public and key stakeholders. Using public workshops, communication tools and technology advances, numerous options and opportunities for informing and engaging the public are available.

In addition, an online tool will be available to engage the public and continually gather input to help guide the mid-year budget and future budgets.

Soliciting meaningful input from the public and stakeholders is important. To ensure greater participation, the times and locations of public workshops were advertised through multiple channels, including the Metro website, "Take Ones" on board bus/rail vehicles and at customer centers, newspaper advertising, messages on hold, and Metro Briefs. A summary of public outreach efforts and comments received is in Attachment D.

Reimbursement Resolution

Federal tax law requires that bond proceeds can only be used for expenses incurred after the issuance of bonds. In order to be reimbursed for expenses incurred before the bond issue, Metro must pass a resolution indicating the intent to issue bonds at a later date for the expenditures

described in the reimbursement resolution. The attached resolution (Attachment B) is included in the budget board report as a matter of course, to tie expenditures anticipated in the budget to proceeds from future bond issuance, and it must be approved as an item separate from the budget document.

DETERMINATION OF SAFETY IMPACT

The proposed budget continues to make safety a primary goal and provides funding for new and ongoing safety programs throughout Metro.

FINANCIAL IMPACT

The proposed FY17 Budget (provided in a separate transmittal) is $5.7 billion which is a -2.4% decrease from FY16. The budget includes expenditures and appropriates the resources necessary to fund them. The proposed budget demonstrates Metro's ongoing commitment to meeting its capital and operating obligations, which is a requirement necessary in order to continue to receive subsidies from the state and federal governments and to administer regional transportation funding to local cities and Municipal Operators.

NEXT STEPS

Monitoring the FY17 budget performance will be an ongoing effort year around. Staff will be conducting quarterly variance analysis and tracking performance metrics to reinforce accountability and budgetary control. There will be a mid-year budget assessment to evaluate the budget's alignment to agency priorities. In addition, continuous improvements will be implemented to the process and regular updates will be reported to the Board.

ATTACHMENTS

Attachment A - Amendment Items to FY17 Proposed Budget

Attachment B - Reimbursement Resolution of Metro for Fiscal Year 2017

Attachment C - Classification and Compensation Adjustment

Attachment D - Public Outreach and Comments on Fiscal Year 2017 Budget

Prepared by: Irene Fine, Deputy Executive Officer, Finance, Ext. 24420

Melissa Wang, Executive Officer, Finance, Ext. 26024

Reviewed by: Nalini Ahuja, Executive Director, Finance and Budget, Ext. 23088

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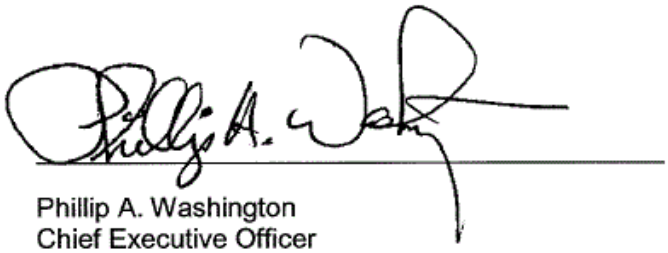


Phillip A. Washington
Chief Executive Officer

ATTACHMENT B

REIMBURSEMENT RESOLUTION
OF THE
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
FOR FISCAL YEAR 2017

WHEREAS, the Los Angeles County Metropolitan Transportation Authority (the "Metro") desires and intends to finance certain costs relating to (i) the design, engineering, construction, equipage and acquisition of light rail lines including the Exposition Line Phase II Project, Crenshaw/LAX, Regional Connector, and the Purple Line Subway Extension, Phases 1, 2 and 3 (ii) the design, engineering, construction, equipage and acquisitions for the Southwestern Rail Maintenance Yard, (iii) the design, engineering, construction, equipage and acquisitions for the Rail Deferred Maintenance Project, (iv) the design, engineering and other related close out costs of the I-405 Car Pool Lanes project, (v) the engineering, construction, renovation, maintenance, and/or acquisition of various capital facilities and equipment, including buses and rail cars, related to service operation, (x) design, engineering, construction, equipage and acquisition of various highway projects including soundwalls and carpool lanes, and (xi) to other transit related projects (each a "Project" and collectively, the "Projects");

WHEREAS, to the extent that federal and/or state grant funding budgeted to be received during FY17 is delayed or reduced, the Los Angeles County Metropolitan Transportation Authority desires and intends to finance certain costs relating to the Projects.

WHEREAS, Metro expects to issue debt through the issuance of tax-exempt bond issues to pay for these expenditures, which bond issues will have three separate security sources, Proposition A, Proposition C and Measure R sales tax revenues, respectively, or grant revenues to finance the costs of the Project on a permanent basis (the "Debt");

WHEREAS, Metro expects to expend moneys of the Enterprise Fund (other than moneys derived from the issuance of bonds) on expenditures relating to the costs of the Projects prior to the issuance of the Debt, which expenditures will be properly chargeable to a capital account under general federal income tax principles;

WHEREAS, Metro reasonably expects to reimburse certain of such capital expenditures with the proceeds of the Debt;

WHEREAS, Metro expects that the amount of Debt that will be issued to pay for the costs of the Projects will not exceed $275 million for Proposition A, $350 million for Proposition C and $660 million for Measure R;

WHEREAS, at the time of each reimbursement, Metro will evidence the reimbursement in writing, which identifies the allocation of the proceeds of the Debt to Metro, for the purpose of reimbursing Metro for the capital expenditures made prior to the issuance of the Debt;

WHEREAS, Metro expects to make reimbursement allocations no later than eighteen (18) months after the later of (i) the date on which the earliest original expenditure for the Project is paid or (ii) the date on which the Project is placed in service (or abandoned),

but in no event later than three (3) years after the date on which the earliest original expenditure for the Project is paid;

WHEREAS, Metro will not, within one (1) year of the reimbursement allocation, use the proceeds of the Debt received by way of a reimbursement allocation in a manner that will result in the creation of replacement proceeds of the Debt or another issue (e.g., Metro will not pledge or use the proceeds received as reimbursement for the payment of debt service on the Debt or another issue, except that the proceeds of the Debt can be deposited in a bona fide debt service fund); and

WHEREAS, this Resolution is intended to be a " declaration of official intent" in accordance with Section 1.150-2 of the Treasury Regulations.

NOW THEREFORE, BE IT RESOLVED, that (i) all of the foregoing recitals are true and correct and (ii) in accordance with Section 1.150-2 of the Treasury Regulations, Metro declares its intention to issue Debt in an amount not to exceed $275 million for Proposition A, $350 million for Proposition C and $660 million for Measure R; the proceeds of which will be used to pay for the costs of the Projects, including the reimbursement to Metro for certain capital expenditures relating to the Projects made prior to the issuance of the Debt.

ATTACHMENT A

	Amendment Items to FY17 Proposed	$s in millions
1	**FY17 Proposed**	**5,663.1**
2	**Amendment Items**	
3	Cancellation of Line 270 S per April Board Action	(1.4)
4	Raymer Bernsen project	(3.9)
5	**FY17 Proposed with Amendment Items**	**5,657.8**
6	**FY17 Proposed with Amendment Items vs FY16**	**-2.5%**

ATTACHMENT C

Classification and Compensation Adjustment

A Classification & Compensation Study on the Non Represented Job classifications and pay structure was conducted by The Unisource Group and Mercer and a job titling restructure has been recommended for the top 7 pay grade levels (H1S through HFF) which will have zero impact to the budget and no impact to current employees' salaries. The recommendation is to adjust top management grades (DEO and above) to reflect typical market practice by taking the following actions:

1) Remove one pay grade
2) Adjust midpoint progressions to scale up normally and establish consistent pay grade spread
3) Re-slot roles in current grades H1S through HFF to maintain internal equity

Below is the proposed pay grade change (note that there is no change to pay grade H1A through H1Q):

Current Structure

Pay Grade	Minimum ($000s)	Midpoint ($000s)	Maximum ($000s)	Spread	Progression
HFF	$337	$411	$485	44%	21%
HDD	$278	$340	$401	44%	24%
HCC	$222	$274	$325	46%	32%
HBB	$166	$208	$250	50%	6%
HAA	$157	$196	$235	50%	6%
H1T	$147	$184	$221	50%	4%
H1S	$142	$177	$213	50%	15%
H1Q	$123	$154	$184	50%	11%
H1P	$111	$138	$166	50%	11%
H1O	$100	$125	$150	50%	10%
H1N	$91	$114	$136	50%	10%
H1M	$83	$103	$124	50%	9%
H1L	$76	$95	$114	50%	9%
H1K	$70	$87	$105	50%	8%
H1J	$65	$81	$97	50%	8%
H1I	$60	$75	$90	50%	7%
H1H	$56	$70	$84	50%	10%
H1G	$51	$63	$76	50%	10%
H1F	$46	$58	$69	50%	10%
H1E	$42	$53	$63	50%	9%
H1D	$39	$48	$58	50%	8%
H1C	$36	$45	$53	50%	8%
H1B	$33	$41	$49	50%	7%
H1A	$31	$38	$46	50%	--

Proposed Structure

Pay Grade	Minimum ($000s)	Midpoint ($000s)	Maximum ($000s)	Spread	Progression
HFF	$335	$419	$503	50%	25%
HEE	$268	$335	$402	50%	25%
HDD	$214	$268	$322	50%	22%
HCC	$176	$220	$264	50%	15%
HBB	$153	$191	$229	50%	12%
HAA	$136	$171	$205	50%	11%
H1Q	$123	$154	$184	50%	11%
H1P	$111	$138	$166	50%	11%
H1O	$100	$125	$150	50%	10%
H1N	$91	$114	$136	50%	10%
H1M	$83	$103	$124	50%	9%
H1L	$76	$95	$114	50%	9%
H1K	$70	$87	$105	50%	8%
H1J	$65	$81	$97	50%	8%
H1I	$60	$75	$90	50%	7%
H1H	$56	$70	$84	50%	10%
H1G	$51	$63	$76	50%	10%
H1F	$46	$58	$69	50%	10%
H1E	$42	$53	$63	50%	9%
H1D	$39	$48	$58	50%	8%
H1C	$36	$45	$53	50%	8%
H1B	$33	$41	$49	50%	7%
H1A	$31	$38	$46	50%	-

Current	Proposed	Change in Midpoint
HFF	HFF	2%
HDD	HEE	-1%
HCC	HDD	-2%
HBB	HCC	6%
HAA	HBB	-3%
H1T	HAA	-7%
H1S		-4%

ATTACHMENT D

FY17 PROPOSED BUDGET
Summary of Public Outreach Efforts and Comments Received

Public Outreach Efforts

Strategy	Outreach	Summary/Recap	
Stakeholder Meetings		Workshops	Comments
	Service Councils (SC)	10	31
	Citizens Advisory Council (CAC)	2	9
	Streets and Freeways Subcommittee (SFS)	1	
	Bus Operations Committee (BOS)	2	5
	Technical Advisory Committee (TAC)	2	1
	General Managers Meeting (GM)	2	2
Website	Public Access to budget details On-line survey	Email Comments: 8 Mail: 2	
Social Media	Podcasts Blog posts Facebook Twitter		
E-Blast	>24,000 emails	April/May	
Messages on-hold	On-hold message		
Publications (multi-languages)	Notification of public hearing >60 publications		
Take-ones (English/Spanish)	Distribution of >78,000 throughout system, customer centers and at stakeholder events	Phone calls:	

Comments Received

Comments received from the public during Metro's FY17 budget outreach process are summarized below. This summary includes comments received through May 11th. Most comments have been addressed at the workshops, while other comments will be provided to departments for response and follow-up. All other comments will be considered during the mid-year budget assessment. Feedback was received from the following sources and groups:

- Service Council Meetings
- Citizens Advisory Council
- Streets and Freeways Subcommittee
- Bus Operations Committee
- Technical Advisory Committee
- Written Comments received via mail and email
- Social Media Outreach, including podcasts and blog posts

Key Topics	Synopsis of Comments
Transit Service	• What ridership is expected for Expo to Santa Monica and Gold Line to Azusa? • What is the reason for the ridership decline? • What is the difference in Revenue Service Hours from FY15 to FY16? • Are we buying more articulated buses? • Will the new articulated buses have more seats? • What is included in the Revenue Service Hour change? • What is the new load standard? • Does the ridership chart assume 0% change as a baseline then + rail ridership from the extensions? • Don't cut 770, 190 or 270. • Declining farebox recovery is a concern, would rather pay higher fares for higher quality service • Stop rail projects and finish I-5 • Please keep funding for 150,183,240,234,734,744 • Need bus service to UCLA from the Valley • Build more rail as quickly as possible • Reduce spending on rail capital expansion and shift money to bus operations and bus service improvements • Line 90 and 91 should travel more often and later in the evenings • Line 166 should go east to Foothill Boulevard • Routes on the "15 minute map" should never have headways less than 30 minutes through 10pm. • Never run headways longer than 15 minutes on rail service. • Coordinate with Foothill Transit to provide better service on the Metro Silver Line and Foothill Silver Streak. • How are we going to keep schedules correct if a bus breaks down or other interruptions of transit service occur? • Rightsizing of the system resulted in a reduction in bus RSH. How will the ridership and schedule patterns be analyzed and how quickly will corrections be made and implemented?
Alternative Revenues	• Please explain the RAM. • Why is the FY18 RAM savings less than the FY17 amount? • How do we save costs from All Door Boarding? • How do RAM ideas get implemented into the budget? • Do the RAM ideas include transfer of bus lines to municipal operators? • Will CMAQ funds be used to pay for Orange Line service?
Technology	• Please describe the online budget tool and provide a demo of the tool before it launches. • Describe how the trade-offs will be shown on the online budget tool when adding or deleting programs and services. • What technology is used to collect ridership data?
Safety and Security	• What are we doing about fare evasion? • Will the new Expo II and Gold Line Foothill extension stations have gates? • What safety/security improvements are being funded? • What is the change in safety/security funding from FY16 to FY17? • Explain the large drop in security cost per RSH. Has security been reduced? • What is the fare evasion rate, and what are we doing to stop fare evasion?

Budget	• How does the public provide input into the budget process? • What percent of the budget is zero based? • When is the deficit now? • Will the amount of debt service stay the same over the next 5 years? • Make sure deferred maintenance is being funded, such as the Green Line station rehabilitation. • What are the reserves used for? • How is the budget being marketed to the public? The CAC wants to see the fully integrated marketing plan.
Customer Service	• When will TVMs be at Harbor-Gateway Station? • Suggest broad outreach on TVM and Mobile Validator limitations with respect to the Harbor-Gateway TVM installation and All Door Boarding on the Silver Line. • Increase available parking at North Hollywood station. • Improve customer and rider communication by updating and republishing the "15 minute map."
Potential Ballot Measure	• Is the 2.4% sales tax growth rate consistent with the potential ballot measure assumptions? • How do we understand what goes into the PBM? Can we have a presentation on the expenditure plan when it is made public? • We would like to have a workshop in the new few months to talk about how to allocate the non-capital program of the PBM. • Please come back with the dollar amounts for the sales tax projections. • Why assume sales tax growth rate is flat for FY17 when the current trend is declining? • Why is the sales tax assumed to grow by 2.4%? • How are we letting the public know that the FY17 budget does not include the potential ballot measure? • The budget does not include additional funding from the ballot measure. How fast would this funding be added to the budget? • How is the potential ballot measure being marketed to the public? The CAC wants to see the fully integrated marketing plan.
Fares	• Why is the fare for the Orange Line cheaper than for the Silver Line? • Does the institutional pass RAM idea mean a fare increase is being contemplated? • Proceed with Phase 2 of the 2014 fare restructuring effort. • Expand the EZ Pass to passes with shorter durations than the 30-day pass, such as a 7-day or 1-day pass. • Proceed with Phase 2 and Phase 3 of the 2014 fare restructuring effort.

Los Angeles County
Metropolitan Transportation Authority

ITEM #38

FY17 Proposed Budget

FY17 Budget Public Hearing
Finance, Budget and Audit Committee

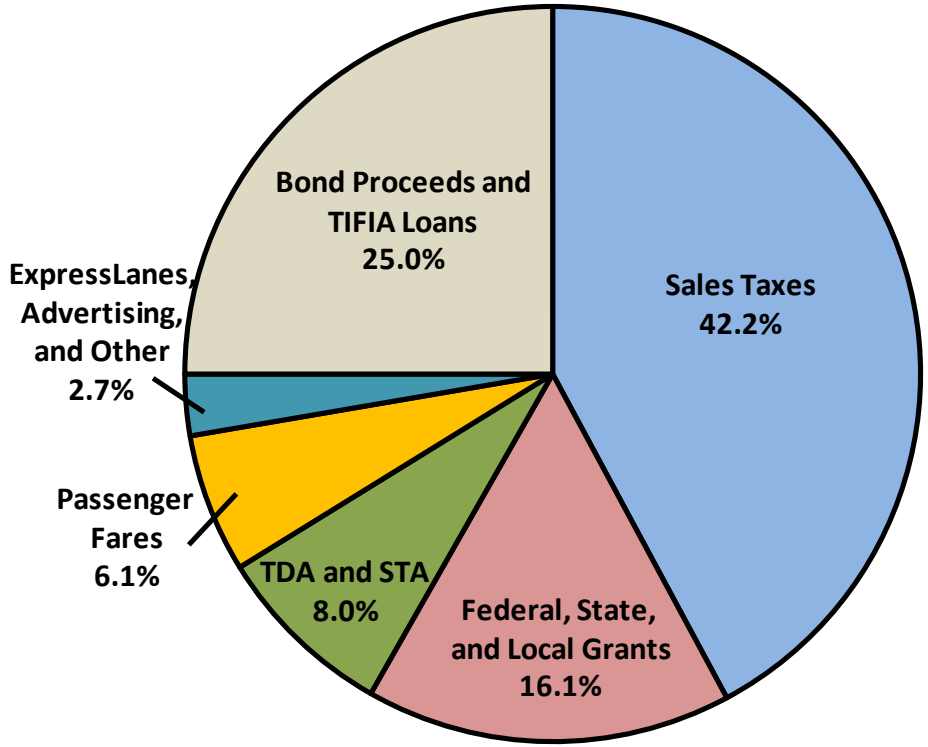
May 18, 2016

Metro

Summary of Agency Resources

($ in millions)

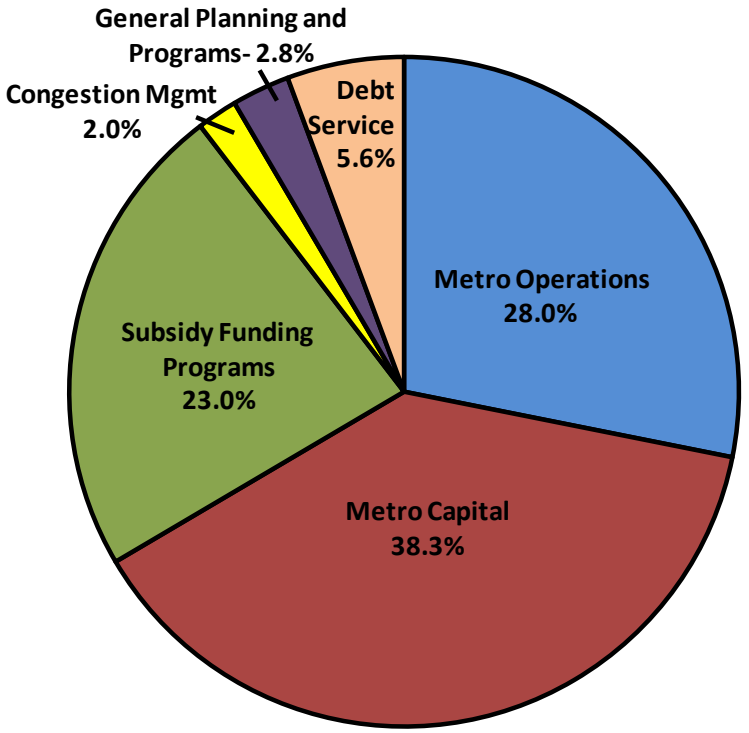
	Resources		FY17 Proposed	% of Total FY17 Budget
1	Sales Taxes (Props A, C, and Measure R)	$	2,387.1	42.2%
2	Federal, State, and Local Grants		910.7	16.1%
3	TDA and STA		450.8	8.0%
4	Passenger Fares		346.2	6.1%
5	ExpressLane, Advertising, and Other Revenues		152.6	2.7%
7	Bond Proceeds and TIFIA Loans		1,415.8	25.0%
8	**Total Resources**	$	5,663.2	100.0%



Metro

Summary of Agency Expenditures

	Program Type ($ in millions)	FY16 Budget	FY17 Proposed	Variance $$	Variance %	% of Total FY17 Budget
1	Metro Capital	$ 2,312.2	$ 2,173.8	$ (138.4)	-6.0%	38.4%
2	Metro Operations	1,500.4	1,593.5	93.1	6.2%	28.1%
3	Subsidy Funding Programs	1,379.0	1,306.2	(72.8)	-5.3%	23.1%
4	Congestion Management	99.3	111.0	11.7	11.8%	2.0%
5	General Planning & Programs	180.7	158.5	(22.2)	-12.3%	2.8%
6	Debt Service	328.7	320.1	(8.6)	-2.6%	5.7%
7	**Grand Total**	**$ 5,800.2**	**$ 5,663.2**	**$ (137.0)**	**-2.4%**	**100.0%**



- Balanced budget for FY17
- Net $137.0 million reduction (-2.4%) includes absorbing cost inflation, new rail service, and other new programs and projects
- Metro resolution to cost control through zero-based budget and Risk Allocation Matrix (RAM)
- Performance Measure to ensure accountability
- Cost control efforts will continue through Annual Program Evaluation (APE) and Midyear budget
- Efforts continue to exercise cost control and working to realize additional savings (to be reflected as an amendment to the budget)

Metro

FY17 Budget Development Process

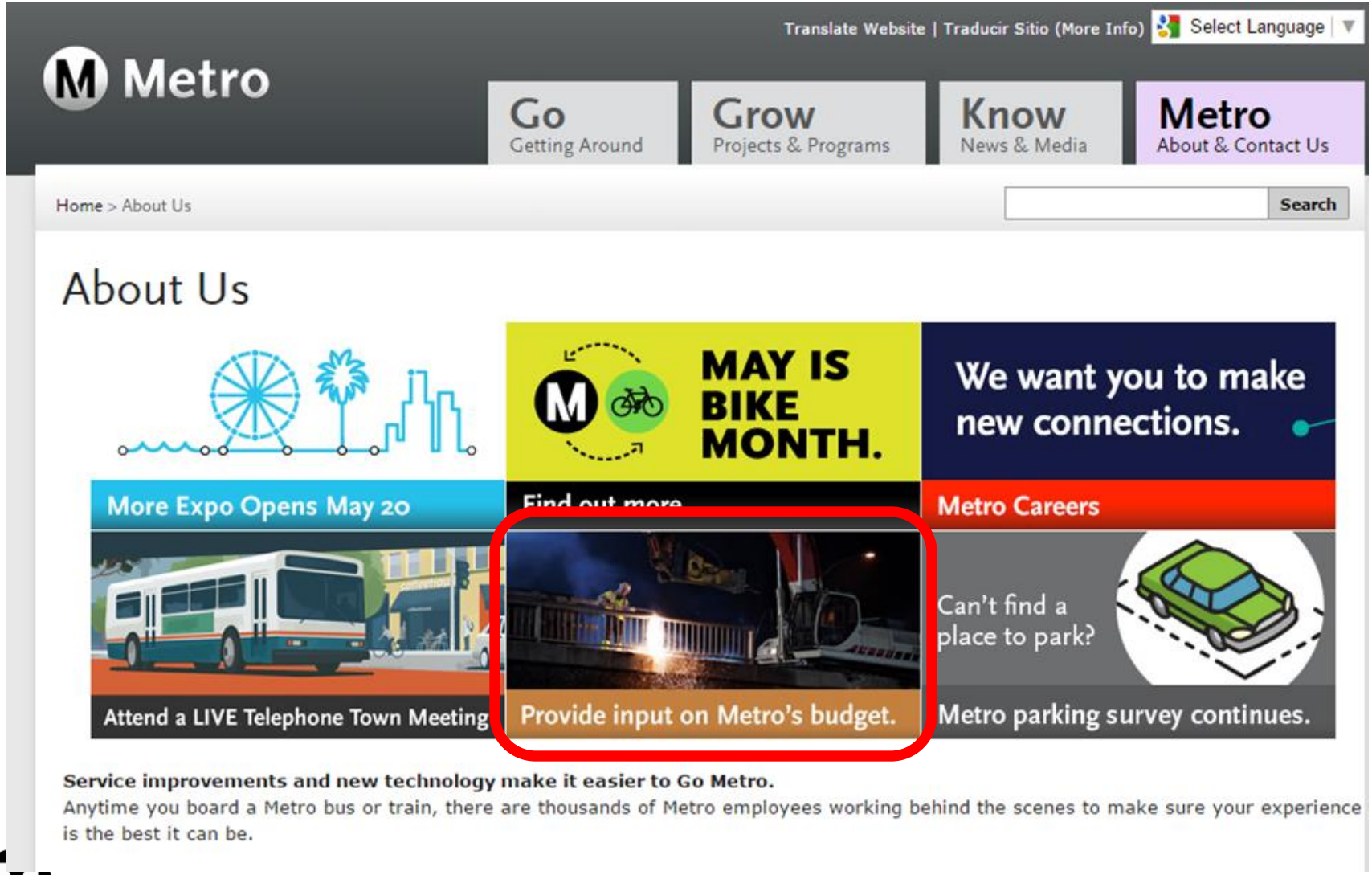
Budget Development Schedule	
Jan-16	RAM initiatives adopted for FY17 implementation
Feb-16	(1)Budget Planning Parameters (2) FY17 Preliminary Capital Program
Mar-16	Agencywide Bus and Rail Service Levels
Apr-16	(1) Preliminary Summary of Expenditures and FTE (2) Bus and Rail Operations Budget
May-16	Board Adoption – May 26

Outreach with key stakeholders:

- Board of Directors
- Senior Leadership Team and Executive Staff
- Regional Service Councils, Citizen Advisory Council (CAC), Technical Advisory Committee (TAC), and Bus Operations Subcommittee (BOS)
- Electronic media (e.g. social media, the Source, webinar, webpage, etc.)
- Online Budget Tool

Metro

Online Budget Tool



Online Budget Tool

What Are Your Transportation Priorities?

Start the survey by prioritizing the programs and services of importance to you below. Then in the next few pages as you respond to a series of questions, you will immediately see the financial impacts associated with your choices, resulting in your personalized budget proposal for Metro to consider as part of our budget planning.

Drag and drop priorities below to reorder.

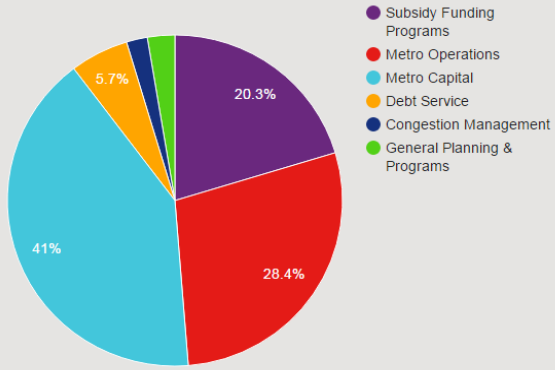
1. Improve Bus Service
2. Improve Rail Service
3. Improve Highways and Reduce Congestion
4. Reduce First/Last Mile Gaps (Make it Easier to Get to and from Bus and Rail Stations)
5. Improve the Customer Experience and Security
6. Expand the Bike Share Program

Add Comment

Use the navigator below to proceed.

Overview of Metro's Proposed Budget by Program Type

Select a program type on the pie chart for additional info.



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Metro

Online Budget Tool

Metro

How Would You Make it Easier to Get to and from Bus and Rail Stations?

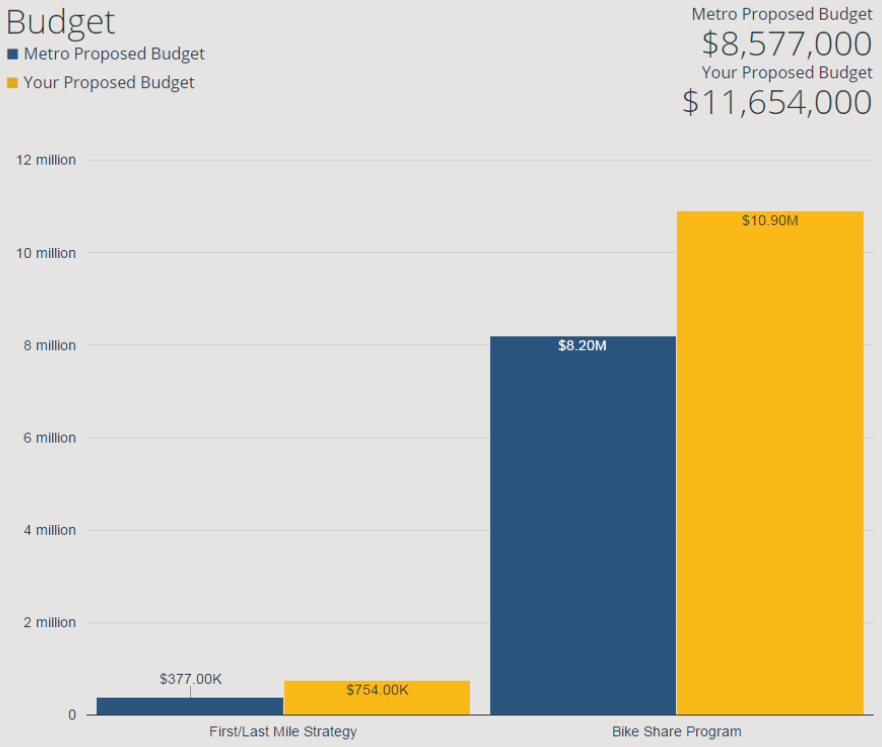
See Description

1. What improvement or service would you add to the first/last mile strategy?

Select response:

- (●) Improve sidewalk infrastructure (for example, increase or improve crosswalks, curb ramps, lighting and landscaping)
- ( ) Increase the number of bike lockers and bike parking at transit stations
- ( ) Partner with private entities such as Lyft or Uber to provide discounts or coordinate services
- ( ) Increase the number of Metro parking facilities (Park & Ride Lots)
- ( ) Provide a bike share network at or near Metro bus hubs/rail stations
- ( ) None

Add Comment



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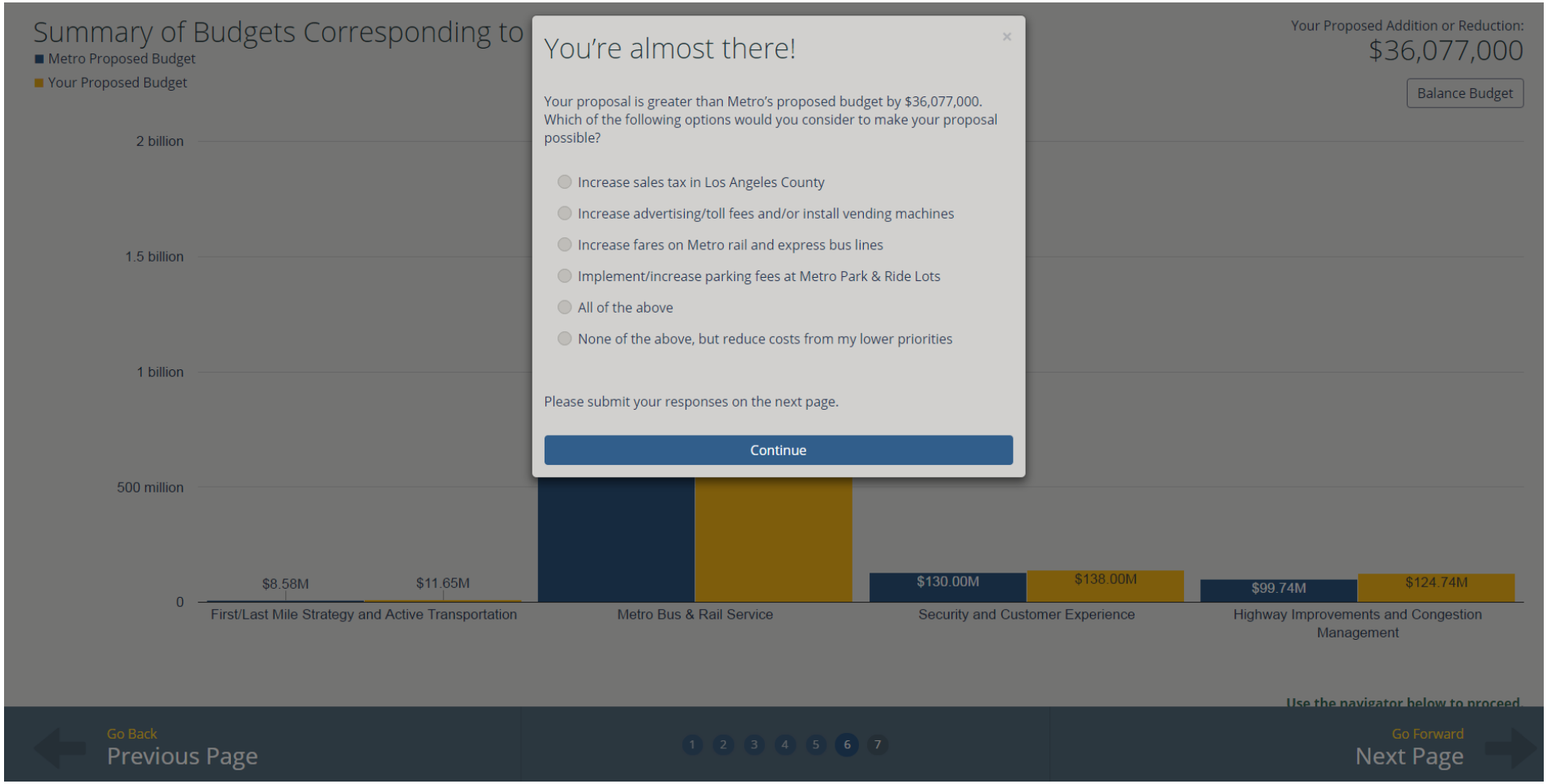

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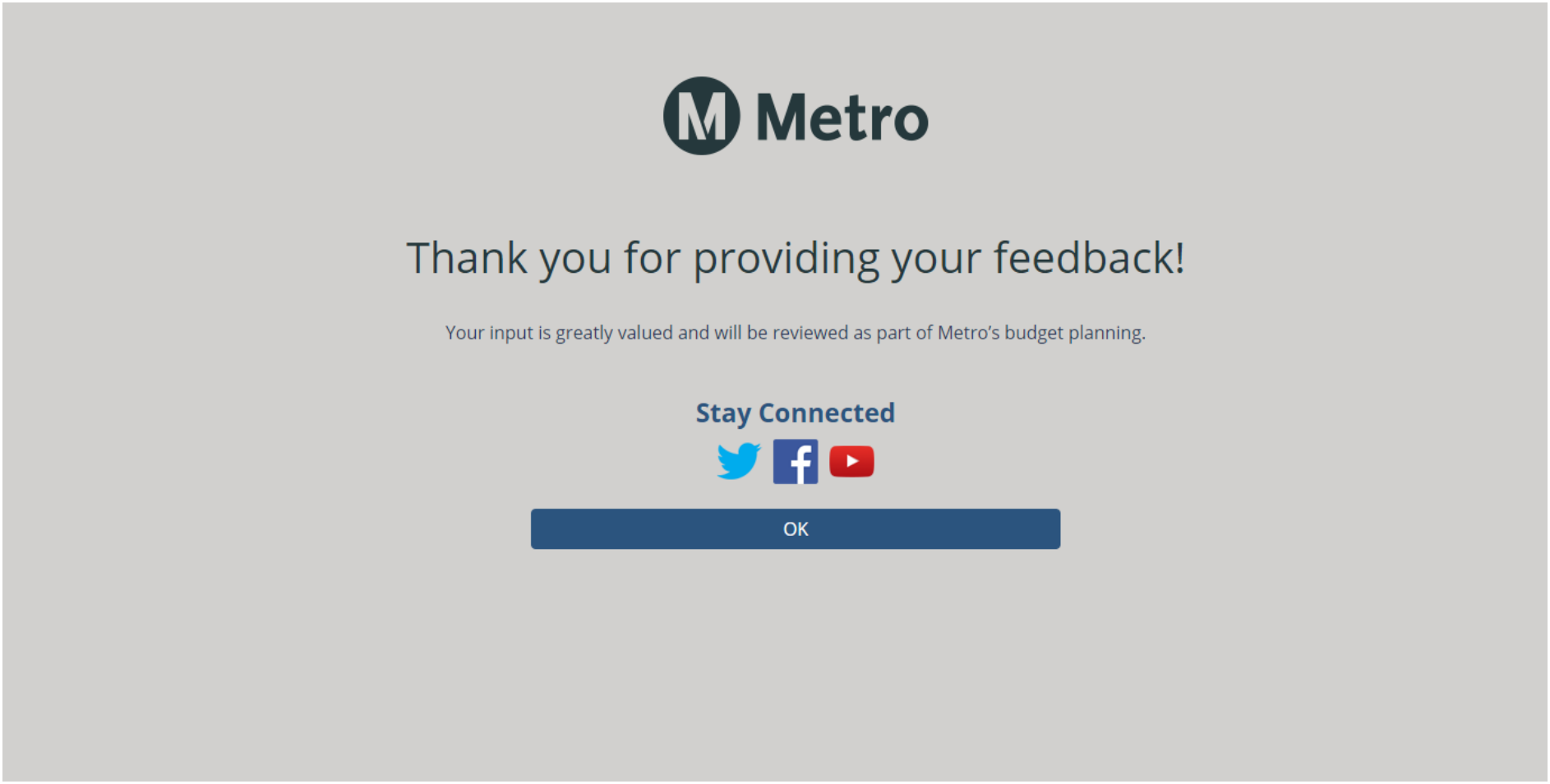
Online Budget Tool



FY17 Budget Risks

Deviations from budget assumptions could include:

- Lower than expected sales tax revenue growth
- Lower than expected passenger boardings and fare revenue
- Greater than expected cost Inflation
- Reduced STA and Cap & Trade funding levels
- Federal Funding delays (congressional and other)
- Failure of the State to issue Prop 1B bond funding and/or High-speed rail funding
- Changes in debt borrowing (market) conditions

Request to Adopt FY17 Proposed Budget

- Adopt the FY17 Budget as presented in the budget with the amendment of an additional -$5.3 million reduction as a reconciliation item to the proposed budget
- Approve the Reimbursement Resolution declaring Metro's intention to issue debt in FY17 for capital projects; Federal tax law requires that bond proceeds can only be used for expenses incurred after the issuance of bonds. In order to be reimbursed for expenses incurred before the bond issue, Metro must pass a resolution indicating the intent to issue bonds at a later date for the expenditures described in the reimbursement resolution.
- Approve an average 3.0% merit increase for non-represented employees which will be based on a merit performance system; this is In line with negotiated wage rates for represented FTEs
- Approve adjustment to management pay grades and salary bands for the top seven levels H1S through HFF to reflect typical market practice. There is no impact to the budget or to current employees' salaries.

Next Steps

- May 26, 2016 – Adoption of FY17 budget; projected to be a balanced budget
- Continue to monitor budget performance and enforce accountability throughout the year

Metro

File #: 2016-0391, **File Type:** Informational Report **Agenda Number:** 39.

REGULAR BOARD MEETING
MAY 26, 2016

SUBJECT: STATE AND FEDERAL REPORT

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE **State and Federal Report.**

DISCUSSION

Executive Management Committee
Remarks Prepared By Raffi Haig Hamparian
Government Relations Director, Federal Affairs

Chairman Ridley-Thomas and members of the Executive Management Committee, I am pleased to provide an update on a number of federal affairs of interest to our agency. This report was prepared on May 4, 2016 and will be updated, as appropriate, at the Executive Management Committee meeting.

Federal Grants For Fiscal Year 2016

I am pleased to share with you today that Metro is actively and aggressively pursuing a number of grants authorized by the FAST Act and/or backed by the Federal Fiscal Year 2016 transportation appropriations bill adopted by the U.S. Congress late last year. Specifically, Metro has submitted applications for the FASTLANE Grant program and TIGER Grant program to the U.S. Department of Transportation for their consideration. Project submitted by our agency for these grants were outlined in a Board Box issued by our Chief Executive Officer last month. Metro's Government Relations team is actively seeking Congressional support for our grant applications.

I am also pleased to share that last month the U.S. Department of Transportation announced that Metro was awarded over $8 million dollars in federal grant funding under two separate grant programs. Specifically, in partnership with Southern California Association of Governments (SCAG), Metro will receive $4.2 million to be used towards the purchase of five electric zero-emission buses as well as eight charging stations. The electric bus infrastructure will serve the Metro Orange Line bus rapid transit corridor and the funding was made available through the Federal Transit Administration's (FTA) Low or No Emissions Deployment Program. In addition, Metro will also receive a $4 million grant for the City of Avalon to replace its existing 5,000-square-feet ferry terminal, built back in 1968, with a new two-story 10,000-square-feet state-of-the-art Cabrillo Mole terminal on

Catalina Island. This funding was awarded through the Federal Transit Administration's Passenger Ferry Grant Program. We are deeply appreciative to members of our Board of Directors and members of the Los Angeles County Congressional Delegation for strongly supporting these two grant applications that were awarded by the FTA last month.

Federal Appropriations For Fiscal Year 2017

The U.S. Senate Committee on Appropriations unanimously approved the Federal Fiscal Year 2017 Transportation - HUD Appropriations Bill. Included in the bill is funding for Metro's New Starts projects. Specifically, the bill provides $100 million for the Regional Connector, $100 million for the Purple Lines Extension Phase 1, and lastly the bill states that $250 million will be available for California's three New Starts projects that are awaiting Full Funding Grant Agreements. In the U.S. House or Representatives, top-line funding figures have not yet been approved, therefore, the Transportation-HUD Bill has not been advanced through the Appropriations Committee at this time. We will continue to work closely with our Los Angeles County Congressional Delegation as the Federal Fiscal Year 2017 Appropriations process develops.

The Transportation Infrastructure and Innovation Act (TIFIA)

Metro is pleased that a major priority in our Board-approved Federal Legislative program was adopted in the FAST Act with respect to the TIFIA program. Specifically, that the FAST Act now allows for Transit Oriented Development as an eligible expense for TIFIA loans. We are actively exploring how to benefit from this new provision. With respect to TIFIA - we are also working with the U.S. Department of Transportation to conclude a $307 million TIFIA loan for section 2 of the Westside Purple Line Extension.

Local Hire

In March, the U.S. Department of Transportation issued a federal register notice extending the Local Hire Pilot Program until March 7, 2017. This is a welcome development and I want to thank the Chairman for requesting this extension form Secretary Foxx. Metro staff will continue to work with Congresswoman Karen Bass and U.S. DOT officials to make this program permanent.

Lastly, I want to thank Chairman Ridley-Thomas for his leadership in strongly and effectively advocating for Metro's Board-approved Federal Legislative Agenda while in Washington, DC last month.

I look forward to expanding on this brief report at the Executive Management Committee meeting with any new developments that occur in the days ahead.

This concludes my remarks before the committee. I would welcome the opportunity to answer any questions from you Mr. Chairman or from members of this Committee.

Executive Management Committee
Remarks Prepared By Michael Turner
DEO, Government Relations, State Affairs

Chairman Ridley-Thomas and members of the Executive Management Committee, I am pleased to provide an update on a number of state affairs impacting our agency. This report was prepared on May 4, 2016 and will be updated, as appropriate, at the Executive Management Committee meeting.

SB 1472 (Mendoza) Board Restructuring Bill

SB 1472, if adopted into State law, would add two additional seats to our Board of Directors. Language in the bill would require that one new Board seat appointed by the Senate Committee on Rules and the other new Board seat be appointed by the Speaker of the Assembly. The bill also prohibits these two additional appointees from residing in the same city as another member of the authority. Pursuant to our Board-approved 2016 State Legislative Program, staff will work to oppose this legislation, as amended. Staff will continue to monitor the bill as it moves through the policy committees in the State Legislature.

California High Speed Rail Authority Approves the 2016 Business Plan

California High-Speed Rail Authority (Authority) Board of Directors adopted the $64.2 billion 2016 Business Plan, which lays out a phased approach to building the system that will ultimately connect the San Francisco Bay Area to Los Angeles via the Central Valley with high-speed passenger rail service. The review process for the Draft Plan included two public comment periods, three legislative hearings and more than 300 public comments, the Authority amended the original draft, and the final version includes:

- Early investments in the Burbank to Los Angeles/Anaheim corridor.
- The addition of the Merced Station stop as part of initial high-speed rail service, which will provide a less than one hour ride to San Jose.
- Improved connections to Amtrak via a connecting station in Madera.
- Expanded rail modernization efforts in both Southern and Northern California, where high-speed rail will link to improved service provided by intercity, commuter and urban rail agencies.

The High Speed Rail authority believes this final plan establishes a clear path for building a useable system while making concurrent investments in Southern California, specifically in the Burbank, Los Angeles and Anaheim passenger rail corridor. The State Legislature will hold hearings in the near future to consider the final adopted High Speed Rail Business Plan and project budget.

Key State Budget Issues

Additionally key budget issues will soon be in development and under review. There have been a number of bills relating to Cap and Trade Programs these bills are expected to work their way through the policy committee process and will be merged during the budget negotiations. It also appears that the High Speed Rail project and its funding will be under review and continued discussion.

Governor's Transportation Funding Package - The Governor's Transportation Funding Package is a $36 billion proposal that includes Caltrans reforms, increased gas and diesel taxes aimed at highway and bridge repair, increased funding for local streets and roads, additional funding for transit,

rail and trade corridors. It is expected that this item will be held in committee pending further discussions in the budget process.

University of California Institute for Transportation Studies (ITS) Funding - The ITS under the UC system provides regional transportation data analysis. The UC system is requesting an increase in funding from the state's Public Transportation Account which will allow for more campuses, including UCLA, to perform this function. The Budget Subcommittee is expected to consider adopting an additional $3 million in funding for ITS in 2016-17. Metro supports the increase in funding for ITS. This request is being supported by a number of Metropolitan Planning Organizations and the California Transit Association. The UC system has asked for Metro's support and we will be supporting this item in committee tomorrow.

State Transit Assistance (STA) Program Allocations - The State Controller's Office (SCO) recently amended the STA allocations in the State. This has caused concern in a number of regions. The budget committee is considering a recommendation to enact a provision that would freeze the allocations at the level of the previous fiscal year. This will allow transit agencies to pursue a process to address the way in which the SCO apportions these funds.

Alternative Fuel Vehicle Access in HOV Lanes - The Governor has recommended trailer bill language that would extend the white sticker program to 2025, extend the green sticker program to 2019 and remove the cap on the issuance of the stickers. The budget committee is recommending that both sticker programs be extended until 2019 and that Caltrans be asked to submit a report on the impact to HOV lanes.

Freeway Service Patrol Funding - The FSP program's annual budget and funding allocation formula do not address the funding requirements of the larger urban counties where the congestion mitigation efforts are needed. Legislation established a fixed annual funding budget and a formula to allocate State Highway Account funds to participating agencies. The funding level has not been increased since 2006. Staff is working to address concerns related to the growing costs to operate the program.

I look forward to expanding on this brief report at the Executive Management Committee meeting with any new developments that occur in the days ahead.

ATTACHMENTS

Attachment A - May 2016 - Legislative Matrix

Prepared by: Michael Turner, DEO, Government Relations, (213) 922-2122
Raffi Hamparian, Director, Government Relations, (213) 922-3769

Reviewed by: Pauletta Tonilas, Chief Communications Officer, (213) 922-3777

Phillip A. Washington
Chief Executive Officer

Los Angeles County Metropolitan Transportation Authority (Metro)
State and Federal Legislative Matrix
MAY 2016
Metro Government Relations

STATE LEGISLATION

Bill ID/Topic	Location	Summary	Position
AB 33 Quirk D Electrical corporations: procurement plans.	1/28/2016-S. E. U., & C. 1/28/2016-Re-referred to Coms. on E., U., & C. and E.Q.	The Public Utilities Act requires the Public Utilities Commission to review and accept, modify, or reject each electrical corporation's procurement plan and requires that each approved procurement plan accomplish specified objectives. This bill would require the commission, as part of a new or existing proceeding, to determine what role large scale energy storage could play as part of the state's overall strategy for procuring a diverse portfolio of resources and to consider specified factors in making that determination.	Monitor
AB 156 Perea D California Global Warming Solutions Act of 2006: disadvantaged communities.	4/25/2016-S. RLS. 4/25/2016-Withdrawn from committee. Re-referred to Com. on RLS.	Current law requires the California Environmental Protection Agency to identify disadvantaged communities and requires the Department of Finance, in consultation with the State Air Resources Board and any other relevant state agency, to develop, as specified, a 3-year investment plan for the moneys deposited in the Greenhouse Gas Reduction Fund. Current law requires the 3-year investment plan to allocate a minimum of 25% of the available moneys in the fund to projects that provide benefits to disadvantaged communities. This bill would require the state board to prepare and post on its Internet Web site a specified report on the projects funded to benefit disadvantaged communities.	Monitor
AB 326 Frazier D Public works: prevailing wage rates: wage and penalty assessments.	1/28/2016-S. L. & I.R. 1/28/2016-Referred to Com. on L. & I.R.	Current law requires the Labor Commissioner to issue a civil wage and penalty assessment to a contractor or subcontractor, or both, if the Labor Commissioner determines, after investigation, that the contractor or subcontractor, or both, violated the laws regulating public works contracts, including the payment of prevailing wages. This bill would require the department to release the funds deposited in escrow plus interest earned to those persons and entities within 30 days following the conclusion of all administrative and judicial review. This bill contains other existing laws.	Monitor

Deferred=bill will be brought up at another time; Chaptered=bill has become law; LA=Last Amended; Enrolled=bill sent to Governor for approval or veto
Note: "Status" will provide most recent action on the legislation and current position in the legislative process. 5/5/2016

Bill ID/Topic	Location	Summary	Position
AB 318 **Chau D** Lost money and goods: bicycles: restoration to owner.	SENATE 2 YEAR 7/17/2015 - Failed Deadline pursuant to Rule 61(a)(10). (Last location was JUD. on 6/11/2015)	Existing law requires a person who finds and takes possession of property that is lost to try and return it to the rightful owner. If the owner of the lost property cannot be determined and the item is worth $100 or more, the finder is required to turn the item over to the police or sheriff, as specified. Existing law provides 90 days for the owner to return and claim the property and to pay any reasonable fee for its bailment. Existing law requires, if the reported value of the property is $250 or more and the owner does not return and claim the property, the police or the sheriff to cause notice of the property to be published, as provided. This bill, until December 31, 2020, would provide that if that lost property is found on a vehicle of public conveyance or on public transit property, that it instead be turned in to the public transit agency, and would provide 90 days for the owner to return and claim the property, as specified. The bill, until December 31, 2020, also would require the public transit agency to cause notice of the property to be published under the circumstances described above. The bill, until January 1, 2021, would authorize a transit agency to utilize alternate unclaimed property procedures with respect to lost or unclaimed bicycles turned in to or held by that public transit agency. This bill contains other related provisions and other existing laws. **Last Amended on 6/11/2015**	Sponsor
AB 620 Hernández, Roger D High-occupancy toll lanes: exemptions from tolls.	2/18/2016-S. T. & H. 2/18/2016-Referred to Com. on T. & H.	Would require os Angeles County Metropolitan Transportation Authority to take additional steps, beyond the previous implementation of a low-income assistance program, to increase enrollment and participation in the low-income assistance program, as specified, through advertising and work with community organizations and social service agencies. The bill would also require LACMTA and the Department of Transportation to report to the Legislature by December 31, 2018, on efforts to improve the HOT lane program, including efforts to increase participation in the low-income assistance program. This bill contains other existing laws.	Neutral

Bill ID/Topic	Location	Summary	Position
AB 857 Perea D California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program.	4/25/2016-S. RLS. 4/25/2016-Withdrawn from committee. Re-referred to Com. on RLS.	Would, between January 2, 2018, and January 1, 2023, inclusive, annually require no less than 50% or $100,000,000, whichever is greater, of the moneys allocated for technology development, demonstration, precommercial pilots, and early commercial deployments of zero- and near-zero-emission medium- and heavy-duty truck technology be allocated and spent to support the commercial deployment of existing zero- and near-zero-emission heavy-duty truck technology that meets or exceeds a specified emission standard. This bill contains other existing laws.	Monitor
AB 869 **Cooper D** Public transportation agencies: fare evasion and prohibited conduct.	SENATE 2 YEAR 9/11/2015 - Failed Deadline pursuant to Rule 61(a)(14). (Last location was INACTIVE FILE on 7/2/2015)	Existing law authorizes a public transportation agency to adopt and enforce an ordinance to impose and enforce civil administrative penalties for fare evasion or other passenger misconduct, other than by minors, on or in a transit facility or vehicle in lieu of the criminal penalties otherwise applicable, with specified administrative procedures for the imposition and enforcement of the administrative penalties, including an initial review and opportunity for a subsequent administrative hearing. This bill would provide that a person who fails to pay the administrative penalty when due or successfully complete the administrative process to dismiss the notice of fare evasion or passenger conduct violation may be subject to those criminal penalties. The bill would require the notice of fare evasion or passenger conduct violation to contain a printed statement that the person may be charged with an infraction or misdemeanor if the administrative penalty is not paid when due or dismissed pursuant to these provisions. This bill contains other related provisions and other existing laws. **Last Amended on 6/18/2015**	Support
AB 1364 Linder R California Transportation Commission.	2/4/2016-S. T. & H. 2/4/2016-Referred to Coms. on T. & H. and G.O.	Current law vests the California Transportation Commission with specified powers, duties, and functions relative to transportation matters. Current law requires the commission to retain independent authority to perform the duties and functions prescribed to it under any provision of law. This bill would exclude the California Transportation Commission from the Transportation Agency and establish it as an entity in the state government. The bill would also make conforming changes.	Watch

Bill ID/Topic	Location	Summary	Position
AB 1550 Gomez D Greenhouse gases: investment plan: disadvantaged communities.	4/12/2016-A. APPR. 4/12/2016-Re-referred to Com. on APPR.	Current law requires the Department of Finance, in consultation with the state board and any other relevant state agency, to develop, as specified, a 3-year investment plan for the moneys deposited in the Greenhouse Gas Reduction Fund. This bill would require the investment plan to allocate a minimum of 25% of the available moneys in the fund to projects located within, and benefitting individuals living in, disadvantaged communities and a separate and additional unspecified percentage to projects that benefit low-income households, as specified, with a fair share of those moneys targeting households with incomes at or below 200% of the federal poverty level.	
AB 1572 Campos D School transportation.	4/25/2016-A. APPR. 4/25/2016-Re-referred to Com. on APPR.	Would entitle a pupil who attends a public, noncharter school that receives Title 1 federal funding to free transportation to and from school if certain conditions are met. The bill would require a school district not currently providing transportation to all pupils attending schools that receive Title 1 federal funding to implement a plan developed, in consultation with specified stakeholders, to ensure that all pupils entitled to free transportation receive the transportation.	
AB 1591 Frazier D Transportation funding.	2/1/2016-A. TRANS. 2/1/2016-Referred to Coms. on TRANS. and REV. & TAX.	Existing law provides various sources of funding for transportation purposes, including funding for the state highway system and the local street and road system. These funding sources include, among others, fuel excise taxes, commercial vehicle weight fees, local transactions and use taxes, and federal funds. Existing law imposes certain registration fees on vehicles, with revenues from these fees deposited in the Motor Vehicle Account and used to fund the Department of Motor Vehicles and the Department of the California Highway Patrol. Existing law provides for the monthly transfer of excess balances in the Motor Vehicle Account to the State Highway Account. This bill would create the Road Maintenance and Rehabilitation Program to address deferred maintenance on the state highway system and the local street and road system. The bill would require the California Transportation Commission to adopt performance criteria to ensure efficient use of the funds available for the program. The bill would provide for the deposit of various funds for the program in the Road Maintenance and Rehabilitation Account, which the bill would create in the State Transportation Fund, including revenues attributable to a $0.225 per gallon increase in the motor vehicle fuel (gasoline) tax imposed by the bill, including an inflation adjustment as provided, an increase of $38 in the annual vehicle registration fee, and a new $165 annual vehicle registration fee applicable to zero-emission motor vehicles, as defined. This bill contains other related provisions and other existing laws.	Support

Bill ID/Topic	Location	Summary	Position
AB 1592 Bonilla D Autonomous vehicles: pilot project.	4/28/2016-S. T. & H. 4/28/2016-Referred to Com. on T. & H.	Would, notwithstanding the above provision, authorize the Contra Costa Transportation Authority to conduct a pilot project for the testing of autonomous vehicles that do not have an operator and are not equipped with a steering wheel, a brake pedal, or an accelerator if the testing is conducted only at specified locations and the autonomous vehicle operates at speeds of less than 35 miles per hour. This bill contains other related provisions.	Monitor
AB 1595 Campos D Employment: human trafficking training: mass transportation employers.	4/21/2016-A. APPR. 4/21/2016-From committee: Do pass and re-refer to Com. on APPR. (Ayes 6. Noes 0.) (April 20). Re-referred to Com. on APPR.	Existing law establishes the Division of Labor Standards Enforcement in the Department of Industrial Relations for the enforcement of labor laws, and establishes certain obligations on an employer, including, requiring an employer to post specified wage and hour information in a location where it can be viewed by employees. Under existing law, any person who deprives or violates the personal liberty of another with the intent to obtain forced labor or services is guilty of the crime of human trafficking. This bill would require a private or public employer that provides mass transportation services, as specified, in the state to train its employees, who are likely to interact or come into contact with victims of human trafficking, in recognizing the signs of human trafficking and how to report those signs to the appropriate law enforcement agency. The bill would require the Department of justice to develop guidelines for the training, including, but not limited to, guidance on how to report human traffic king. The bill would require that, by January 1, 2018, the training be incorporated into the initial training process for all new employees and that all existing employees receive the training. **Last Amended on 3/29/2016**	Support
AB 1640 Stone, Mark D Retirement: public employees.	4/28/2016-S. RLS. 4/28/2016-In Senate. Read first time. To Com. on RLS. for assignment.	PEPRA exempts from its provisions certain public employees whose collective bargaining rights are subject to specified provisions of federal law until a specified federal district court decision on a certification by the United States Secretary of Labor, or until January 1, 2016, whichever is sooner. This bill would extend indefinitely that exemption for those public employees, whose collective bargaining rights are subject to specified provisions of federal law and who became a member of a state or local public retirement system prior to December 30, 2014.	

Bill ID/Topic	Location	Summary	Position
AB 1641 Allen, Travis R Shuttle services: loading and unloading of passengers.	2/4/2016-A. TRANS. 4/4/2016-In committee: Set, second hearing. Hearing canceled at the request of author.	Under current law, a person may not stop, park, or leave a vehicle standing alongside a curb space authorized for the loading or unloading of passengers of a bus engaged as a common carrier in local transportation when indicated by a sign or red paint on the curb, except that existing law allows local authorities to permit schoolbuses to stop alongside these curb spaces upon agreement between a transit system operating buses as common carriers in local transportation and a public school district or private school. This bill would also allow local authorities to permit shuttle service vehicles, as defined, to stop for the loading or unloading of passengers.	Monitor
AB 1657 O'Donnell D Air pollution: public ports and intermodal terminals.	4/19/2016-A. APPR. 4/19/2016-From committee: Do pass and re-refer to Com. on APPR. (Ayes 15. Noes 0.) (April 18). Re-referred to Com. on APPR.	Would establish the Zero- and Near-Zero-Emission Intermodal Terminals Program to be administered by the State Air Resources Board to fund equipment upgrades and investments at intermodal terminals, as defined, to help transition the state's freight system to be zero- and near-zero-emission operations. The bill would authorize the program to be implemented with moneys from the Greenhouse Gas Reduction Fund. This bill contains other related provisions and other existing laws.	Monitor
AB 1661 McCarty D Local government: sexual harassment training and education.	4/12/2016-A. APPR. 4/12/2016-Read second time. Ordered to third reading. Re-referred to Com. on APPR. pursuant to Joint Rule 10.5.	Current law requires all local agency officials to receive training in ethics, at specified intervals, if the local agency provides any type of compensation, salary, or stipend to those officials. This bill would additionally require local agency officials, as defined, to receive sexual harassment training and education if the local agency provides any type of compensation, salary, or stipend to those officials, and would allow a local agency to require employees to receive sexual harassment training or information.	Monitor
AB 1663 Chiu D Firearms: assault weapons.	3/1/2016-A. APPR. 4/13/2016-In committee: Set, first hearing. Referred to suspense file.	Would classify a semiautomatic centerfire rifle that does not have a fixed magazine with the capacity to accept no more than 10 rounds as an assault weapon. The bill would require a person who, between January 1, 2001, and December 31, 2016, inclusive, lawfully possessed an assault weapon that does not have a fixed magazine, including those weapons with an ammunition feeding device that can be removed readily from the firearm with the use of a tool, and who, on or after January 1, 2017, possesses that firearm, to register the firearm by July 1, 2018.	Monitor

Bill ID/Topic	Location	Summary	Position
AB 1669 Hernández, Roger D Displaced employees: service contracts: collection and transportation of solid waste.	4/28/2016-A. THIRD READING 4/28/2016-Read third time and amended. Ordered to third reading.	Current law requires a local government agency letting a public transit service contract out to bid to give a bidding preference for contractors and subcontractors who agree to retain for a specified period certain employees who were employed to perform essentially the same services by the previous contractor or subcontractor. Such a contractor or subcontractor is required to offer employment to those employees, except for reasonable and substantiated cause. This bill would expand the application of these provisions to exclusive contracts for the collection and transportation of solid waste. The bill would require the information provided to a bona fide bidder to be made available in writing at least 30 days before bids for the service contract are due.	Monitor
AB 1683 Eggman D Alternative energy financing.	4/4/2016-A. REV. & TAX SUSPENSE FILE 4/4/2016-In committee: Set, first hearing. Referred to suspense file.	The California Alternative Energy and Advanced Transportation Financing Authority Act authorizes, until January 1, 2021, the California Alternative Energy and Advanced Transportation Financing Authority to provide financial assistance in the form of a sales and use tax exclusion for projects, including those that promote California-based manufacturing, California-based jobs, advanced manufacturing, the reduction of greenhouse gases, or the reduction in air and water pollution or energy consumption. The act prohibits the sales and use tax exclusions from exceeding $100,000,000 for each calendar year. This bill would instead prohibit the sales and use tax exclusions from exceeding $200,000,000 for each calendar year.	Monitor
AB 1685 Gomez D Vehicular air pollution: civil penalties.	4/19/2016-A. APPR. 4/19/2016-From committee: Do pass and re-refer to Com. on APPR. (Ayes 10. Noes 5.) (April 18). Re-referred to Com. on APPR.	Current law provides that a manufacturer or distributor who does not comply with the emission standards or the test procedures adopted by the State Air Resources Board is subject to a civil penalty of $50 per vehicle. This bill would increase those penalties to $37,500 per action or vehicle. The bill would require the state board to adjust those penalties for inflation, as specified.	Monitor
AB 1710 Calderon D Vehicular air pollution: zero-emission and near-zero-emission vehicles.	4/19/2016-A. APPR. 4/19/2016-From committee: Do pass and re-refer to Com. on APPR. (Ayes 6. Noes 3.) (April 18). Re-referred to Com. on APPR.	Would require, on or before January 1, 2019, the State Air Resources Board to develop and implement a comprehensive program comprised of a portfolio of incentives to promote zero-emission and near-zero-emission vehicle deployment in the state to drastically increase the use of those vehicles and to meet specified goals established by the Governor and the Legislature. This bill contains other related provisions and other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
AB 1725 Wagner R Vehicles: automated traffic enforcement systems.	4/7/2016-S. T. & H. 4/7/2016-Referred to Com. on T. & H.	Current law defines an "official traffic control signal" as any device, whether manually, electrically, or mechanically operated, by which traffic is alternately directed to stop and proceed and which is erected by authority of a public body or official having jurisdiction. This bill would expressly state that a stop is required to be made at an official traffic control signal erected and maintained at a freeway or highway on ramp. This bill would also make technical, nonsubstantive changes to that provision. This bill contains other current laws.	Monitor
AB 1732 Ting D Single-user restrooms.	4/21/2016-A. THIRD READING 4/21/2016-Read second time. Ordered to third reading.	Would, commencing March 1, 2017, require all single-user toilet facilities in any business establishment, place of public accommodation, or government agency to be identified as all-gender toilet facilities, as specified. The bill would authorize inspectors, building officials, or other local officials responsible for code enforcement to inspect for compliance with these provisions during any inspection.	Monitor
AB 1746 Stone, Mark D Transit buses.	4/28/2016-S. T. & H. 4/28/2016-Referred to Com. on T. & H.	Current law creates the Alameda-Contra Costa Transit District, the Central Contra Costa Transit Authority, the Livermore Amador Valley Transit Authority, the North County Transit District, the San Diego Association of Governments, the San Diego Metropolitan Transit System, and the Santa Clara Valley Transportation Authority with various powers and duties relative to the operation of public transit. This bill would additionally authorize the operation of transit buses on the shoulder of a segment of a state highway designated under the transit bus-only program within the areas served by the transit services of the 7 entities described above, subject to the same conditions and requirements.	Monitor
AB 1768 Gallagher R Bonds: transportation.	4/12/2016-A. TRANS. 4/12/2016-In committee: Set, first hearing. Failed passage. Reconsideration granted.	Would provide that no further bonds shall be sold for high-speed rail purposes pursuant to the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century, except as specifically provided with respect to an existing appropriation for high-speed rail purposes for early improvement projects in the Phase 1 blended system. The bill, subject to the above exception, would require redirection of the unspent proceeds received from outstanding bonds issued and sold for other high-speed rail purposes prior to the effective date of these provisions, upon appropriation, for use in retiring the debt incurred from the issuance and sale of those outstanding bonds.	Monitor

Bill ID/Topic	Location	Summary	Position
AB 1813 Frazier D High-Speed Rail Authority: membership.	4/28/2016-S. T. & H. 4/28/2016-Referred to Com. on T. & H.	Would provide for appointment of one Member of the Senate by the Senate Committee on Rules and one Member of the Assembly by the Speaker of the Assembly to serve as ex officio members of the High-Speed Rail Authority. The bill would provide that the ex officio members shall participate in the activities of the authority to the extent that participation is not incompatible with their positions as Members of the Legislature.	Monitor
AB 1815 Alejo D California Global Warming Solutions Act of 2006: disadvantaged communities.	4/12/2016-A. APPR. 4/12/2016-Re-referred to Com. on APPR.	Current law requires the California Environmental Protection Agency to identify disadvantaged communities and requires the Department of Finance, in consultation with the State Air Resources Board and any other relevant state agency, to develop, as specified, a 3-year investment plan for the moneys deposited in the Greenhouse Gas Reduction Fund. Current law requires the 3-year investment plan to allocate a minimum of 25% of the available moneys in the fund to projects that provide benefits to disadvantaged communities. This bill would require the agency to establish a comprehensive technical assistance program, upon the appropriation of moneys from the fund, for eligible applicants, as specified, assisting eligible communities, as defined.	Monitor
AB 1818 Melendez R Transportation funds.	2/8/2016-A. PRINT 2/9/2016-From printer. May be heard in committee March 10.	Current law establishes a policy for expenditure of certain state and federal funds available to the state for transportation purposes. Under this policy, the Department of Transportation and the California Transportation Commission are required to develop a fund estimate of available funds for purposes of adopting the state transportation improvement program, which is a listing of capital improvement projects. This bill would make a nonsubstantive change to this provision.	Monitor
AB 1833 Linder R Transportation projects: environmental mitigation.	4/26/2016-A. APPR. 4/26/2016-Re-referred to Com. on APPR.	Would create the Advanced Mitigation Program in the Department of Transportation to implement environmental mitigation measures in advance of future transportation projects. The bill, by February 1, 2017, would require the department to establish a steering committee to advise the department in that regard.	Monitor

Bill ID/Topic	Location	Summary	Position
AB 1866 Wilk R High-speed rail bond proceeds: redirection: water projects.	4/12/2016-A. TRANS. 4/12/2016-In committee: Set, first hearing. Failed passage. Reconsideration granted.	Would provide that no further bonds shall be sold for high-speed rail purposes pursuant to the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century, except as specifically provided with respect to an existing appropriation for high-speed rail purposes for early improvement projects in the Phase 1 blended system. The bill, subject to the above exception, would require redirection of the unspent proceeds received from outstanding bonds issued and sold for other high-speed rail purposes prior to the effective date of these provisions, upon appropriation, for use in retiring the debt incurred from the issuance and sale of those outstanding bonds.	Monitor
AB 1873 Holden D Office of Planning and Research: Board of Infrastructure Planning, Development, and Finance.	4/20/2016-A. APPR. 4/20/2016-Re-referred to Com. on APPR.	Would establish, within the Office of Planning and Research, the Board of Infrastructure Planning, Development, and Finance, to be composed of the Governor, Treasurer, Controller, Secretary of Transportation, Director of General Services, or their designee, one member appointed by the President pro Tempore of the Senate, and one member appointed by the Speaker of the Assembly. The bill would require the board to categorize and recommend the priority of the state's infrastructure needs and develop funding to finance those projects.	Monitor
AB 1886 McCarty D California Environmental Quality Act: transit priority projects.	2/25/2016-A. NAT. RES. 4/21/2016-In committee: Hearing postponed by committee.	CEQA exempts from its requirements transit priority projects meeting certain requirements, including the requirement that the project be within 1/2 mile of a major transit stop or high-quality transit corridor included in a regional transportation plan. CEQA specifies that a project is considered to be within 1/2 mile of a major transit stop or high-quality transit corridor if, among other things, all parcels within the project have no more than 25% of their area farther than 1/2 mile from the stop or corridor. This bill would increase that percentage to 50%.	Monitor

Bill ID/Topic	Location	Summary	Position
AB 1919 Quirk D Local transportation authorities: bonds.	4/11/2016-A. L. GOV. 4/18/2016-In committee: Hearing postponed by committee.	The Local Transportation Authority and Improvement Act provides for the creation in any county of a local transportation authority and authorizes the imposition of a retail transactions and use tax by ordinance, subject to approval of the ordinance by 2/3 of the voters. Current law requires the bond proceeds to be placed in the treasury of the local transportation authority and to be used for allowable transportation purposes, except that accrued interest and premiums received on the sale of the bonds are required to be placed in a fund to be used for the payment of bond debt service. This bill would require the premiums received on the sale of the bonds to be placed in the treasury of the local transportation authority to be used for allowable transportation purposes.	Monitor
AB 1943 Linder R Vehicles: parking: public grounds.	4/21/2016-S. RLS. 4/21/2016-In Senate. Read first time. To Com. on RLS. for assignment.	Current law prohibits a person from driving or parking a vehicle or animal upon the driveways, paths, parking facilities, or grounds of specified public entities, including a public transportation agency and a county transportation commission, except with the permission of, and subject to any condition or regulation that may be imposed by, the governing body of the specified public entity. Current law defines "public transportation agency" for these purposes. This bill would revise the definition of "public transportation agency" to include a county transportation commission.	Monitor
AB 1964 Bloom D High-occupancy vehicle lanes: vehicle exceptions.	4/28/2016-A. THIRD READING 4/28/2016-Read second time. Ordered to third reading.	Current authorizes super ultra-low emission vehicles, ultra-low emission vehicles, partial zero-emission vehicles, or transitional zero-emission vehicles, as specified, that display a valid identifier issued by the Department of Motor Vehicles to use these HOV lanes until January 1, 2019, or until the date federal authorization expires, or until the Secretary of State receives a specified notice, whichever occurs first. This bill would extend the operation of the provisions allowing specified vehicles to use HOV lanes until the date federal authorization expires, or until the Secretary of State receives a specified notice, whichever occurs first.	Work with Author
AB 2014 Melendez R Freeway Service Patrol Program Assessment.	4/14/2016-A. APPR. 4/14/2016-Re-referred to Com. on APPR.	Would, by June 20, 2018, and every 5 years thereafter, require the Department of Transportation to publish and submit to the Legislature and the Department of Finance, as specified, a statewide Freeway Service Patrol Program Assessment that would, among other things, identify, quantify, and analyze existing freeway service patrols, identify opportunities to increase or expand service levels, and analyze and provide recommendations regarding the current and anticipated future financial condition of the program, as specified.	Monitor

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Note: "Status" will provide most recent action on the legislation and current position in the legislative process. 5/5/2016

Bill ID/Topic	Location	Summary	Position
AB 2049 Melendez R Bonds: transportation.	4/12/2016-A. TRANS. 4/12/2016-In committee: Set, first hearing. Failed passage. Reconsideration granted.	Would provide that no further bonds shall be sold for high-speed rail purposes pursuant to the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century, expect as specifically provided with respect to an existing appropriation for high-speed rail purposes for early improvement projects in the Phase I blended system.	Monitor
AB 2090 Alejo D Low Carbon Transit Operations Program.	4/27/2016-A. APPR. SUSPENSE FILE 4/27/2016-In committee: Set, first hearing. Referred to APPR. suspense file.	Current law continuously appropriates specified portions of the annual proceeds in the Greenhouse Gas Reduction Fund to various programs, including 5% for the Low Carbon Transit Operations Program, which provides operating and capital assistance for transit agencies to reduce greenhouse gas emissions and improve mobility, with a priority on serving disadvantaged communities. This bill would additionally authorize moneys appropriated to the program to be expended to support the operation of existing bus or rail service if the governing board of the requesting transit agency declares a fiscal emergency and other criteria are met, thereby expanding the scope of an existing continuous appropriation.	
AB 2126 Mullin D Public contracts: Construction Manager/General Contractor contracts.	4/28/2016-A. THIRD READING 4/28/2016-Read second time. Ordered to third reading.	Current law authorizes the Department of Transportation to use the Construction Manager/General Contractor method on no more than 6 projects, and requires 4 out of the 6 projects to use department employees or consultants under contract with the department to perform all project design and engineering services, as specified. This bill would authorize the department to use this method on 12 projects and would require 8 out of the 12 projects to use department employees or consultants under contract with the department to perform all project design and engineering services	Monitor
AB 2152 Gray D Elections: ballots: ballot order.	3/8/2016-A. E. & R. 4/27/2016-In committee: Set, first hearing. Failed passage.	Would, for the November 8, 2016, statewide general election only, authorize a county board of supervisors to direct the county elections official to place a local measure related to local transportation finance above state measures. This bill contains other related provisions.	Monitor

Bill ID/Topic	Location	Summary	Position
AB 2170 Frazier D Trade Corridors Improvement Fund: federal funds.	4/20/2016-A. APPR. SUSPENSE FILE 4/20/2016-In committee: Set, first hearing. Referred to APPR. suspense file.	Would require revenues apportioned to the state from the National Highway Freight Program established by the federal Fixing America's Surface Transportation Act to be allocated for trade corridor improvement projects approved pursuant to specified provisions. This bill contains other related provisions and other existing laws.	Support
AB 2222 Holden D Greenhouse Gas Reduction Fund: Transit Pass Program.	4/27/2016-A. APPR. SUSPENSE FILE 4/27/2016-In committee: Set, first hearing. Referred to APPR. suspense file.	Existing law requires all moneys, except for fines and penalties, collected by the State Air Resources Board from the auction or sale of allowances as part of a market-based compliance mechanism relative to reduction of greenhouse gas emissions to be deposited in the Greenhouse Gas Reduction Fund. Existing law continuously appropriates 10% of the annual proceeds of the fund to the Transit and Intercity Rail Capital Program and 5% of the annual proceeds of the fund to the Low Carbon Transit Operations Program. This bill would continuously appropriate $50,000,000 annually from the Greenhouse Gas Reduction Fund for the Transit Pass Program, to be administered by the Department of Transportation. The bill would require that funding be allocated by the Controller, as specified, upon a determination by the department, that transit pass programs of public agencies to provide free or reduced-fare transit passes to public school students and community college, California State University, and University of California meet certain requirements. The bill would require the Department of Transportation, in coordination with the State Air Resources Board, to develop guidelines that describe the criteria that eligible transit providers shall use to make available free or reduced-fare transit passes to eligible participants and the methodologies that eligible participants would use to demonstrate that the proposed expenditures will reduce greenhouse gas emissions. The bill would require that at least 30% of the moneys allocated under the Transit Pass Program benefit disadvantaged communities, as specified. The bill would require eligible transit providers and eligible participants to enter into agreements for the distribution of free or reduced-fare transit passes to students . This bill contains other related provisions. **Last Amended on 4/6/2016**	Support

Bill ID/Topic	Location	Summary	Position
AB 2257 Maienschein R Local agency meetings: agenda: online posting.	4/26/2016-A. APPR. 4/26/2016-Re-referred to Com. on APPR.	Would require an online posting of an agenda by a local agency to have a prominent direct link to the current agenda itself. The bill would require the link to be on the local agency's Internet Web site homepage, not in a contextual menu on the homepage, and would require the agenda to be posted in an open format that meets specified requirements, including that the agenda is platform independent and machine readable. The bill would make these provisions applicable on and after January 1, 2019. This bill contains other related provisions and other existing laws.	Monitor
AB 2289 Frazier D Department of Transportation: capital improvement projects.	4/28/2016-S. RLS. 4/28/2016-In Senate. Read first time. To Com. on RLS. for assignment.	Current law requires the Department of Transportation to prepare a state highway operation and protection program for the expenditure of transportation funds for major capital improvements that are necessary to preserve and protect the state highway system and that include capital projects relative to maintenance, safety, and rehabilitation of state highways and bridges that do not add a new traffic lane to the system. This bill would add to the program capital projects relative to the operation of those state highways and bridges.	Support
AB 2293 Garcia, Cristina D California Green Business Program and Green Assistance Program.	4/28/2016-A. APPR. 4/28/2016-Re-referred to Com. on APPR.	Current law creates the California Environmental Protection Agency, consisting of various boards, offices, and departments, including the State Air Resources Board and the Department of Toxic Substances Control. This bill would establish the Green Assistance Program within the California Environmental Protection Agency to, among other things, assist small businesses and small nonprofit organizations in applying for moneys from the Greenhouse Gas Reduction Fund. This bill contains other related provisions and other current laws.	Monitor
AB 2343 Garcia, Cristina D Greenhouse Gas Reduction Fund: study.	4/28/2016-A. APPR. 4/28/2016-Re-referred to Com. on APPR.	Current law requires the Department of Finance to annually submit a report to the appropriate committees of the Legislature on the status of the projects funded with moneys in the Greenhouse Gas Reduction Fund. This bill would require the department to include additional data in that annual report, as specified.	Monitor

Bill ID/Topic	Location	Summary	Position
AB 2348 Levine D Department of Finance: infrastructure investment.	4/28/2016-A. APPR. 4/28/2016-From committee chair, with author's amendments: Amend, and re-refer to Com. on APPR. Read second time and amended.	Would authorize the Department of Finance to identify infrastructure projects in the state for which the department will guarantee a rate of return on investment for an investment made in that infrastructure project by the Public Employees ' Retirement System. The bill would create the Reinvesting in California Special Fund as a continuously appropriated fund and would require the moneys in the fund to be used to pay the rate of return on investment. The bill would require the rate of return on investment to be subject to the availability of moneys in the fund.	Monitor
AB 2374 Chiu D Construction Manager/General Contractor method: regional transportation agencies: ramps.	4/28/2016-S. T. & H. 4/28/2016-Referred to Com. on T. & H.	Current law authorizes regional transportation agencies to use the Construction Manager/General Contractor project delivery method, as specified, to design and construct certain expressways that are not on the state highway system if: (1) the expressways are developed in accordance with an expenditure plan approved by voters, (2) there is an evaluation of the traditional design-bid-build method of construction and of the Construction Manager/General Contractor method, and (3) the board of the regional transportation agency adopts the method in a public meeting. This bill would authorize regional transportation agencies also to use this authority on ramps that are not on the state highway system, as specified.	Monitor
AB 2411 Frazier D Transportation revenues.	4/20/2016-A. APPR. SUSPENSE FILE 4/20/2016-In committee: Set, first hearing. Referred to APPR. suspense file.	Current law requires certain miscellaneous revenues deposited in the State Highway Account that are not restricted as to expenditure by Article XIX of the California Constitution to be transferred to the Transportation Debt Service Fund in the State Transportation Fund, as specified, and requires the Controller to transfer from the fund to the General Fund an amount of those revenues necessary to offset the current year debt service made from the General Fund on general obligation transportation bonds issued pursuant to Proposition 116 of 1990. This bill would delete the transfer of these miscellaneous revenues to the Transportation Debt Service Fund, thereby eliminating the offsetting transfer to the General Fund for debt service on general obligation transportation bonds issued pursuant to Proposition 116 of 1990.	Support

Bill ID/Topic	Location	Summary	Position
AB 2415 Garcia, Eduardo D California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program.	4/26/2016-A. APPR. 4/26/2016-Re-referred to Com. on APPR.	Current law requires all moneys, except for fines and penalties, collected by the state board as part of a market-based compliance mechanism to be deposited in the Greenhouse Gas Reduction Fund and to be available upon appropriation by the Legislature. This bill, between January 2, 2018, and January 1, 2023, would require no less than 50% of the moneys allocated each year for technology development, demonstration, precommercial pilots, and early commercial deployments of zero- and near-zero-emission medium- and heavy-duty truck and bus technology be allocated and spent to support the commercial deployment of existing zero- and near-zero-emission heavy-duty truck and heavy-duty bus technology that meets or exceeds a specified emission standard, with at least 2/3 of these funds to be allocated to heavy-duty truck projects.	Monitor
AB 2431 Linder R California Environmental Quality Act: subsequent projects.	2/19/2016-A. PRINT 2/22/2016-Read first time.	CEQA requires a lead agency to prepare a mitigated negative declaration for a project that may have a significant effect on the environment if revisions in the project would avoid or mitigate that effect and there is no substantial evidence that the project, as revised, would have a significant effect on the environment. CEQA authorizes the lead agency to prepare a mitigated negative declaration for a proposed subsequent project if certain conditions are met. This bill would make nonsubstantive changes to that provision.	Monitor
AB 2472 Linder R Personal income taxes: credits: disabled veterans: service animals.	4/28/2016-A. REV. & TAX 4/28/2016-From committee chair, with author's amendments: Amend, and re-refer to Com. on REV. & TAX. Read second time and amended.	The Personal Income Tax Law allows various credits against the taxes imposed by that law. This bill, for taxable years beginning on or after January 1, 2017, and before January 1, 2022, would allow a credit under the Personal Income Tax Law in an amount equal to 50% of the amounts paid or incurred during the taxable year by a qualified disabled veteran for the ownership and maintenance of a qualified animal, not to exceed $2,000 for a taxable year. This bill contains other related provisions. **Last Amended on 4/28/2016**	Monitor
AB 2542 Gatto D Streets and highways: reversible lanes.	4/19/2016-A. APPR. 4/19/2016-From committee: Do pass and re-refer to Com. on APPR. with recommendation: To Consent Calendar. (Ayes 15. Noes 0.) (April 18). Re-referred to Com. on APPR.	Would require the Department of Transportation or a regional transportation planning agency, when submitting a capacity-increasing project or a major street or highway lane realignment project to the California Transportation Commission for approval, to demonstrate that reversible lanes were considered for the project.	

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Note: "Status" will provide most recent action on the legislation and current position in the legislative process. 5/5/2016

Bill ID/Topic	Location	Summary	Position
AB 2690 Ridley-Thomas D Los Angeles County Metropolitan Transportation Authority: contracting.	4/25/2016-S. RLS. 4/25/2016-In Senate. Read first time. To Com. on RLS. for assignment.	Existing law creates the Los Angeles County Metropolitan Transportation Authority (LACMTA), with various powers and duties with respect to transportation planning, programming, construction, and operations. This bill would also authorize LACMTA to establish disabled veteran business enterprise participation goals, and would define "disabled veteran business enterprise" for these purposes. This bill contains other related provisions and other existing laws. **Last Amended on 4/12/2016**	Sponsor
AB 2673 **Harper D** Sales and Use Tax Exemption for Hydrogen refueling Station Equipment	5/9/2016-A Rev and Tax Comm	Relates to sales and use tax laws. Exempts gross receipts from the sale of, and the storage, use, or other consumption in this state of, hydrogen refueling station equipment, purchased by a recipient of a grant pursuant to the Alternative and Renewable Fuel and Vehicle Technology Program for the development of hydrogen refueling stations. Authorizes counties and cities to impose local sales and use taxes. **Last Amended 4/26/2016**	
AB 2693 Dababneh D Contractual assessments: financing requirements: property improvements.	4/27/2016-A. L. GOV. 4/28/2016-Read second time and amended.	Current law defines "property assessed clean energy bond," commonly known as a PACE bond, to mean a bond that is secured by a voluntary contractual assessment or by certain special taxes on property, as specified. This bill would delete the reference to bonds secured by special taxes. This bill contains other related provisions and other current laws.	Monitor
AB 2702 Atkins D Greenhouse gases: study.	4/19/2016-A. APPR. 4/19/2016-From committee: Do pass and re-refer to Com. on APPR. (Ayes 6. Noes 2.) (April 18). Re-referred to Com. on APPR.	Would require the State Air Resources Board to conduct a study that outlines best practices and policies for meeting state goals to reduce greenhouse gas emissions. The bill also would authorize the state board to collaborate with air pollution control and air quality management districts.	Monitor

Bill ID/Topic	Location	Summary	Position
AB 2708 Daly D Department of Transportation: Lean 6-SIGMA program.	4/27/2016-A. APPR. SUSPENSE FILE 4/27/2016-In committee: Set, first hearing. Referred to APPR. suspense file.	Would require the Department of Transportation to conduct a study to assess the implementation of the Lean 6-SIGMA program as provided through the Governor's Office of Business and Economic Development and the Government Operations Agency to determine the effectiveness of streamlining the application process for private architectural and engineering firms seeking to provide professional and technical project development services to the department.	Monitor
AB 2722 Burke D Transformative Climate Communities Program.	4/21/2016-A. APPR. 4/21/2016-Re-referred to Com. on APPR.	Would create the Transformative Climate Communities Program, to be administered by the Strategic Growth Council. The bill would provide that, upon appropriation by the Legislature, up to $250,000,000 shall be available from the Greenhouse Gas Reduction Fund to the council to administer the program. The bill would require the council, in coordination with the California Environmental Protection Agency Assistant Secretary for Environmental Justice and Tribal Affairs, to award competitive grants to specified eligible entities for the development of transformative climate community plans, and projects that implement plans, that contribute to the reduction of emissions of greenhouse gases.	Monitor
AB 2742 Nazarian D Transportation projects: comprehensive development lease agreements.	4/27/2016-A. APPR. SUSPENSE FILE 4/27/2016-In committee: Set, first hearing. Referred to APPR. suspense file.	Existing law authorizes the Department of Transportation and regional transportation agencies, as defined, to enter into comprehensive development lease agreements with public and private entities, or consortia of those entities, for certain transportation projects that may charge certain users of those projects tolls and user fees, subject to various terms and requirements. These arrangements are commonly known as public-private partnerships. Existing law prohibits a lease agreement from being entered into under these provisions on or after January 1, 2017. This bill would allow a lease agreement to be entered into under these provisions until January 1, 2030. The bill would include within the definition of "regional transportation agency" the Santa Clara Valley Transportation Authority, thereby authorizing the authority to enter into public-private partnerships under these provisions.	Support

Bill ID/Topic	Location	Summary	Position
AB 2796 Bloom D Active Transportation Program.	4/27/2016-A. APPR. SUSPENSE FILE 4/27/2016-In committee: Set, first hearing. Referred to APPR. suspense file.	Current law creates the Active Transportation Program in the Department of Transportation for the purpose of encouraging increased use of active modes of transportation. Current law requires the California Transportation Commission to award 50% and 10% of available funds to projects statewide and to projects in small urban and rural regions, respectively, with the remaining 40% of available funds to be awarded to projects by metropolitan planning organizations, with the funds available for distribution by each metropolitan planning organization based on its relative population. This bill would require a minimum of 5% of available funds in each of the 3 distribution categories to be awarded for planning and community engagement for active transportation in disadvantaged communities and a minimum of 10% of all available Active Transportation Program funds to be programmed for noninfrastructure purposes, except as provided.	Monitor
AB 2847 Patterson R High-Speed Rail Authority: reports.	4/19/2016-A. APPR. 4/19/2016-From committee: Do pass and re-refer to Com. on APPR. with recommendation: To Consent Calendar. (Ayes 15. Noes 0.) (April 18). Re-referred to Com. on APPR.	Current law requires the High-Speed Rail Authority, on a biennial basis, to prepare a business plan containing specified elements and also requires the preparation of various other reports. This bill would require the business plan to identify projected financing costs for each segment or combination of segments of the high-speed rail system, if financing is proposed by the authority. The bill, in the business plan and in another report, would require the authority to identify any significant changes in scope for segments of the high-speed rail system identified in the previous version of each report and to provide an explanation of adjustments in cost and schedule attributable to the changes.	Monitor
AB 2868 Gatto D Energy storage.	4/21/2016-A. APPR. 4/21/2016-From committee: Do pass and re-refer to Com. on APPR. (Ayes 9. Noes 2.) (April 20). Re-referred to Com. on APPR.	Would, until January 1, 2020, require the Public Utilities Commission, in consultation with the State Air Resources Board and the State Energy Resources Conservation and Development Commission, to direct electrical corporations to file applications for programs and investments to accelerate widespread deployment of distributed energy storage systems, as defined.	Monitor
AB 2906 Committee on Transportation Transportation: omnibus bill.	4/19/2016-A. APPR. 4/19/2016-From committee: Do pass and re-refer to Com. on APPR. with recommendation: To Consent Calendar. (Ayes 15. Noes 0.) (April 18). Re-referred to Com. on APPR.	Current law requires that the issue, renewal, cancellation, retention, and transfer of the Olympic plates be subject to specified provisions as if they were environmental license plates, including, among others, provisions that impose a $48 registration fee and a $38 renewal fee for the issuance of the plates. This bill would repeal the provisions that require the Olympic plates to be subject to the environmental license plates provisions described above.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 25 Allen, Travis R Shuttle services: loading and unloading of passengers.	1/11/2016-A. PRINT 1/12/2016-From printer.	Under current law, a person may not stop, park, or leave a vehicle standing alongside a curb space authorized for the loading or unloading of passengers of a bus engaged as a common carrier in local transportation when indicated by a sign or red paint on the curb, except that current law allows local authorities to permit schoolbuses to stop alongside these curb spaces upon agreement between a transit system operating buses as common carriers in local transportation and a public school district or private school. This bill would also allow local authorities to permit shuttle service vehicles, as defined, to stop for the loading or unloading of passengers alongside these curb spaces upon agreement between a transit system operating buses.	Monitor
SB 86 Committee on Budget and Fiscal Review Budget Act of 2015.	3/7/2016-S. INACTIVE FILE 3/7/2016-Ordered to inactive file on request of Senator Leno.	The Budget Act of 2015 appropriated specified amounts for the support of state government for the 2015-16 fiscal year. This bill would amend the Budget Act of 2015 by adding and amending items of appropriation. This bill contains other related provisions.	Monitor
SB 254 Allen D Campaign finance: voter instruction.	4/28/2016-A. APPR. 4/28/2016-From committee with author's amendments. Read second time and amended. Re-referred to Com. on APPR.	Would call a special election to be consolidated with the November 8, 2016, statewide general election. The bill would require the Secretary of State to submit to the voters at the November 8, 2016, consolidated election a voter instruction asking whether California's elected officials should use all of their constitutional authority, including proposing and ratifying one or more amendments to the United States Constitution, to overturn Citizens United v. Federal Election Commission (2010) 558 U.S. 310, and other applicable judicial precedents, as specified.	Monitor
SB 821 Block D Crimes: criminal threats.	4/14/2016-S. APPR. 4/22/2016-Set for hearing May 2.	Would require that any person who willfully threatens to commit a crime against another person or at a location or event that will result in death or great bodily injury to another person, with the specific intent that the statement, made verbally, in writing, or by means of an electronic communication device, is to be taken as a threat, even if there is no intent of actually carrying it out, be punished by imprisonment in a county jail not to exceed one year, or by imprisonment in the state prison. This bill contains other related provisions and other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
SB 824 Beall D Low Carbon Transit Operations Program.	SENATE APPR. 4/20/2016 - From committee: Do pass and re-refer to Com. on APPR. (Ayes 10. Noes 1. Page 3615.) (April 19). Re-referred to Com. on APPR. 5/9/2016 10 a.m. - John L. Burton Hearing Room (4203) SENATE APPROPRIATIONS, LARA, Chair	Existing law requires all moneys, except for fines and penalties, collected by the State Air Resources Board from the auction or sale of allowances as part of a market-based compliance mechanism relative to reduction of greenhouse gas emissions to be deposited in the Greenhouse Gas Reduction Fund. This bill would authorize a recipient transit agency that does not submit a project for funding under the program in a particular fiscal year to retain its funding share for expenditure in a subsequent fiscal year. The bill would allow a recipient transit agency to loan or transfer its funding share in any particular fiscal year to another recipient transit agency within the same region, to pool its funding share with those of other recipient transit agencies, or to apply to the department to reassign, to other eligible expenditures under the program, any savings of surplus moneys from an approved and completed expenditure under the program or from an approved expenditure that is no longer a priority, as specified. The bill would also allow a recipient transit agency to apply to the department for a letter of no prejudice for any eligible expenditures under the program for which the department has authorized a disbursement of funds, and, if granted, would allow the recipient transit agency to expend its own moneys and to be eligible for future reimbursement from the program, under specified conditions. The bill would also require a recipient transit agency to provide additional information to the department to the extent funding is sought for capital projects. This bill contains other existing laws. **Last Amended on 4/11/2016**	Support
SB 882 Hertzberg D Crimes: public transportation: minors.	4/25/2016-S. APPR. SUSPENSE FILE 4/25/2016-April 25 hearing: Placed on APPR. suspense file.	Current law makes it an infraction or a misdemeanor to evade the payment of a fare on a public transit system, to misuse a transfer, pass, ticket, or token with the intent to evade the payment of a fare, or to use a discount ticket without authorization or fail to present, upon request from a transit system representative, acceptable proof of eligibility to use a discount ticket. This bill would prohibit the minor from being charged with an infraction or a misdemeanor for those acts.	Monitor

Bill ID/Topic	Location	Summary	Position
SB 885 Wolk D Construction contracts: indemnity.	4/18/2016-S. JUD. 4/21/2016-Set for hearing May 3.	Would specify, with certain exceptions, for construction contracts entered into on or after January 1, 2017, that a design professional, as defined, only has the duty to defend himself or herself from claims or lawsuits that arise out of, or pertain or relate to, negligence, recklessness, or willful misconduct of the design professional. Under the bill, a design professional would not have a duty to defend claims or lawsuits against any other person or entity arising from a construction project, except that person's or entity's reasonable defense costs arising out of the design professional's degree of fault, as specified.	
SB 895 Bates R Land use: housing element.	2/4/2016-S. RLS. 2/4/2016-Referred to Com. on RLS.	Current law, the Planning and Zoning Law, requires each city, county, and city and county to prepare and adopt a general plan that contains certain mandatory elements, including a housing element. This bill would make technical, nonsubstantive changes to that law.	Monitor
SB 903 Nguyen R Transportation funds: loan repayment.	2/4/2016-S. T. & H. 2/4/2016-Referred to Com. on T. & H.	Would acknowledge, as of June 30, 2015, $879,000,000 in outstanding loans of certain transportation revenues, and would require this amount to be repaid from the General Fund by June 30, 2016, to the Traffic Congestion Relief Fund for allocation to the Traffic Congestion Relief Program, the Trade Corridors Improvement Fund, the Public Transportation Account, and the State Highway Account, as specified. The bill would thereby make an appropriation. This bill contains other related provisions and other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
SB 951 McGuire D Transportation: Golden State Patriot Passes Program.	4/26/2016-S. APPR. 4/26/2016-Read second time and amended. Re-referred to Com. on APPR. 5/9/2016 10 a.m. - John L. Burton Hearing Room (4203) SENATE APPROPRIATIONS, LARA, Chair	Existing law creates various state transportation agencies, including the Department of Transportation, with specified powers and duties, including, but not limited to, coordinating and assisting, upon request of, the various public and private transportation entities to strengthen their development and operation of balanced integrated mass transportation, highway, aviation, maritime, railroad, and other transportation facilities and services in support of statewide and regional goals. This bill would create the Golden State Patriot Passes Program to be administered by the Department of Transportation to provide veterans with free access to transit services. The bill would require the department to develop guidelines that describe the methodologies that a participating transit operator would use to demonstrate that proposed expenditures would increase veteran mobility and fulfill specified requirements. The bill would require the department to select 3 transit operators to participate, and would require a transit operator selected to participate in the program to match any state moneys that it receives through the program with local moneys. The bill would require the participating transit operators and the department to report on the program. The bill would repeal the program on January 1, 2022. **Last Amended on 4/26/2016**	Support
SB 998 Wieckowski D Vehicles: mass transit guideways.	4/20/2016-S. APPR. 4/22/2016-Set for hearing May 2.	Would prohibit a person from operating a motor vehicle, or stopping, parking, or leaving a vehicle standing, on a portion of the highway designated for the exclusive use of public transit buses, subject to specified exceptions. Because a violation of these provisions would be a crime, this bill would impose a state-mandated local program. This bill contains other related provisions and other existing laws.	Monitor
SB 1018 Liu D Interstate 710 North Gap Closure project: cost-benefit analysis.	4/11/2016-S. T. & H. 4/26/2016-April 26 set for first hearing. Testimony taken. Further hearing to be set.	Existing law creates the Los Angeles County Metropolitan Transportation Authority with specified powers and duties relative to transportation planning, programming, and operations in Los Angeles County. This bill would require the Board of Directors of the Los Angeles County Metropolitan Transportation Authority, before making a final decision on the Interstate 710 North Gap Closure project, to take specified actions on a specified cost-benefit analysis for the project. This bill contains other related provisions and other existing laws. **Last Amended on 4/7/2016**	Oppose

Bill ID/Topic	Location	Summary	Position
SB 1066 Beall D Transportation funds: fund estimates.	4/28/2016-A. DESK 4/28/2016-In Assembly. Read first time. Held at Desk.	Current law requires the Department of Transportation to submit to the California Transportation Commission an estimate of state and federal funds reasonably expected to be available for future programming over the 5-year period in each state transportation improvement program, and requires the California Transportation Commission to adopt a fund estimate in that regard. This bill would require the fund estimates prepared by the department and the commission to identify and include federal funds derived from apportionments made to the state under the Fixing America's Surface Transportation Act of 2015.	Monitor
SB 1208 Bates R California Transportation Commission.	3/3/2016-S. RLS. 3/3/2016-Referred to Com. on RLS.	Current law creates the California Transportation Commission, with specified powers and duties relative to programming of transportation capital improvement projects and other related matters. Current law authorizes the commission to request and review reports of the Department of Transportation and other entities pertaining to transportation issues and concerns that the commission determines need special study. This bill would make a nonsubstantive change to this provision.	Monitor
SB 1259 Runner R Vehicles: toll payment: veterans.	4/21/2016-S. APPR. 4/21/2016-Read second time and amended. Re-referred to Com. on APPR.	Would exempt vehicles registered to a veteran and displaying a specialized veterans license plate, as specified, from payment of a toll or related fines on a toll road, high-occupancy toll (HOT) lane, toll bridge, toll highway, a vehicular crossing, or any other toll facility. The bill would also make conforming changes.	Monitor
SB 1362 Mendoza D Los Angeles County Metropolitan Transportation Authority: security officers.	4/5/2016-S. PUB. S. 4/20/2016-April 19 set for first hearing canceled at the request of author.	Would allow persons regularly employed as security officers by the Los Angeles County Metropolitan Transportation Authority to detain individuals on properties owned, controlled, operated, and administered by the authority when exigent circumstances exist, as defined. This bill contains other related provisions and other existing laws.	
SB 1383 Lara D Short-lived climate pollutants.	4/12/2016-S. APPR. 4/22/2016-Set for hearing May 2.	Would require the State Air Resources Board, no later than January 1, 2018, to approve and begin implementing that comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40%, hydrofluorocarbon gases by 40%, and anthropogenic black carbon by 50% below 2013 levels by 2030, as specified.	Monitor

Deferred=bill will be brought up at another time; Chaptered=bill has become law; LA=Last Amended; Enrolled=bill sent to Governor for approval or veto
Note: "Status" will provide most recent action on the legislation and current position in the legislative process. 5/5/2016

Bill ID/Topic	Location	Summary	Position
SB 1397 Huff R Highway safety and information program.	4/21/2016-S. APPR. 4/21/2016-Read second time and amended. Re-referred to Com. on APPR.	Would enact the Highway Safety and Information Act. The bill would authorize the Department of Transportation, subject to federal approval, to enter into an agreement pursuant to a best value procurement and competitive process for a project with a contractor to construct, upgrade or reconstruct, and operate a network of changeable message signs within the rights-of-way of the state highway system that would include a demonstration phase of the project as a condition precedent to the full implementation of the agreement, as specified.	Monitor
SB 1398 Leyva D Public water systems: lead pipes.	4/21/2016-S. APPR. 4/21/2016-From committee: Do pass and re-refer to Com. on APPR. (Ayes 6. Noes 1. Page 3644.) (April 20). Re-referred to Com. on APPR.	Would require a public water system to compile an inventory of lead pipes in use by July 1, 2018, and, after completing the inventory, to provide a timeline for replacement of lead pipes in the system to the board. This bill would require the board to establish best practices to ensure that chemicals introduced into public water systems do not create corrosion or contamination within the system.	Monitor
SB 1405 Pavley D Zero-emission vehicles: transportation systems.	4/21/2016-S. APPR. 4/21/2016-From committee: Do pass and re-refer to Com. on APPR. (Ayes 7. Noes 0. Page 3644.) (April 20). Re-referred to Com. on APPR.	Would require the State Air Resources Board , by March 1, 2017, to revise its zero-emission vehicle standard regulation to expand the definition of "transportation systems eligible for zero-emission vehicle credits" under that regulation to include additional entities utilizing fleets of zero-emission vehicles, including rental car companies, transportation network companies, taxicab companies, and car-sharing companies, to the extent that the operations of those entities involve ridesharing features offered by those entities that reduce per-passenger emissions. This bill contains other related provisions and other existing laws.	Monitor
SB 1443 Galgiani D Incarcerated persons: health records.	4/26/2016-S. APPR. 4/26/2016-Read second time and amended. Re-referred to Com. on APPR.	Would authorize the disclosure of information between a county correctional facility, a county medical facility, a state correctional facility, or a state hospital to ensure the continuity of health care of an inmate being transferred between those facilities. This bill contains other related provisions and other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
SB 1464 De León D California Global Warming Solutions Act of 2006: greenhouse gas emissions reduction.	4/21/2016-S. APPR. 4/21/2016-From committee: Do pass and re-refer to Com. on APPR. (Ayes 7. Noes 0. Page 3645.) (April 20). Re-referred to Com. on APPR.	Current law requires the Department of Finance, in consultation with the state board and any other relevant state agency, to develop and update, as specified, a 3-year investment plan for the moneys deposited in the Greenhouse Gas Reduction Fund. Current law requires the investment plan to, among other things, identify priority programmatic investments of moneys that will facilitate the achievement of feasible and cost-effective greenhouse gas emissions reductions toward achievement of greenhouse gas reduction goals and targets by sector. This bill would require, in identifying priority programmatic investments, that the investment plan assess how proposed investments interact with current state regulations, policies, and programs, and evaluate if and how the proposed investments could be incorporated into existing programs.	Monitor
SB 1472 Mendoza D Los Angeles County Metropolitan Transportation Authority.	4/20/2016-S. APPR. 4/20/2016-From committee: Do pass and re-refer to Com. on APPR. (Ayes 6. Noes 3. Page 3617.) (April 19). Re-referred to Com. on APPR.	Existing law creates the Los Angeles County Metropolitan Transportation Authority with specified powers and duties relative to transportation planning, programming, and operations in the County of Los Angeles. The authority is governed by a 14-member board of directors, including the Mayor of the City of Los Angeles, 2 public members and one Los Angeles city council member appointed by the mayor, 4 members appointed from the other cities in the county, the 5 members of the board of supervisors, and one nonvoting member appointed by the Governor. This bill would expand the board of directors to 16 members by adding 2 members that reside in the County of Los Angeles, one member appointed by the Speaker of the Assembly and one member appointed by the Senate Committee on Rules and would prohibit these members from residing in the same city as another member of the authority, as specified. This bill contains other related provisions and other existing laws. **Last Amended on 4/11/2016**	Oppose
SBX1 1 Beall D Transportation funding: environmental mitigation: oversight.	4/21/2016-S. APPR. 4/21/2016-From committee with author's amendments. Read second time and amended. Re-referred to Com. on APPR.	Would create the Road Maintenance and Rehabilitation Program to address deferred maintenance on the state highway system and the local street and road system and for other specified purposes. The bill would provide for the deposit of various funds for the program in the Road Maintenance and Rehabilitation Account, which the bill would create in the State Transportation Fund.	Monitor

Bill ID/Topic	Location	Summary	Position
SCA 5 Hancock D Local government finance.	4/12/2016-S. GOV. & F. 4/12/2016-From committee with author's amendments. Read second time and amended. Re-referred to Com. on GOV. & F.	Would exempt from taxation for each taxpayer an amount up to $500,000 of tangible personal property used for business purposes. This measure would prohibit the Legislature from lowering this exemption amount or from changing its application, but would authorize it to be increased consistent with the authority described above. This measure would provide that this provision shall become operative on January 1, 2019. This bill contains other related provisions and other existing laws.	Monitor
SCA 7 Huff R Motor vehicle fees and taxes: restriction on expenditures.	5/28/2015-S. E. & C.A. 1/12/2016-Set for hearing January 19 in E. & C.A. pending receipt.	Would prohibit the Legislature from borrowing revenues from fees and taxes imposed by the state on vehicles or their use or operation, and from using those revenues other than as specifically permitted by Article XIX. The measure would also provide that none of those revenues may be pledged or used for the payment of principal and interest on bonds or other indebtedness.	Support
ABX1 1 Alejo D Transportation funding.	6/23/2015-A. PRINT 6/24/2015-From printer.	Existing law provides for loans of revenues from various transportation funds and accounts to the General Fund, with various repayment dates specified. This bill, with respect to any loans made to the General Fund from specified transportation funds and accounts with a repayment date of January 1, 2019, or later, would require the loans to be repaid by December 31, 2018. This bill contains other related provisions and other existing laws.	Monitor
ABX1 2 Perea D Transportation projects: comprehensive development lease agreements.	6/25/2015-A. PRINT 6/26/2015-From printer.	Existing law authorizes the Department of Transportation and regional transportation agencies, as defined, to enter into comprehensive development lease agreements with public and private entities, or consortia of those entities, for certain transportation projects that may charge certain users of those projects tolls and user fees, subject to various terms and requirements. These arrangements are commonly known as public-private partnerships. Existing law provides that a lease agreement may not be entered into under these provisions on or after January 1, 2017. This bill would extend this authorization indefinitely and would include within the definition of "regional transportation agency" the Santa Clara Valley Transportation Authority, thereby authorizing the authority to enter into public-private partnerships under these provisions. The bill would also delete obsolete cross-references and make technical changes to these provisions.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 3 Frazier D Transportation funding.	9/24/2015-A. CONFERENCE COMMITTEE 9/24/2015-Senators Beall (Co-Chair), Allen, Leyva, Cannella, and Gaines appointed to Conference Committee.	Existing law requires the Department of Transportation to improve and maintain the state's highways, and establishes various programs to fund the development, construction, and repair of local roads, bridges, and other critical transportation infrastructure in the state. This bill would declare the intent of the Legislature to enact legislation to establish permanent, sustainable sources of transportation funding to maintain and repair highways, local roads, bridges, and other critical infrastructure.	Monitor
ABX1 4 Frazier D Transportation funding.	9/3/2015-S. RLS. 9/3/2015-Referred to Com. on RLS.	Existing law establishes various programs to fund the development, construction, and repair of local roads, bridges, and other critical transportation infrastructure in the state. This bill would declare the intent of the Legislature to enact legislation to establish permanent, sustainable sources of transportation funding to improve the state's key trade corridors and support efforts by local governments to repair and improve local transportation infrastructure.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 5 Hernández, Roger D Income taxes: credits: low-income housing: farmworker housing assistance.	7/16/2015-A. PRINT 7/17/2015-From printer.	Existing law establishes a low-income housing tax credit program pursuant to which the California Tax Credit Allocation Committee provides procedures and requirements for the allocation of state insurance, personal income, and corporation income tax credit amounts among low-income housing projects based on federal law. Existing law allows the credit for buildings located in designated difficult development areas or qualified census tracts that are restricted to having 50% of its occupants be special needs households, as defined, even if the taxpayer receives specified federal credits, if the credit allowed under this section does not exceed 30% of the eligible basis of that building. Existing law limits the total annual amount of the credit that the committee may allocate to $70 million per year and allows $500,000 per year of that amount to be allocated for projects to provide farmworker housing, as specified. Existing law defines farmworker housing to mean housing for agricultural workers that is available to, and occupied by, only farmworkers and their households. This bill, under the insurance taxation law, the Personal Income Tax Law, and the Corporation Tax Law, would modify the definition of applicable percentage relating to qualified low-income buildings that are farmworker housing projects, as provided. The bill would authorize the California Tax Credit Allocation Committee to allocate that credit even if the taxpayer receives specified federal and state credits or only state credits. The bill would increase the amount the committee may allocate to farmworker housing projects from $500,000 to $25,000,000 per year. The bill would also redefine farmworker housing to mean housing for agricultural workers that is available to, and occupied by, not less than 50% of farmworkers and their households. This bill contains other related provisions.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 6 Hernández, Roger D Affordable Housing and Sustainable Communities Program.	7/16/2015-A. PRINT 7/17/2015-From printer.	Existing law requires all moneys, except for fines and penalties, collected by the state board from the auction or sale of allowances as part of a market-based compliance mechanism to be deposited in the Greenhouse Gas Reduction Fund and to be available upon appropriation by the Legislature. Existing law continuously appropriates 20% of the annual proceeds of the fund to the Affordable Housing and Sustainable Communities Program, administered by the Strategic Growth Council, to reduce greenhouse gas emissions through projects that implement land use, housing, transportation, and agricultural land preservation practices to support infill and compact development and that support other related and coordinated public policy objectives. This bill would require 20% of moneys available for allocation under the program to be allocated to eligible projects in rural areas, as defined. The bill would further require at least 50% of those moneys to be allocated to eligible affordable housing projects. The bill would require the council to amend its guidelines and selection criteria consistent with these requirements and to consult with interested stakeholders in this regard.	Monitor
ABX1 7 Nazarian D Public transit: funding.	7/16/2015-A. PRINT 7/17/2015-From printer.	Existing law requires all moneys, except for fines and penalties, collected by the State Air Resources Board from the auction or sale of allowances as part of a market-based compliance mechanism relative to reduction of greenhouse gas emissions to be deposited in the Greenhouse Gas Reduction Fund. This bill would instead continuously appropriate 20% of those annual proceeds to the Transit and Intercity Rail Capital Program, and 10% of those annual proceeds to the Low Carbon Transit Operations Program, thereby making an appropriation. This bill contains other existing laws.	Monitor
ABX1 8 Chiu D Diesel sales and use tax.	7/16/2015-A. PRINT 7/17/2015-From printer.	Existing law, beyond the sales and use tax rate generally applicable, imposes an additional sales and use tax on diesel fuel at the rate of 1.75%, subject to certain exemptions, and provides for the net revenues collected from the additional tax to be transferred to the Public Transportation Account. Existing law continuously appropriates these revenues to the Controller, for allocation by formula to transportation agencies for public transit purposes. This bill, effective July 1, 2016, would increase the additional sales and use tax rate on diesel fuel to 5.25%. By increasing the revenues deposited in a continuously appropriated fund, the bill would thereby make an appropriation. This bill contains other related provisions.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 9 Levine D Richmond-San Rafael Bridge.	8/17/2015-A. PRINT 8/18/2015-From printer.	Existing law specifies the powers and duties of the Department of Transportation, the Metropolitan Transportation Commission, and the Bay Area Toll Authority with respect to the collection and expenditure of toll revenue from the 7 state-owned toll bridges within the geographic jurisdiction of the commission, including the Richmond-San Rafael Bridge. This bill would require the department, immediately, or as soon as practically feasible, but no later than September 30, 2015, to implement an operational improvement project that temporarily restores the third eastbound lane on State Highway Route 580 from the beginning of the Richmond-San Rafael Bridge in the County of Marin to Marine Street in the County of Contra Costa to automobile traffic and that temporarily converts a specified portion of an existing one-way bicycle lane along the north side of State Highway Route 580 in the County of Contra Costa into a bidirectional bicycle and pedestrian lane. The bill would require the department to keep the temporary lanes in place until the department has completed a specified project relating to the Richmond-San Rafael Bridge or until construction activity for that project necessitates removal of the temporary lanes. This bill contains other related provisions.	Monitor
ABX1 10 Levine D Public works: contracts: extra compensation.	8/19/2015-A. PRINT 8/20/2015-From printer.	Existing law sets forth requirements for provisions in public works contracts awarded by a state entity. Under existing law, the state or any other public entity in any competitively bid public works contract may provide for the payment of extra compensation to the contractor for cost reduction changes. This bill would provide that a state entity in a megainfrastructure project contract, as defined, may not provide for the payment of extra compensation to the contractor until the megainfrastructure project, as defined, has been completed and an independent third party has verified that the megainfrastructure project meets all architectural or engineering plans and safety specifications of the contract. This bill would apply to contracts entered into or amended on or after the effective date of this bill.	Monitor
ABX1 11 Gray D Transportation projects: County of Merced: campus parkway project.	8/20/2015-A. PRINT 8/21/2015-From printer.	Existing law provides various sources of funding for transportation projects. This bill would appropriate $97,600,000 from the General Fund to the Merced County Association of Governments for construction of phase 2 and 3 of the Campus Parkway Project, a planned road project to connect the University of California, Merced to State Highway 99, in the County of Merced.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 12 Nazarian D Los Angeles County Metropolitan Transportation Authority.	8/26/2015-A. PRINT 8/27/2015-From printer.	Existing law creates the Los Angeles County Metropolitan Transportation Authority with specified powers and duties relative to transportation planning, programming, and operations in Los Angeles County. This bill would authorize the Los Angeles County Metropolitan Transportation Authority to enter into agreements with private entities for certain transportation projects in Los Angeles County, including on the state highway system, subject to various terms and requirements. The bill would authorize the authority to impose tolls and user fees for use of those projects. For any project on the state highway system, the bill would require the authority to implement the project in cooperation with the Department of Transportation pursuant to an agreement that addresses specified matters. The bill would provide that a facility constructed by a private entity would at all times be owned by a governmental agency, except as provided. The bill would authorize the authority to issue bonds to finance any costs necessary to implement a project and to finance any expenditures, payable from the revenues generated from the project or other available resources, as specified. This bill contains other related provisions.	Monitor
ABX1 13 Grove R Greenhouse Gas Reduction Fund: streets and highways.	8/31/2015-A. PRINT 9/1/2015-From printer.	The California Global Warming Solutions Act of 2006 designates the State Air Resources Board as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. The state board is required to adopt a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020. The act authorizes the state board to include the use of market-based compliance mechanisms. Existing law requires all moneys, except for fines and penalties, collected by the state board from the auction or sale of allowances as part of a market-based compliance mechanism to be deposited in the Greenhouse Gas Reduction Fund and to be available upon appropriation. Existing law continuously appropriates 20% of the annual proceeds of the fund to the Strategic Growth Council for the Affordable Housing and Sustainable Communities Program, as provided. This bill would reduce the continuous appropriation to the Strategic Growth Council for the Affordable Housing and Sustainable Communities Program by half. This bill contains other related provisions.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 14 Waldron R State Highway Operation and Protection Program: local streets and roads: appropriation.	8/31/2015-A. PRINT 9/1/2015-From printer.	Existing law requires the Department of Transportation to prepare a State Highway Operation and Protection Program every other year for the expenditure of transportation capital improvement funds for projects that are necessary to preserve and protect the state highway system, excluding projects that add new traffic lanes. Existing law provides for apportionment of specified portions of revenues in the Highway Users Tax Account derived from gasoline and diesel excise taxes to cities and counties by formula, with the remaining revenues to be deposited in the State Highway Account for expenditure on various state transportation programs, including maintenance of state highways and transportation capital improvement projects. This bill would continuously appropriate $1 billion from the General Fund, with 50% to be made available to the Department of Transportation for maintenance of the state highway system or for purposes of the State Highway Operation and Protection Program, and 50% to be made available to the Controller for apportionment to cities and counties by a specified formula for street and road purposes.	Monitor
ABX1 15 Patterson R State Highway Operation and Protection Program: local streets and roads: appropriation.	8/31/2015-A. PRINT 9/1/2015-From printer.	Existing law appropriates the sum of $663,287,000 for the 2015-16 fiscal year from the State Highway Account to the Department of Transportation for Capital Outlay Support. This bill would reduce the $663,287,000 appropriation for Capital Outlay Support by $500 million, and would appropriate $500 million from the State Highway Account for the 2015-16 fiscal year, with 50% to be made available to the Department of Transportation for maintenance of the state highway system or for purposes of the State Highway Operation and Protection Program, and 50% to be made available to the Controller for apportionment to cities and counties by formula for street and road purposes. This bill contains other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 16 Patterson R State highways: transfer to local agencies: pilot program.	8/31/2015-A. PRINT 9/1/2015-From printer.	Existing law provides that the Department of Transportation has full possession and control of all state highways and associated property, and sets forth the powers and duties with respect to operation, maintenance, and improvement of state highways. Existing law authorizes the California Transportation Commission to exercise various powers and duties on transportation matters, including the allocation of certain transportation capital improvement funds available to the state. This bill would require the department to participate in a pilot program over a 5-year period under which 2 counties, one in northern California and one in southern California, are selected to operate, maintain, and make improvements to all state highways, including freeways, in the affected county. The bill would require the department, with respect to those counties, for the duration of the pilot program, to convey all of its authority and responsibility over state highways in the county to a county, or a regional transportation agency that has jurisdiction in the county. The bill would require the commission to administer and oversee the pilot program, and to select the counties that will participate in the program. The bill would require certain moneys to be appropriated for these purposes as a block grant in the annual Budget Act to a participating county, as specified. The bill would authorize any cost savings realized by a participating county to be used by the county for other transportation priorities. The bill would require the participating counties to report to the Legislature upon the conclusion of the pilot program.	Monitor
ABX1 17 Achadjian R Greenhouse Gas Reduction Fund: state highway operation and protection program.	8/31/2015-A. PRINT 9/1/2015-From printer.	The California Global Warming Solutions Act of 2006 designates the State Air Resources Board as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. The state board is required to adopt a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020. The act authorizes the state board to include the use of market-based compliance mechanisms. Existing law requires all moneys, except for fines and penalties, collected by the state board from the auction or sale of allowances as part of a market-based compliance mechanism to be deposited in the Greenhouse Gas Reduction Fund and to be available upon appropriation. Existing law continuously appropriates 60% of the annual proceeds of the fund for transit, affordable housing, sustainable communities, and high-speed rail purposes. This bill, beginning in the 2016-17 fiscal year, would continuously appropriate 25% of the annual proceeds of the fund to fund projects in the state highway operation and protection program.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 18 Linder R Vehicle weight fees: transportation bond debt service.	8/31/2015-A. PRINT 9/1/2015-From printer.	Existing law imposes weight fees on the registration of commercial motor vehicles and provides for the deposit of net weight fee revenues into the State Highway Account. Existing law provides for the transfer of certain weight fee revenues from the State Highway Account to the Transportation Debt Service Account to reimburse the General Fund for payment of debt service on general obligation bonds issued for transportation purposes. Existing law also provides for the transfer of certain weight fee revenues to the Transportation Bond Direct Payment Account for direct payment of debt service on designated bonds, which are defined to be certain transportation general obligation bonds issued pursuant to Proposition 1B of 2006. This bill, notwithstanding these provisions or any other law, effective January 1, 2016, would prohibit weight fee revenue from being transferred from the State Highway Account to the Transportation Debt Service Fund or to the Transportation Bond Direct Payment Account, and from being used to pay the debt service on transportation general obligation bonds.	Monitor
ABX1 19 Linder R California Transportation Commission.	8/31/2015-A. PRINT 9/1/2015-From printer.	Existing law establishes in the state government the Transportation Agency, which includes various departments and state entities, including the California Transportation Commission. Existing law vests the California Transportation Commission with specified powers, duties, and functions relative to transportation matters. Existing law requires the commission to retain independent authority to perform the duties and functions prescribed to it under any provision of law. This bill would exclude the California Transportation Commission from the Transportation Agency and establish it as an entity in the state government. The bill would also make conforming changes.	Monitor
ABX1 20 Gaines, Beth R State government: elimination of vacant positions: transportation: appropriation.	8/31/2015-A. PRINT 9/1/2015-From printer.	Existing law establishes the Department of Human Resources in state government to operate the state civil service system. This bill would require the department to eliminate 25% of the vacant positions in state government that are funded by the General Fund. This bill contains other related provisions and other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 21 Obernolte R Environmental quality: highway projects.	8/31/2015-A. PRINT 9/1/2015-From printer.	The California Environmental Quality Act (CEQA) requires a lead agency, as defined, to prepare, or cause to be prepared, and certify the completion of, an environmental impact report on a project that it proposes to carry out or approve that may have a significant effect on the environment or to adopt a negative declaration if it finds that the project will not have that effect. CEQA also requires a lead agency to prepare a mitigated negative declaration for a project that may have a significant effect on the environment if revisions in the project would avoid or mitigate that effect and there is no substantial evidence that the project, as revised, would have a significant effect on the environment. CEQA establishes a procedure by which a person may seek judicial review of the decision of the lead agency made pursuant to CEQA or proceeding challenging a lead agency's action on the grounds of noncompliance with CEQA. The bill would prohibit a court in a judicial action or proceeding under CEQA from staying or enjoining the construction or improvement of a highway unless it makes specified findings.	Monitor
ABX1 22 Patterson R Design-build: highways.	9/1/2015-A. PRINT 9/2/2015-From printer.	Existing law authorizes the Department of Transportation to utilize design-build procurement for up to 10 projects on the state highway system, based on either best value or lowest responsible bid. Existing law requires the department to perform construction inspection services for those projects that are on or interfacing with the state highway system, as specified. Existing law establishes a procedure for submitting bids that includes a requirement that design-build entities provide a statement of qualifications submitted to the transportation entity that is verified under oath, subject to penalty of perjury. This bill would authorize the department to utilize design-build procurement on an unlimited number of projects and would require the department to contract with consultants to perform construction inspection services for those authorized projects. The bill would eliminate the requirement that the department perform the construction inspection services for the projects on or interfacing with the state highway system. By authorizing the design-build method of procurement to be utilized in an unlimited number of projects, the bill would expand the number of projects in which the statement of qualifications requirement, subject to penalty of perjury, is applicable, thereby expanding the scope of an existing crime and imposing a state-mandated local program. This bill contains other related provisions and other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 23 Garcia, Eduardo D Transportation.	9/4/2015-A. PRINT 9/5/2015-From printer.	Existing law requires the Department of Transportation to prepare a State Highway Operation and Protection Program every other year for the expenditure of transportation capital improvement funds for projects that are necessary to preserve and protect the state highway system, excluding projects that add new traffic lanes. Existing law provides for the programming of transportation capital improvement funds for other objectives through the State Transportation Improvement Program administered by the California Transportation Commission, which includes projects recommended by regional transportation planning agencies through adoption of a regional transportation improvement program and projects recommended by the department through adoption of an interregional transportation improvement program, as specified. This bill, by January 1, 2017, would require the California Transportation Commission to establish a process whereby the department and local agencies receiving funding for highway capital improvements from the State Highway Operation and Protection Program or the State Transportation Improvement Program prioritize projects that provide meaningful benefits to the mobility and safety needs of disadvantaged community residents, as specified. This bill contains other related provisions and other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
ABX1 24 Levine D Bay Area Transportation Commission: election of commissioners.	9/11/2015-A. PRINT 9/12/2015-From printer.	Existing law designates the Metropolitan Transportation Commission as the regional transportation planning agency for the San Francisco Bay area, with various powers and duties with respect to transportation planning and programming, as specified, in the 9-county San Francisco Bay area region. Existing law creates the Bay Area Toll Authority, governed by the same board as the commission, but created as a separate entity, with specified powers and duties relative to the administration of certain toll revenues from state-owned toll bridges within the geographic jurisdiction of the commission. Under existing law, the commission is comprised of 21 appointed members, as specified. This bill, effective January 1, 2017, would redesignate the Metropolitan Transportation Commission as the Bay Area Transportation Commission. The bill would require commissioners to be elected by districts comprised of approximately 750,000 residents. The bill would require each district to elect one commissioner, except that a district with a toll bridge, as defined, within the boundaries of the district would elect 2 commissioners. The bill would require commissioner elections to occur in 2016, with new commissioners to take office on January 1, 2017. The bill would state the intent of the Legislature for district boundaries to be drawn by a citizens' redistricting commission and campaigns for commissioners to be publicly financed. This bill contains other related provisions and other existing laws.	Monitor
ABX1 25 Allen, Travis R Shuttle services: loading and unloading of passengers.	1/11/2016-A. PRINT 1/12/2016-From printer.	Under existing law, a person may not stop, park, or leave a vehicle standing alongside a curb space authorized for the loading or unloading of passengers of a bus engaged as a common carrier in local transportation when indicated by a sign or red paint on the curb, except that existing law allows local authorities to permit schoolbuses to stop alongside these curb spaces upon agreement between a transit system operating buses as common carriers in local transportation and a public school district or private school. This bill would also allow local authorities to permit shuttle service vehicles, as defined, to stop for the loading or unloading of passengers alongside these curb spaces upon agreement between a transit system operating buses engaged as common carriers in local transportation and a shuttle service provider, as defined. The bill would state that it is the intent of the Legislature to not replace public transit services. This bill contains other related provisions.	Monitor

Bill ID/Topic	Location	Summary	Position
SBX1 1 Beall D Transportation funding: environmental mitigation: oversight.	4/21/2016-S. APPR. 4/21/2016-From committee with author's amendments. Read second time and amended. Re-referred to Com. on APPR.	Existing law provides various sources of funding for transportation purposes, including funding for the state highway system and the local street and road system. These funding sources include, among others, fuel excise taxes, commercial vehicle weight fees, local transactions and use taxes, and federal funds. Existing law imposes certain registration fees on vehicles, with revenues from these fees deposited in the Motor Vehicle Account and used to fund the Department of Motor Vehicles and the Department of the California Highway Patrol. Existing law provides for the monthly transfer of excess balances in the Motor Vehicle Account to the State Highway Account. This bill would create the Road Maintenance and Rehabilitation Program to address deferred maintenance on the state highway system and the local street and road system and for other specified purposes. The bill would provide for the deposit of various funds for the program in the Road Maintenance and Rehabilitation Account, which the bill would create in the State Transportation Fund, including revenues attributable to a $0.12 per gallon increase in the motor vehicle fuel (gasoline) tax imposed by the bill and $0.10 of a $0.22 per gallon increase in the diesel fuel excise tax imposed by the bill, an increase of $35 in the annual vehicle registration fee, a new $100 annual vehicle registration fee applicable to zero-emission motor vehicles, as defined, a new annual road access charge on each vehicle, as defined, of $35, and repayment, by June 30, 2016, of outstanding loans made in previous years from certain transportation funds to the General Fund. The bill would provide that revenues from future adjustments in the applicable portion of the fuel tax rates, the annual vehicle registration fee increase, and the road access charge would also be deposited in the account. This bill contains other related provisions and other existing laws.	Monitor
SBX1 2 Huff R Greenhouse Gas Reduction Fund.	6/30/2015-S. T. & I.D. 9/1/2015-September 1 set for first hearing. Failed passage in committee. (Ayes 3. Noes 9. Page 56.) Reconsideration granted.	Existing law requires all moneys, except for fines and penalties, collected by the State Air Resources Board from the auction or sale of allowances as part of a market-based compliance mechanism relative to reduction of greenhouse gas emissions to be deposited in the Greenhouse Gas Reduction Fund. This bill would exclude from allocation under these provisions the annual proceeds of the fund generated from the transportation fuels sector. The bill would instead provide that those annual proceeds shall be appropriated by the Legislature for transportation infrastructure, including public streets and highways, but excluding high-speed rail. This bill contains other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
SBX1 3 Vidak R Transportation bonds: highway, street, and road projects.	9/14/2015-S. DEAD 9/14/2015-Returned to Secretary of Senate pursuant to Joint Rule 62(a).	Existing law, the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century, approved by the voters as Proposition 1A at the November 4, 2008, general election, provides for the issuance of general obligation bonds in the amount of $9 billion for high-speed rail purposes and $950 million for other related rail purposes. Article XVI of the California Constitution requires measures authorizing general obligation bonds to specify the single object or work to be funded by the bonds and further requires a bond act to be approved by a 2/3 vote of each house of the Legislature and a majority of the voters. This bill would provide that no further bonds shall be sold for high-speed rail purposes pursuant to the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century, except as specifically provided with respect to an existing appropriation for high-speed rail purposes for early improvement projects in the Phase 1 blended system. The bill, subject to the above exception, would require redirection of the unspent proceeds from outstanding bonds issued and sold for other high-speed rail purposes prior to the effective date of these provisions, upon appropriation, for use in retiring the debt incurred from the issuance and sale of those outstanding bonds. The bill, subject to the above exception, would also require the net proceeds of bonds subsequently issued and sold under the high-speed rail portion of the bond act, upon appropriation, to be made available to the Department of Transportation for repair and new construction projects on state highways and freeways, and for repair and new construction projects on local streets and roads, as specified. The bill would make no changes to the authorization under the bond act for the issuance of $950 million in bonds for rail purposes other than high-speed rail. These provisions would become effective only upon approval by the voters at the June 7, 2016, statewide primary election.	Monitor
SBX1 4 Beall D Transportation funding.	9/24/2015-S. CONFERENCE COMMITTEE 9/24/2015-Senators Beall (Co-Chair), Allen, Leyva, Cannella and Gaines appointed to Conference Committee.	Existing law requires the Department of Transportation to improve and maintain the state's highways, and establishes various programs to fund the development, construction, and repair of local roads, bridges, and other critical transportation infrastructure in the state. This bill would declare the intent of the Legislature to enact statutory changes to establish permanent, sustainable sources of transportation funding to maintain and repair the state's highways, local roads, bridges, and other critical transportation infrastructure.	Monitor

Bill ID/Topic	Location	Summary	Position
SBX1 5 Beall D Transportation funding.	9/1/2015-A. DESK 9/1/2015-In Assembly. Read first time. Held at Desk.	Existing law establishes various programs to fund the development, construction, and repair of local roads, bridges, and other critical transportation infrastructure in the state. This bill would declare the intent of the Legislature to enact legislation to establish permanent, sustainable sources of transportation funding to improve the state's key trade corridors and support efforts by local governments to repair and improve local transportation infrastructure.	Monitor
SBX1 6 Runner R Greenhouse Gas Reduction Fund: transportation expenditures.	9/14/2015-S. DEAD 9/14/2015-Returned to Secretary of Senate pursuant to Joint Rule 62(a).	Existing law requires all moneys, except for fines and penalties, collected by the State Air Resources Board from the auction or sale of allowances as part of a market-based compliance mechanism relative to reduction of greenhouse gas emissions to be deposited in the Greenhouse Gas Reduction Fund. This bill would delete the continuous appropriations from the fund for the high-speed rail project, and would prohibit any of the proceeds from the fund from being used for that project. The bill would continuously appropriate the remaining 65% of annual proceeds of the fund to the California Transportation Commission for allocation to high-priority transportation projects, as determined by the commission, with 40% of those moneys to be allocated to state highway projects, 40% to local street and road projects divided equally between cities and counties, and 20% to public transit projects. This bill contains other related provisions and other existing laws.	Monitor
SBX1 7 Allen D Diesel sales and use tax.	9/3/2015-S. APPR. 9/3/2015-Read second time and amended. Re-referred to Com. on APPR.	Existing law, beyond the sales and use tax rate generally applicable, imposes an additional sales and use tax on diesel fuel at the rate of 1.75%, subject to certain exemptions, and provides for the net revenues collected from the additional tax to transferred to the Public Transportation Account. Existing law continuously appropriates these revenues to the Controller, for allocation by formula to transportation agencies for public transit purposes. This bill, as of July 1, 2016, would increase the additional sales and use tax rate on diesel fuel to 5.25%. By increasing the revenues deposited in a continuously appropriated fund, the bill would thereby make an appropriation. The bill would restrict expenditures of revenues from the July 1, 2016, increase in the sales and use tax on diesel fuel to transit capital purposes and certain transit services. The bill would require an existing required audit of transit operator finances to verify that these new revenues have been expended in conformance with these specific restrictions and all other generally applicable requirements. This bill contains other related provisions and other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
SBX1 8 Hill D Public transit: funding.	9/2/2015-S. APPR. 9/2/2015-From committee: Do pass and re-refer to Com. on APPR. (Ayes 8. Noes 0. Page 57.) (September 1). Re-referred to Com. on APPR.	Existing law requires all moneys, except for fines and penalties, collected by the State Air Resources Board from the auction or sale of allowances as part of a market-based compliance mechanism relative to reduction of greenhouse gas emissions to be deposited in the Greenhouse Gas Reduction Fund. This bill would instead continuously appropriate 20% of those annual proceeds to the Transit and Intercity Rail Capital Program, and 10% of those annual proceeds to the Low Carbon Transit Operations Program, thereby making an appropriation. This bill contains other existing laws.	Monitor
SBX1 9 Moorlach R Department of Transportation.	9/14/2015-S. DEAD 9/14/2015-Returned to Secretary of Senate pursuant to Joint Rule 62(a).	Existing law creates the Department of Transportation with various powers and duties relative to the state highway system and other transportation programs. This bill would prohibit the department from using any nonrecurring funds, including, but not limited to, loan repayments, bond funds, or grant funds, to pay the salaries or benefits of any permanent civil service position within the department. This bill contains other related provisions and other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
SBX1 10 Bates R Regional transportation capital improvement funds.	7/16/2015-S. T. & I.D. 9/9/2015-September 8 hearing: Testimony taken. Hearing postponed by committee.	Existing law establishes the state transportation improvement program process, pursuant to which the California Transportation Commission generally programs and allocates available state and federal funds for transportation capital improvement projects, other than state highway rehabilitation and repair projects, over a multiyear period based on estimates of funds expected to be available. Existing law provides funding for these interregional and regional transportation capital improvement projects through the state transportation improvement program process, with 25% of funds available for interregional projects selected by the Department of Transportation through preparation of an interregional transportation improvement program and 75% for regional projects selected by transportation planning agencies through preparation of a regional transportation improvement program. Existing law requires funds available for regional projects to be programmed by the commission pursuant to the county shares formula, under which a certain amount of funding is available for programming in each county, based on population and miles of state highway. Existing law specifies the various types of projects that may be funded with the regional share of funds to include state highways, local roads, transit, and others. This bill would revise the process for programming and allocating the 75% share of state and federal funds available for regional transportation improvement projects. The bill would require the department to annually apportion, by the existing formula, the county share for each county to the applicable metropolitan planning organization, transportation planning agency, or county transportation commission, as a block grant. These transportation capital improvement funds, along with an appropriate amount of capital outlay support funds, would be appropriated annually through the annual Budget Act to regional transportation agencies. The bill would require the regional transportation agencies, in their regional transportation improvement programs, to identify the transportation capital improvement projects to be funded with these moneys, and would require the California Transportation Commission to incorporate the regional transportation improvement programs into the state transportation improvement program. The bill would eliminate the role of the California Transportation Commission in programming and allocating funds to these regional projects, but would retain certain oversight roles of the commission with respect to expenditure of the funds. The bill would repeal provisions governing computation of county shares over multiple years and make various other conforming changes.	Monitor

Bill ID/Topic	Location	Summary	Position
SBX1 11 Berryhill R Environmental quality: transportation infrastructure.	9/4/2015-S. T. & I.D. 9/4/2015-From committee with author's amendments. Read second time and amended. Re-referred to Com. on T. & I.D.	The California Environmental Quality Act (CEQA) requires a lead agency, as defined, to prepare, or cause to be prepared, and certify the completion of, an environmental impact report (EIR) on a project that it proposes to carry out or approve that may have a significant effect on the environment or to adopt a negative declaration if it finds that the project will not have that effect. CEQA establishes a procedure by which a person may seek judicial review of the decision of the lead agency made pursuant to CEQA. This bill would exempt from these CEQA provisions a project that consists of the inspection, maintenance, repair, restoration, reconditioning, relocation, replacement, or removal of existing transportation infrastructure if certain conditions are met, and would require the person undertaking these projects to take certain actions, including providing notice to an affected public agency of the project's exemption. Because a lead agency would be required to determine if a project qualifies for this exemption, this bill would impose a state-mandated local program. This bill contains other related provisions and other existing laws.	Monitor
SBX1 12 Runner R California Transportation Commission.	8/20/2015-S. APPR. 8/20/2015-Read second time and amended. Re-referred to Com. on APPR.	Existing law establishes in state government the Transportation Agency, which includes various departments and state entities, including the California Transportation Commission. Existing law vests the California Transportation Commission with specified powers, duties, and functions relative to transportation matters. Existing law requires the commission to retain independent authority to perform the duties and functions prescribed to it under any provision of law. This bill would exclude the California Transportation Commission from the Transportation Agency, establish it as an entity in state government, and require it to act in an independent oversight role. The bill would also make conforming changes. This bill contains other related provisions and other existing laws.	Monitor

Bill ID/Topic	Location	Summary	Position
SBX1 13 Vidak R Office of the Transportation Inspector General.	9/3/2015-S. APPR. 9/3/2015-From committee with author's amendments. Read second time and amended. Re-referred to Com. on APPR.	Existing law creates various state transportation agencies, including the Department of Transportation and the High-Speed Rail Authority, with specified powers and duties. Existing law provides for the allocation of state transportation funds to various transportation purposes. This bill would create the Office of the Transportation Inspector General in state government, as an independent office that would not be a subdivision of any other government entity, to build capacity for self-correction into the government itself and to ensure that all state agencies expending state transportation funds are operating efficiently, effectively, and in compliance with federal and state laws. The bill would provide for the Governor to appoint the Transportation Inspector General for a 6-year term, subject to confirmation by the Senate, and would provide that the Transportation Inspector General may not be removed from office during the term except for good cause. The bill would specify the duties and responsibilities of the Transportation Inspector General, would require an annual report to the Legislature and Governor, and would provide that funding for the office shall, to the extent possible, be from federal transportation funds, with other necessary funding to be made available from the State Highway Account and an account from which high-speed rail activities may be funded.	Monitor
SBX1 14 Cannella R Transportation projects: comprehensive development lease agreements.	7/16/2015-S. T. & I.D. 8/17/2015-August 19 set for first hearing canceled at the request of author.	Existing law authorizes the Department of Transportation and regional transportation agencies, as defined, to enter into comprehensive development lease agreements with public and private entities, or consortia of those entities, for certain transportation projects that may charge certain users of those projects tolls and user fees, subject to various terms and requirements. These arrangements are commonly known as public-private partnerships. Existing law provides that a lease agreement may not be entered into under these provisions on or after January 1, 2017. This bill would extend this authorization indefinitely and would include within the definition of "regional transportation agency" the Santa Clara Valley Transportation Authority, thereby authorizing the authority to enter into public-private partnerships under these provisions. The bill would also delete obsolete cross-references and make technical changes to these provisions.	Monitor

Bill ID/Topic	Location	Summary	Position
SCAX1 1 Huff R Motor vehicle fees and taxes: restriction on expenditures.	9/9/2015-S. APPR. 9/9/2015-From committee: Be adopted and re-refer to Com. on APPR. (Ayes 13. Noes 0. Page 72.) (September 8). Re-referred to Com. on APPR.	(1) Article XIX of the California Constitution restricts the expenditure of revenues from taxes imposed by the state on fuels used in motor vehicles upon public streets and highways to street and highway and certain mass transit purposes, and restricts the expenditure of revenues from fees and taxes imposed by the state upon vehicles or their use or operation to state administration and enforcement of laws regulating the use, operation, or registration of vehicles used upon the public streets and highways, as well as to street and highway and certain mass transit purposes. These restrictions do not apply to revenues from taxes or fees imposed under the Sales and Use Tax Law or the Vehicle License Fee Law. This measure would prohibit the Legislature from borrowing revenues from fees and taxes imposed by the state on vehicles or their use or operation, and from using those revenues other than as specifically permitted by Article XIX. The measure would also prohibit those revenues from being pledged or used for the payment of principal and interest on bonds or other indebtedness. The measure would delete the provision that provides for use of any fuel tax revenues allocated to mass transit purposes to be pledged or used for payment of principal and interest on voter-approved bonds issued for those mass transit purposes, and would instead subject those expenditures to the existing 25% limitation applicable to the use of fuel tax revenues for street and highway bond purposes. O This bill contains other related provisions and other existing laws.	Monitor
SCRX1 1 De León D 2015-16 First Extraordinary Session: Joint Rules.	6/23/2015-A. DESK 6/23/2015-In Assembly. Held at Desk.	This measure adopts the Joint Rules of the Senate and Assembly for the 2015-16 Regular Session, as set forth in Senate Concurrent Resolution No. 37, as the Joint Rules, except as specified, for the 2015-16 First Extraordinary Session.	Monitor

Bill ID/Topic	Location	Summary	Position
SRX1 1 De León D Relative to the Standing Rules of the Senate for the 2015-16 First Extraordinary Session	6/30/2015-S. ADOPTED 6/30/2015-Unanimous consent granted to take up without reference to file. Read. Adopted. (Ayes 25. Noes 0.)	This measure adopts the Joint Rules of the Senate and Assembly for the 2015-16 Regular Session, as set forth in Senate Concurrent Resolution No. 37, as the Joint Rules, except as specified, for the 2015-16 First Extraordinary Session.	Monitor

FEDERAL LEGISLATION		
BILL/AUTHOR	**DESCRIPTION**	**STATUS**
H.R. 3620 **Bass D**	Would permit transportation agencies to consider the hiring of local workers in the evaluation of bids and proposals for highway and transit projects where federal funds are being used.	January 2014 – SUPPORT Referred to House Transportation and Infrastructure Subcommittees on Highways and Transit and Railroads, Pipelines, and Hazardous Materials
H.R. 680 **Blumenauer D**	Would gradually increase the federal gas tax by 15-cents, index the gas tax to inflation and seek to replace the federal gas tax with a more stable alternative by 2024. *Board previously supported HR 3636 bill last session.*	May 2015 – SUPPORT Referred to the House Committees on Ways and Means and House Transportation and Infrastructure
H.R. 935 **Hahn D-CA**	Would direct 5% of all import duties collected by Customs and Border Protection (CBP) at Ports of Entry to be spent on freight transportation through the creation of the National Freight Network Trust Fund. *Board previously supported HR 5101 bill last session.*	May 2015 – SUPPORT WORK WITH AUTHOR Subcommittee on Rail, House Transportation and Infrastructure Committee House Ways and Means Committee

Deferred=bill will be brought up at another time; Chaptered=bill has become law; LA=Last Amended; Enrolled=bill sent to Governor for approval or veto
Note: "Status" will provide most recent action on the legislation and current position in the legislative process. 5/5/2016

H.R. 990 **King R-NY**	Would authorize and bring parity between the parking and transit commuter tax benefits available for employees, including cash payments from employers, tot eh level of $235 per month. The legislation also includes a tax benefit for bicycle commuters in the amount of $35 per month.	May 2015 – SUPPORT House Ways and Means Committee
H.R. 1308 **Lowenthal D-CA**	Would establish a Freight Transportation Infrastructure Trust Fund and create a freight specific formula and competitive grant program for multimodal projects. *Board previously supported HR 5624 bill last session.*	May 2015 – SUPPORT WORK WITH AUTHOR Subcommittee on Water, House Transportation and Infrastructure Committee House Ways and Means Committee
H.R. 1461 **Massie R-KY**	Would end the longstanding practice of the mass transit account receiving funding through the Highway Trust Fund. Additionally, it repeals the Transportation	May 2015 – OPPOSE House Transportation and Infrastructure Committee House Ways and Means Committee
H.R. 1551 **Sanford R-SC**	Would phase out the Mass Transit Account from receiving any funding through the Highway Trust Fund by incrementally decreasing funding from 2016-2020.	May 2015 – OPPOSE House Ways and Means Committee

H.R. 2485 Torres D-CA	The Regional Infrastructure Accelerator Act of 2015 would, if enacted into federal law, create a two-tiered grant program aimed at increasing private investment in public infrastructure projects. The legislation seeks to establish and fund regional infrastructure accelerator organizations to provide regional analysis of potential Public-Private Partnership (P3) Infrastructure projects. The regional accelerators would then have the ability to provide technical expertise and funding to states, cities and public entities for pre-development activities on a potential P3 project. This legislation authorizes, subject to appropriations, funding in the amount of $25 million for the two-tiered grant program outlined in the Regional Infrastructure Accelerator Act of 2015.	June 2015 – SUPPORT 5/21/15 Subcommittee on Water Resources and Environment for House Transportation and Infrastructure Committee
H.R. 2495 **Waters D-CA**	The TIGER Grants for Job Creation Act would, if enacted into federal law, provide an emergency supplemental appropriation of $7.5 billion over the next 6 years for the Transportation Investment Generating Economic Recovery (TIGER) discretionary grant program.	June 2015 – SUPPORT 5/21/15 House Appropriation and Budget Committees
H.R. 2410 DeFazio D-OR	The GROW America Act would, if enacted into federal law, authorize a six-year $478 billion surface transportation bill. H.R. 2410 represents President Obama's surface transportation bill that his Administration has transmitted to Congress through his Fiscal Year 2016 Budget. The authorized funding level of $478 billion in the bill is the same funding figure that the U.S. Department of Transportation has determined is needed to assist in funding our nation's state-of-good-repair backlog maintenance as well as continue to invest in new transportation projects required to properly address America's future population growth. Co-sponsors of H.R. 2410 from the Los Angeles Congressional Delegation include Congresswoman Grace Napolitano (D-32) and Congresswoman Julia Brownley (D-26).	June 2015 - SUPPORT
H.R. 4343	H.R. 4343 (Blumenauer) – The Bikeshare Transit Act of 2016 would, if enacted into federal law, clarify the definition of bikeshare projects that qualify as an "associated transit improvement" under Title 49 of U.S. Code, add bikeshare projects to the definition of "capital project" under Title 49 of U.S. Code, and make bikeshare projects eligible for funding under the Congestion Mitigation and Air Quality Improvement Program (CMAQ) under Title 23 of U.S. Code. The legislation seeks to add bikeshare projects to the formal definition of transit projects as well as make clear to states that administer Federal Highway Administration funding that bikeshare is eligible to receive federal funding.	MARCH 2016 - SUPPORT

Deferred=bill will be brought up at another time; Chaptered=bill has become law; LA=Last Amended; Enrolled=bill sent to Governor for approval or veto
Note: "Status" will provide most recent action on the legislation and current position in the legislative process. 5/5/2016

S. 650 **Blunt R-MO**	Extends the national deadline by five years to implement PTC, from December 31, 2015 to December 31, 2020. Two one year extensions beyond 2020 are included in the legislation, but the extensions are at the discretion of the Secretary of the U.S. Department of Transportation.	MAY 2015 – OPPOSE Senate Commerce, Science and Transportation Committee
S. 797 **Booker D-NJ**	Amends the Railroad Rehabilitation and Improvement Financing Program (RRIF) to expand the eligibility for financing transit oriented development.	May 2015 – SUPPORT WORK WITH AUTHOR Senate Commerce, Science and Transportation Committee
S. 880 **(Schatz-D-HI)**	Amends the TIFIA program, as authorized in MAP-21, to include TOD as an eligible expense to finance through the TIFIA program.	May 2015- SUPPORT Senate Environment and Public Works Committee
S. 1006 **(Feinstein-D-CA)**	**Extend the national deadline to implement Positive Train Control by one year**	MAY 2015 – SUPPORT Senate Commerce, Science and Transportation Committee
Omnibus Appropriations Bill For Fiscal Year 2016	**An omnibus appropriations bill that keeps all federal programs, agencies, and services funded until September 30, 2016.**	Signed into law by President Obama, December 18, 2015
HR 22 (formerly known as the DRIVE Act) Fixing America's Surface Transportation Act (FAST Act)	Fixing America's Surface Transportation Act (FAST Act), the long-term surface transportation authorization bill authorizes approximately $305 billion for Highway, Transit and Railroad programs over 5 years ($61 billion per year).	Signed into law by President Obama, December 4, 2015

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Board Report

File #: 2016-0393, **File Type:** Federal Legislation / State Legislation (Position) **Agenda Number:** 40

REVISED
REGULAR BOARD MEETING
MAY 26, 2016

SUBJECT: STATE LEGISLATION

ACTION: ADOPT STAFF RECOMMENDED POSITIONS

RECOMMENDATION

ADOPT staff recommended positions:

~~**A. AB 1640 (Stone) -** Retirement: Public Employees **WORK WITH AUTHOR**~~

B. AB 2542 (Gatto) - Streets And Highways: Reversible Lanes **SUPPORT IF AMENDED**

C. SB 885 (Wolk) - Construction Contracts: Indemnity **OPPOSE**

ATTACHMENTS

~~Attachment A - AB 1640 (Stone) Legislative Analysis~~
Attachment B - AB 2542 (Gatto) Legislative Analysis
Attachment C - SB 885 (Wolk) Legislative Analysis

Prepared by: Michael Turner, DEO, Government Relations, (213) 922-2122
Desarae Jones, Government Relations Administrator, (213) 922-2230

Reviewed by: Pauletta Tonilas, Chief Communications Officer, (213) 922-3777

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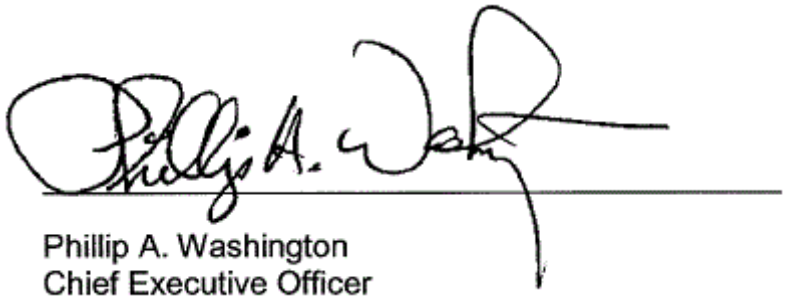

Phillip A. Washington
Chief Executive Officer

ATTACHMENT A

BILL: **ASSEMBLY BILL 1640**

AUTHOR: **ASSEMBLYMEMBER MARK STONE (D-SCOTTS VALLEY)**

SUBJECT: **RETIREMENT: PUBLIC EMPLOYEES**

STATUS: **PENDING REFERRAL TO SENATE**

ACTION: **WORK WITH AUTHOR**

RECOMMENDATION

Staff recommends that the Board adopt a Work with Author position on Assembly Bill 1640 (Stone).

ISSUE

Assemblymember Mark Stone has introduced AB 1640, a bill that would extend indefinitely a specified exemption under the Public Employees' Pension Reform Act of 2013 (PEPRA) for those public employees, whose collective bargaining rights are subject to specified provisions of federal law and who became a member of a state or local public retirement system prior to December 30, 2014.

AB 1640 would:

- Permanently exempt certain public transit workers, who first became members of a public retirement system between January 1, 2013 and December 29, 2014 from the requirements of PEPRA.
- Deletes provisions related to specified federal district court rulings regarding the certification of federal transit funding.

DISCUSSION

Existing law enacted by AB 1222 (Bloom and Dickenson), Chapter 527, Statutes of 2013, makes an exemption to PEPRA for employees who are covered by 13(c) arrangements until either a federal district court rules that the United States Secretary of Labor (or his or her designee) erred in determining that application of PEPRA precludes certification of federal transit funding or January 1, 2015, whichever is sooner.

A recent decision in the State of California v. United States Department of Labor ended the exemption provided to transit employees by AB 1222. Transit districts are currently appealing the federal court decision, and AB 1640 (Stone) would clarify that workers hired during the exemption between January 1, 2013 and December 29, 2014 should continue to receive classic employee retirement benefits instead of PEPRA employee retirement benefits.

According to information provided to the Assembly Public Employment, Retirement and Social Security Committee by CalPERS, 1,431 members from 36 different CalPERS covered employers were reclassified back into PEPRA membership after the December 30, 2014 ruling.

Staff finds that the primary cost to Metro relates to paying the employee' contributions to the CalPERS plan: $2.0 million through calendar year 2015 plus $2.7 million annually (in 2016 dollars) going forward. The provisions outlined in AB 1640 would affect 395 current Metro employees and would increase costs to Metro while increasing benefits for employees.

The bill is supported by the Teamsters and Amalgamated Transit Union which represent Metro employees.

Staff is recommending that the Board of Directors adopt a Work with Author position on AB 1640 (Stone).

DETERMINATION OF SAFETY IMPACT

Staff has determined that there is no direct impact to safety as a result of this proposal.

FINANCIAL IMPACT

Staff has determined that there could be an annual fiscal impact of $2.7 million for future costs related to an increased share of Metro CalPERS contributions on behalf of affected employees to the agency as the result of the provisions outlined in this bill.

ALTERNATIVES CONSIDERED

Alternatives to the Work with Author position will be considered with respect to our agency's past positions on legislation related to exempting public transit employees from the provisions of PEPRA.

NEXT STEPS

Should the Board decide to adopt a Work with Author position on AB 1640 (Stone), staff will communicate the Board's position to the author and work to address any concerns that the agency has with respect to potential fiscal impacts and employee retirement plans. Staff will continue to keep the Board informed as this issue is addressed throughout the legislative session.

ATTACHMENT B

BILL: **ASSEMBLY BILL 2542**

AUTHOR: **ASSEMBLYMEMBER MIKE GATTO (D-GLENDALE)**

SUBJECT: **STREETS AND HIGHWAYS: REVERSIBLE LANES**

STATUS: **ASSEMBLY FLOOR CONSENT CALENDAR SCHEDULED: MAY 9, 2016**

ACTION: **SUPPORT IF AMENDED**

RECOMMENDATION

Staff recommends that the Board adopt a SUPPORT IF AMENDED position on Assembly Bill 2542 (Gatto) as amended on March 15, 2016.

ISSUE

Assemblymember Mike Gatto has recently amended AB 2542, a bill that would require the Department of Transportation or a regional transportation planning agency, when submitting a capacity-increasing project or a major street or highway lane realignment project to the Transportation Commission for approval, to demonstrate that reversible lanes were considered for the project.

AB 2542 would:

- Require that Caltrans or a regional transportation planning agency to demonstrate that reversible lanes were considered in the planning, design and evaluation of a capacity increasing project on a major street or highway.

DISCUSSION

Metro's Long Range Transportation Plan includes a number of highway capacity increasing and efficiency projects. The provisions of AB 2542 would potentially require that Metro evaluate the use of reversible lanes for capacity increasing projects to mitigate impacts to vehicle traffic on major streets and highways.

The Assembly Committee on Transportation finds that reversible lanes add peak-direction capacity to a two-way road and decrease congestion by "borrowing" available lane capacity from the other (off-peak) direction. The lanes are particularly beneficial where the cost to increase capacity is expensive, like on bridges and in dense urban areas.

AB 2542 as amended does not specifically outline how Caltrans or a regional transportation planning agency would demonstrate that reversible lanes were considered in the planning or design of a highway or major street project. Staff finds that the bill's provisions could be clarified so that the CTC could determine how operationally the reversible lane evaluation could be integrated into the project development process.

Staff is recommending that the Board of Directors adopt a SUPPORT IF AMENDED position on the measure AB 2542 (Gatto).

DETERMINATION OF SAFETY IMPACT

Staff has determined that there is no direct impact to safety as a result of this proposal.

FINANCIAL IMPACT

Staff has determined that there are no negative financial impacts to the agency as the result of the provisions outlined in this bill.

ALTERNATIVES CONSIDERED

The Board of Directors could consider adopting an OPPOSE position on this legislation; however, this would be inconsistent with our agency's goal to increase mobility in the region.

NEXT STEPS

Should the Board decide to adopt a SUPPORT IF AMENDED position on AB 2542 (Gatto), staff will communicate the Board's position to the author and work to address any concerns that the agency has with respect to potential impacts to the Long Range Transportation Plan for highway projects. Staff will continue to keep the Board informed as this issue is addressed throughout the legislative session.

ATTACHMENT C

BILL: **SENATE BILL 885**

AUTHOR: **SENATOR LOIS WOLK (D-DAVIS)**

SUBJECT: **CONSTRUCTION CONTRACTS: INDEMNITY**

STATUS: **PENDING SECOND READING FILE**

ACTION: **OPPOSE**

RECOMMENDATION

Staff recommends that the Board adopt a OPPOSE position on Senate Bill 885 (Wolk) as amended on April 18, 2016.

ISSUE

Senator Lois Wolk has recently amended SB 885, a bill that would limit the liability of a design professional in construction contracts.

SB 885 would:

- Provide that a design professional would not have a duty to defend claims or lawsuits against any other person or entity arising from a construction project, except that person or entity's reasonable defense costs arising out of the design professional's degree of fault.

DISCUSSION

SB 885 would modify the way in which Metro would be indemnified in design contracts and fundamentally shift the responsibilities and risks in litigation. SB 885 places most of the responsibility and risk on the contracting entity and substantially limits the risks and responsibilities of the design professional. This could result in significant costs to the agency and substantially increase our risks especially as we embark upon a major public works expansion program.

The provisions of the measure create major changes in the way in which contracts are structured between design professionals and public and private entities. The bill is supported by a number of private sector design firms and is opposed by a number of public sector agencies.

Staff is recommending that the Board of Directors adopt an OPPOSE position on the measure SB 885 (Wolk).

DETERMINATION OF SAFETY IMPACT

Staff has determined that there is no direct impact to safety as a result of this proposal.

FINANCIAL IMPACT

Staff has determined that there are potential negative impacts to the agency as the result of the provisions outlined in this bill.

ALTERNATIVES CONSIDERED

The Board of Directors could consider adopting a NEUTRAL position on this legislation; however, this would not allow us to defend the agency's potential concerns with the provisions of the bill and to speak against an issue that negatively impacts the agency and affects the public contracting process.

NEXT STEPS

Should the Board decide to adopt an OPPOSE position on SB 885 (Wolk), staff will communicate the Board's position and concerns with the bill to the author. Staff will continue to keep the Board informed as this issue is addressed throughout the legislative session.

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Board Report

File #: 2016-0333, **File Type:** Program **Agenda Number:** 41

REGULAR BOARD MEETING
MAY 26, 2016

SUBJECT: COMMUNITY COLLEGE STUDENT TRANSIT PASS PILOT PROGRAM - MOTION 49.1

ACTION: APPROVE ADOPTION OF UNIVERSAL COLLEGE STUDENT TRANSIT PASS (U-PASS) PILOT PROGRAM

RECOMMENDATION

ADOPT the **Universal College Student Transit Pass (U-Pass) Pilot Program**.

ISSUE

As part of an ongoing effort to pursue strategies to increase student transit ridership, motion 49.1 requested an assessment of the feasibility of piloting a Universal Community College Student Transit Pass Program.

Currently, there are more than 1.4 million public college students in Los Angeles County, and only 14,000 (1%) are actively participating in Metro's reduced fare college pass programs, the College/Vocational (C/V) Pass and Institutional Transit Access Pass (I-TAP) programs. In addition, the C/V and I-TAP programs are only offered to full-time students who represent only 30% of public students in Los Angeles County, while the remaining 70% of students are considered part-time and are not eligible for these programs. Lastly, Metro's systemwide average fare per boarding (FPB) is $0.75 while the I-TAP group rate pricing is only generating $.29 per boarding. As a result, the I-TAP group rate pricing model is no longer revenue neutral to Metro, and combined, these programs are not reaching a large enough percentage of the student population.

Riding transit is an important life skill that should be learned at a young age. Many adults who have not previously ridden transit are intimidated by learning new routes and afraid of getting lost on an unfamiliar system. Broadening the use of transit at the college level will teach this skill in conjunction with other learning and create riders for life because users will understand the system.

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DISCUSSION

Full-time undergraduate and graduate students in Los Angeles County are eligible for a reduced fare College/Vocational 30-day pass that is offered at a $43 per month, a 57% discount from the regular Metro 30-day pass which is $100 per month. In order to be eligible for the C/V pass, undergraduate students must be enrolled in a minimum of 12 units or 12 hours of in-classroom study per week for a minimum of 3 consecutive months. Graduate students must be enrolled in a minimum of 8 units of in-classroom study per week for a minimum of 3 consecutive months. Students can purchase the reduced fare TAP card directly from Metro and load it at Ticket Vending Machines (TVMs), customer centers, vendor outlets, or online.

In 2003 the Board adopted the I-TAP program. This program was designed to increase student ridership, while keeping the program revenue neutral for Metro. The I-TAP program allows schools to purchase passes directly from Metro on a semester or quarterly basis. Currently, there are only four (4) colleges participating in the I-TAP program:

- UCLA and USC are enrolled in the retail pricing model. The retail pricing model is the regular price of $43/month or $9.92/week multiplied by the number of weeks in a semester. (The weekly rate has been corrected to $10.03 moving forward to reflect the 30-day rate divided by 30 multiplied by seven days.)
- Pasadena City College and Rio Hondo College are enrolled in the group rate pricing model. The group rate pricing model is based on the total number of full-time students multiplied by the group rate multiplied by the number of weeks in a semester.

Ridership data indicates that the I-TAP group pricing model resulted in a substantial increase in transit ridership over a five (5) year period (2010 - 2014):

- PCC increased ridership from 11% to 41% of their full-students
- Rio Hondo increased ridership from 7% to 44% of their full-time students

This resulted in an average ridership increase of 7% per year. Additional Metro bus services were added to support this growth in ridership. However, the current I-TAP Program at PCC and Rio Hondo is no longer revenue neutral for Metro. The average fare collected for these programs is $0.29 per boarding versus the system average of $0.75. Currently, there are approximately 7,000 active I-TAP users and 16,400 active College/Vocational TAP cards, but on average only 6,800 C/V Monthly Passes are being loaded.

In addition, Metro has not been utilizing existing and new technologies efficiently to improve these programs. Currently, the I-TAP and C/V paper applications are processed and uploaded manually. C/V applications became available online in September 2015 and represent approximately 5% of the total applications received since then. In March 2016, staff added a web link to the online application from the College Programs page on Metro.net and online applications rose to 9%. Metro has been processing an average of 2,100 paper applications per month and also handling the verification of each individual student's units, which has caused a wait time of 4-6 weeks for students to receive their C/V TAP cards from the time of application. However, many students are registering for their classes online and colleges have the ability to electronically verify their enrollment. Online

registration could be modified to allow students to add transit participation along with their enrollment. New TAP chip technology also exists which would allow a sticker with an embedded computer chip and an RFID antenna to be applied directly to the student ID cards, replacing the need for photo ID C/V TAP Cards. Just like existing TAP cards, these chips have the ability to be loaded remotely, reducing the need for a student to physically to go an office to reload or reactivate their cards once they have registered.

U-Pass Task Force Results

In November 2015, Metro Commute Services established two (2) U-Pass Task Force teams that included:

Internal Task Force (Metro):

- Office of Management and Budget (OMB)
- TAP Operation
- Office of Extraordinary Innovation

External Task Force:

- Los Angeles County colleges and universities including:
  - California Institute of Technology (CalTech)
  - California State University Dominguez Hills
  - California State University Long Beach (CSULB)
  - California State University Los Angeles (CSULA)
  - California State University Northridge (CSUN)
  - Cerritos Community College
  - Citrus College
  - LA Community College District (LACCD)
  - LAUSD Adult Vocational Programs (LAUSD)
  - Mount San Antonio College (Mt. SAC)
  - Pasadena City College (PCC)
  - Rio Hondo Community College
  - University of California at Los Angeles (UCLA)
  - University of Southern California (USC)
- Local municipal transit providers and organizations including:
  - Foothill Transit
  - Long Beach Transit
  - Los Angeles Department of Transportation (LADOT)
  - Move L.A.

In addition, an online survey was distributed to collect feedback from the colleges. The survey was anonymous to allow for the highest level of honest feedback and addressed issues such as satisfaction with existing Metro transit service, and cost and funding of student transit programs. Primary findings from the survey included:

- College transit programs are currently funded through pass sales, student fees, revenue from

parking fines and fees, and associated student associations
- 73% are very satisfied or satisfied with the transit service at their campus
- 82% say not having enough parking is an issue on their campus
- 64% do not believe they have adequate funding for the program
- 30% feel that not including part-time students is limiting participation, and
- 60% are willing to co-market a Universal Pass program on their campus with Metro support

As a result of the feedback from the, Internal and External Task Force teams and survey responses, the overall recommendations are as follows:
- Make passes more affordable for students
- Make passes more accessible for part-time students
- Make program easy to understand and administer

U-Pass Pilot Program

Upon Board approval, Metro Commute Services will implement a two-year U-Pass pilot program beginning in Fall 2016. U-Pass Pilot Program will:

1. Target at least 10 new schools to participate in the program.
2. Reduce the minimum units required under the pilot to 8 units or more per quarter/semester to allow more part-time students to participate in pilot program.
3. Transition to a pay per boarding model:

    a. Charge an estimated boarding fee of $0.75 per boarding, which is the cash-boarding equivalent of the 30-day College/Vocational pass. Payment must be made by the school at the beginning of the term and the rate will be reassessed annually as part of the budget process.
    b. For the introductory term, estimated boardings will be based on existing I-TAP or C/V ridership data. If the school does not have existing data, the initial student participation will be estimated at 10% of eligible students. Any overage paid by the school based on the estimated boardings for the introductory term will be credited toward the payment for Term 2.
    c. For the second term and subsequent terms, estimated boardings will be adjusted to reflect the actual boardings from the previous term based on TAP data.
    d. At the end of the second term and each subsequent term, actual boardings will be reconciled against the initial fee payment and a charge or credit will be issued to the school based on the difference, capped at $43 per month ($10.03 per week) per participant.
    e. Schools may elect to cover the cost of the program through student fees, other funding, or by charging the students for participation. Fees collected from students may not exceed $43/month or $10.03/week, and the total amount collected may not exceed the total amount due to Metro.
    f. Schools are encouraged to build U-Pass participation into their existing class registration process to allow for a seamless integration and the ability to charge the appropriate student fees, if any.

4. Schools will be responsible for collecting demographic data to assist in completion of the required Title VI analysis, for verifying enrollment eligibility for each quarter/semester, and for distributing or reactivating TAP stickers/cards for eligible students. Schools are encouraged to collect as much information as possible as part of online registration, which will also allow cards to be activated and loaded electronically by Metro.
5. Schools will report all issued TAP card/sticker numbers to Metro for tracking purposes and to facilitate replacements.
6. Schools are encouraged to partner with Metro for in-kind marketing materials and promotion of the U-Pass Program.
7. Establish goal of increasing student participation by 10% over existing C/V and I-TAP levels during the two year pilot program and use the data from the pilot program as a foundation for establishing an ongoing U-Pass program, which will ultimately replace both the I-TAP and the C/V programs. Performance measures to be assessed include:

    a. Compare total U-Pass revenue and boardings to current I-TAP and C/V revenue and boardings and assess changes in fare revenues and ridership among the college/vocational student population
    b. Assess changes in ridership on key lines near pilot schools
    c. Compare the percentage of students who were issued passes on a term-by-term basis to assess changes in utilization of the U-Pass

DETERMINATION OF SAFETY IMPACT

This program does not affect the incidence of injuries or healthful conditions for patrons or employees. Therefore, approval of this request will have no impact on safety.

FINANCIAL IMPACT

As a pilot, this program will be managed within existing resources. Therefore, there will be no financial impact at this time.

Impact to Budget

As a pilot, this program will be managed within existing resources. Therefore, there will be no impact to budget at this time.

ALTERNATIVES CONSIDERED

Reduction of Units

Reducing the unit requirements for the U-Pass program was considered. With the existing 12-unit requirement for undergraduate students, there are approximately 14,000 active college transit program participants. This represents 3% of the total eligible public school students who meet the

requirement.

Decreasing the unit requirement for the U-Pass pilot program to 9 units (semester) or 8 units (quarter) would increase the potential pool of eligible participants by 17%, or approximately 250,000 public students. Based on the current 3% participation, this could result in about 7,500 new college/vocational riders. Decreasing the unit requirement for the U-Pass pilot program to 6 units would increase the potential pool of eligible participants by 35%, or approximately 536,000 public students. Based on the current 3% participation, this could result in about 16,000 new college/vocational riders.

For both cases, increasing the potential pool of eligible participants will likely result in revenue loss for Metro, with the possibility of recouping the loss through a potential increase in new riders. However, the potential revenue impact will depend on how many of the new college/vocational riders were full fare transit riders (negative impact to revenue) versus how many are new transit riders (positive impact to revenue).

Because the financial impact of the unit reduction will not be known until the overall fare revenue changes for the pilot program and the agency can be assessed, staff recommends starting the pilot program with an 8-unit minimum requirement with a commitment to review the revenue impact after six months and consider lowering the requirement to 6 units based on the assessment. The 12-unit requirement for current monthly C/V passes will remain intact.

The College/Vocational Pass requires graduate students to be enrolled in 8 or more units. Under the U-Pass Pilot Program, staff is recommending reducing the units required for graduate students from 8 units to 6 units. The 8-unit requirement for graduate students utilizing monthly C/V passes will remain intact.

Continuation of I-TAP and C/V Programs

Due to the lack of widespread usage, difficulty of administration, and the loss of revenue, staff does not recommend continuing the I-TAP program during the U-Pass Pilot Program. All current I-TAP schools will be converted to U-Pass. However, Metro will continue to offer the regular monthly College/Vocational Pass for students at schools not participating in the pilot program.

NEXT STEPS

Upon approval of this pilot program, Metro will:

1. Communicate details of U-Pass Pilot Program with all 77 schools in L.A. County and target 10 or more schools to participate in the program.
2. During initial registration period, schools will collect required Title VI data from participating students. Title VI evaluation will be conducted and a findings report will be brought back to the Board of Directors for approval prior to the end of the sixth month of the pilot program.
3. During the pilot program, Metro will continue to seek additional funding through Greenhouse

Gas Reduction Fund/Low Carbon Transit Operations Program (LCTOP) revenue Cap and Trade, the South Coast Air Quality Management District's Mobile Source Air Pollution Reduction Review Committee (MSRC), or other sources to further reduce the cost of the program to the schools and will work with schools to identify other sources of funding such as parking fees and/or fines, student association fees, and/or activity fees and/or referendums and as a means of subsidizing the program.

4. During the pilot program, Metro will continue to partner with schools to address transit service and service alignment issues.

ATTACHMENTS

Attachment A - Motion 49.1 Community College Student Transit Pass Pilot Program
Attachment B - Report 49 on Community College Student Transit Pass Pilot Program in response to Motion 49.1

Prepared by: Devon Deming, Dir. of Metro Commute Services, (213) 922-7957
Jocelyn Feliciano, Communications Manager, (213) 922-3895
Glen Becerra, DEO Communications, (213) 922-5661

Reviewed by:
Pauletta Tonilas, Chief Communications Officer, (213) 922-3777

Phillip A. Washington
Chief Executive Officer

Metro

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Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

Board Report

File #:2015-1497, **File Type:**Motion / Motion Response

Agenda Number:49.1

REGULAR BOARD MEETING
SEPTEMBER 24, 2015

Motion by:

Mark Ridley-Thomas

September 24, 2015

Relating to Item 49, File ID 2015-1290
Community College Student Transit Pass Pilot Program

Los Angeles County Metropolitan Transportation Authority (Metro) staff is pursuing a number of strategies to increase ridership. While the agency currently offers subsidized monthly transit passes to students, it has not partnered with community colleges to offer a deep subsidy consistent with "Universal Pass" programs, which allow students significantly subsidized transit passes through their academic registration process. This model has been implemented at both public and private institutions locally and across the nation, and has demonstrated an ability to increase transit ridership and reduce student driving, thereby reducing traffic congestion. Research that dates back over two decades suggests that these programs are also worthwhile for the transit operator, as the programs have led to increases in total transit ridership, filled empty seats, and reduced the operating cost per ride.

As the agency pursues strategies to attract a new, diverse and sustained group of riders, the community college base may be one key sector to focus our efforts; the population tends to remain local over the long-term, and the subsidized pass can provide an impetus to become acquainted with our system. The recent expansion of the TAP card to all municipal operators throughout the County's system would likely also increase the utilization and futility of a Universal Community College Student Transit Pass Program.

In addition to the "opt-in" increase in student registration fees, the costs of such a program could be subsidized by the college, as it will reduce parking demands. In addition, Metro could solicit additional resources through the South Coast Air Quality Management District's Mobile Source Air Pollution Reduction Review Committee. Later this Fall, the Metro must also provide a proposal to the State of California on how we propose to spend approximately $30 million of Greenhouse Gas Reduction Fund/Low Carbon Transit Operations Program revenue that is expected to be allocated to the agency through the State's Cap and Trade Program; a revenue source that is anticipated to grow in the coming years. Given the focus on increasing ridership, this may also be a viable funding source for a Universal Pass program.

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MOTION by Ridley-Thomas that the Board of Directors direct the Chief Executive Officer to provide a report in 60 days on the current College TAP Program, including the usage, marketing and outreach efforts to community colleges, as well as an assessment of the feasibility of piloting a Universal Community College Student Transit Pass Program.

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Los Angeles, CA

Board Report

File #:2015-1639, **File Type:**Informational Report Agenda Number:49.

EXECUTIVE MANAGEMENT COMMITTEE
NOVEMBER 19, 2015

SUBJECT: COMMUNITY COLLEGE STUDENT TRANSIT PASS PILOT PROGRAM

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE report on **Community College Student Transit Pass Pilot Program in response to Motion 49.1**.

ISSUE

As part of an ongoing effort to pursue strategies to increase student transit ridership, motion 49.1 requests a report as well as an assessment of the feasibility of piloting a Universal Community College Student Transit Pass Program.

DISCUSSION

Background

As part of Metro's fare policy, all full-time undergraduate and graduate students in Los Angeles County are eligible for a reduced fare whether or not their school participates in the Institutional Transit Access Pass Program (ITAP) which was approved by the Metro Board in 2003. The current fare structure includes a College/Vocational 30-day pass that is offered at a 57% discount from the regular 30-day pass.

In order to be eligible for the College/Vocational pass, Undergraduate students must be enrolled in a minimum of 12 units or 12 hours of in-classroom study per week for a minimum of 3 consecutive months. Graduate students must be enrolled in a minimum of 8 units of in-classroom study per week for a minimum of 3 consecutive months. Students can purchase the reduced fare TAP card directly from Metro and load it at customer centers, vendor outlets, or online.

An additional reduced fare program offered by Metro to students is ITAP. Many colleges have participated, including the Los Angeles Community College District (LACCD). Initially, nine community college campuses used construction mitigation funds to provide free passes to students. However, once the construction mitigation funding ran out, these colleges terminated the program as they had no other funding available.

Currently USC, UCLA, Pasadena City Community College (PCC) and Rio Hondo Community College participate in the ITAP Program. In 2015, Metro conducted boarding analyses on the four participating schools. The primary objectives for the ITAP Program were to increase transit ridership and to be revenue neutral for Metro. PCC and Rio Hondo's findings indicate that the ITAP Program resulted in a substantial increase in transit ridership. PCC surveyed full-time students in 2009, and indicated that 11.1% rode Metro. In fall 2014, out of 7,638 students, 47% rode Metro. In spring 2015, out of 8,725 students 39% rode Metro. Rio Hondo surveyed their full-time students in 2009, and indicated that 7.1% of their students rode Metro. In fall 2014, out of 2,818 students, 46% rode Metro. In spring 2015, out of 2,233 students, 46.8% rode Metro. In 2012, additional Metro bus service lines were added to help support some of Rio's growth in ridership. However, the current ITAP Program at PCC and Rio Hondo is no longer revenue neutral for Metro. In fact, PCC paid $0.28 per boarding in FY'14, and $0.27 in FY'15. Rio Hondo paid $0.34 in FY'14, and $0.43 in FY'15.

In FY15, the effective subsidy provided for College/Vocational 30-day passes was $6 million. In addition, a $2 million subsidy was provided for the ITAP program, for a total of $8 million in total fare subsidies for all transit passes provided to college students in FY15.

Findings

Going forward, Metro must ensure consistency with universal pass programs, and also ensure revenue neutrality for Metro. Because of TAP technology, and the ability to calculate total boarding's per campus, Metro has provided community colleges (that are participating in the ITAP program) with boarding data results. The boarding results can be used to help the participating colleges estimate the budget needed for the cost of their transit pass programs. Coordination with TAP operations will be an important part of this process and will require technical programing, support and coordination with other municipalities. Service alignment issues must also be addressed for any and all campuses that are interested in partnering with Metro.

Funding for a pilot program, and/or an on-going program may be available through Greenhouse Gas Reduction Fund/Low Carbon Transit Operations Program (LCTOP) revenue Cap and Trade and/or through the South Coast Air Quality Management District's Mobile Source Air Pollution Reduction Review Committee (MSRC) funding, as "seed" money to help subsidize costs. However, colleges and universities must be willing and able to secure sustainable funding sources of their own in order to ensure that the program continues. If a pilot program is designed it should be implemented for a period of time which is long enough for colleges to find a sustainable source of funding prior to the end of the pilot program. Colleges may be able to subsidize the cost of the Universal Pass Program by using revenue generated by parking fees and/or fines, registration fees through a student referendum, point of sale fee, student activity fees, or a combination of these sources.

USC, UCLA, PCC and Rio Hondo all participate in ITAP, but have varying programs. Students at USC and Rio Hondo passed student referendums approving fees to be used for transit. At Rio Hondo, every student is assessed a transit fee of $9.00 per semester whether or not they use transit. USC students order the TAP cards through the university, and USC subsidizes about 1/3 of the cost. All students at PCC who are registered as "credit students" (classes with a focus toward a degree) pay a $10.00 per semester student activity fee that goes toward transit and other support services.

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PCC also charges an associated fee of $30.00 per student per semester in order to receive a Metro ITAP Pass. UCLA subsidizes half the cost of their students' passes.

After the original nine LACCD campuses terminated their participation in the ITAP program (due to funding issues), and with limited Metro staff available to work on the program, Metro ceased to provide outreach to encourage additional college enrollment. The four universities/colleges that are participating in the ITAP program are maintained by Metro Commute Services, with coordination from TAP operations for Customer Point of Sales device (CPOS), and fare coordination with other agencies, and the accounting department for invoicing purposes.

Marketing materials designed and produced by Metro for ITAP were limited. No new marketing materials have been designed within the last six years. Each campus has designed their own marketing materials in order to promote their programs.

Metro is interested in and has a responsibility to move forward with programs that are sustainable. Commitments from colleges must be secured in order to promote and market successful sustainable student pass programs. The current monthly reduced fare program of $43.00 offers all full time college students an opportunity to participate. However, if a college is not promoting the pass, students may not be aware or inclined to apply on their own. When a college or university, such as UCLA and USC takes on the ownership of the program and partners with Metro to offer the current reduced fare of $43.00, along with subsides from the campus, a CPOS on site from Metro, and the college is actively marketing and promoting the program, student pass registration, and on-going commitments from students, is much greater.

ALTERNATIVES CONSIDERED

Metro has offered ITAP pass programs to colleges and universities in the past. While UCLA and USC have successful programs, other colleges were unable to continue their participation. Metro does not recommend continuing with the current ITAP program, due to the lack of sustainable on-going funding sources, lack of "opt-in' student referendums, limited funding and the fact that the current ITAP program is no longer revenue neutral for Metro. Metro will continue to offer the regular monthly college/vocational program (such as the one UCLA and USC have). Metro staff is recommending reviewing the currently reduced college/vocational price as a viable means for going forward with a universal pass program. Some restructuring may be needed, but the current college/vocational pass is already a reduced rate; therefore, with increasing marketing efforts/outreach and campaigns, partnering with colleges/universities and campus commitments for sustainable funding sources, an increase in ridership and college participation can be expected to grow substantially over the next few years and beyond. It is estimated that with some restructuring of the current reduced college/vocational program we will be able to provide the colleges with the ability to maintain a successful, sustainable and affordable universal transit pass program.

Metro and the Board of Directors have considered the development and implementation of a universal pass program for many years. With the extension of Metro's infrastructures, and the recent decline in transit ridership, the design and implementation of a universal transit pass program will set

the pace for on-going future ridership commitments from our youth. However, before moving forward many steps must be taken first.

NEXT STEPS

To ensure that the Universal Student Transit Pass Program is designed well, meets the needs of the agency and the colleges, and is marketable and sustainable, Metro staff should:

• Convene a comprehensive working group to discuss, plan and coordinate next steps. The working group should have representation from not only community colleges, but 4 year universities and vocational schools. Sustainable funding plans should be a primary objective and lessoned learned from previous programs (LAUSD/PCC/Rio Hondo) should be evaluated and reviewed in detail before going forward. The working group will require participation from OMB, TAP office, Operations, other municipalities, various colleges and university representatives and staff from Communication-Marketing.

• Evaluate if funding sources for the Universal Student Transit Pass Pilot Program and thereafter need to be secured through LCTOP/MSRC funding sources, or if colleges can sustain funding through student fees, parking fees, referendums etc.

• Determine if the currently reduced college/vocational program is the best fit for a pilot and/or on-going program.

• If a pilot program is desired, work with Metro CEO and Board to identify pilot campuses to determine how many and which colleges may participate in the pilot program. An option may be to select one campus in each supervisorial district, or perhaps working with the LACCD, at the District level would help insure efficiencies. If some of the pilots were with colleges that are currently working in partnership with one or more municipal bus operators this would allow for a study of best practices when more than one operator is involved

• Work with stakeholders to determine the appropriate share of funding that should come from student registration fees, LCTOP and/or MSRC. Determine if the pilot will include only the full-time students or also part-time students

• Metro should evaluate the student minimum requirements (Undergrade12 units), and consider reducing the full time minimum unit requirements in order to expand the opportunity for more students to be able to participate. An extensive evaluation on impact of resources and costs would need to be analyzed.

• Service alignment issues will need to be reviewed. Decisions for realignment and/or additional service may be required to accommodate a campus. In some cases this may not be feasible.

• Determine the length of time needed to pilot the program (one year, two semesters)

• Work to secure on-going funding sources. This may include subsidies from the colleges such as student association fees, and/or activity fees and/or referendums and should be considered as a means of subsidizing the program after the pilot period ends

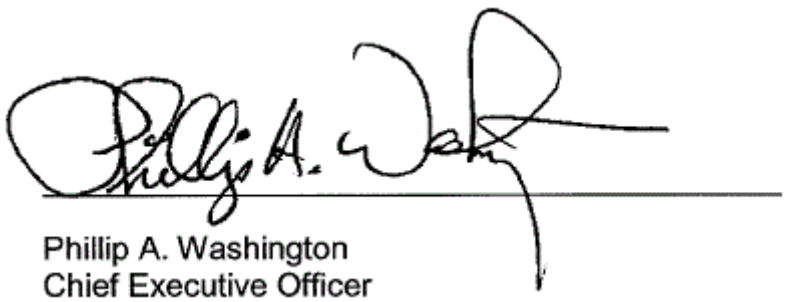
• Work with working group members to coordinate all efforts to ensure consistencies. Work with TAP operations to ensure universal fare coordination between other agencies

ATTACHMENTS

Attachment A - Motion Community College Pilot file 2015-1639

Prepared by: Sarah Zadok, Communications Manager (213) 922.4110
Prepared by: Glen Becerra, DEO, Communications (213) 922.5661
Prepared by: Melissa Wang, EO, OMB (213) 922.6024

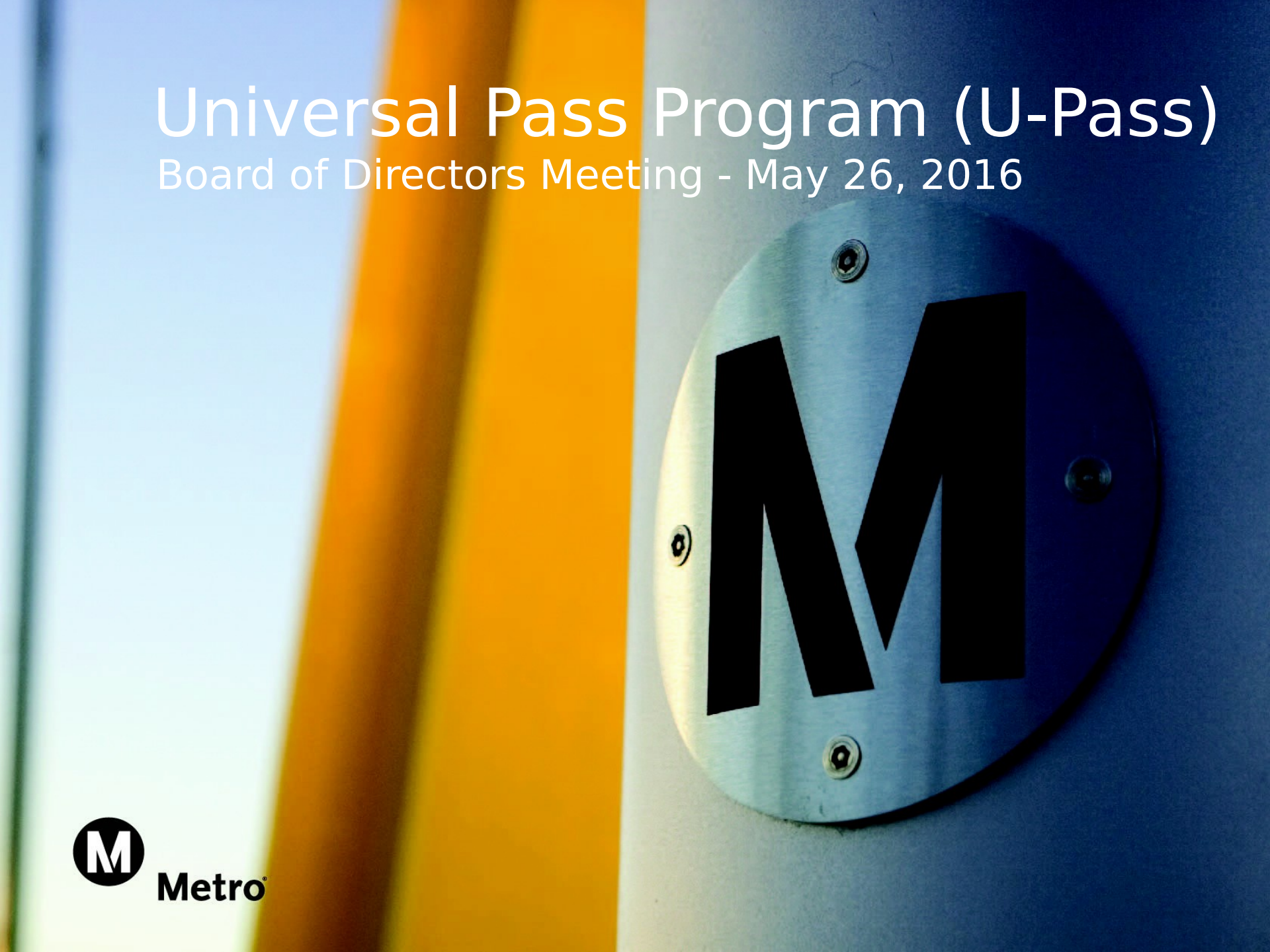
Reviewed by: Pauletta Tonilas, CCO, Executive Office, Communications



Phillip A. Washington
Chief Executive Officer

Universal Pass Program (U-Pass)

Board of Directors Meeting - May 26, 2016



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U-PASS

Motion 49.1 (Ridley-Thomas) requested an assessment of the feasibility of piloting a Universal Community College Student Transit Pass (U-Pass) Program.

Goal: Staff is recommending establishing a 2-year U-Pass Pilot Program for Colleges, Universities, and Trade Schools to increase college transit ridership and create a new generation of transit riders.

Objective: To transition to a more feasible pricing structure and reach a broader range of college students by reducing units required to participate, and collect the data and establish best practices necessary to establish a permanent program.

Metro

U-PASS *(Cont.)*

Significant Changes:

1. **Eligibility** – Units required being reduced from 12 to 8 for Fall 2016, and if no negative fiscal impact, may be reduced to 6 after the first 6 months of pilot.

2. **Pricing** – Transition to a "pay per boarding" model and invoice schools for boarding fee of $0.75 x the total number of boardings per term based on actual usage.

3. **Administration** - The schools will be responsible for:
   - Determining student's eligibility based on enrollment
   - Collecting student demographic information and the disclaimer/waiver form signatures
   - Distributing/Tracking U-Pass stickers/cards
   - Ensure U-Pass is properly activated via CPOS or spreadsheet to Metro

Metro

U-PASS *(Cont.)*

4. **Financing/Funding** -The program can be funded through student fees, grants, or student contributions. Student contributions may not exceed $43/month or $10.03/week, and the total amount charged to student cannot exceed the total amount due to Metro.

5. **Co-Marketing** – Metro will partner with the school to promote the U-Pass by:
   - Creating co-branded marketing materials
   - Providing staff to assist in launching the program (outreach and marketing efforts)

6. **Analysis** – Metro will determine success of the program by:
   - Goal of increasing student participation by 10%
   - Compare U-Pass revenue and boardings to current levels
   - Assess changes in ridership on key lines near pilot schools

Metro

U-PASS *(Cont.)*

Sample U-Pass Sticker:

Size: 1”H x 1.75”L

Sample U-Pass Card:

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Thank you!

For questions/participation contact:

Devon Deming
Director, Metro Commute Services
demingd@metro.net
(213) 922-7957

Metro

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

File #: 2016-0337, **File Type:** Informational Report **Agenda Number:** 42

REVISED
REGULAR BOARD MEETING
MAY 26, 2016

SUBJECT: OFFICE OF EXTRAORDINARY INNOVATION - MISSION AND PROGRESS REPORT

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE status report on the **mission and progress of the Office of Extraordinary Innovation.**

DISCUSSION

The Office of Extraordinary Innovation (OEI) is now staffed and moving forward with its mission of bringing best practices in transportation from around the world to Los Angeles County. OEI has two primary functions:

1) Partnering with the private sector to deliver innovations in mobility, customer experience, and project finance and;

2) Developing a strategic plan for LA Metro that will enable innovation and best practices across the agency.

Each of these functions is discussed below.

Partnering with the Private Sector
OEI is looking for potential partnerships (including engaging externally with non-traditional private sector partners) with the private sector in an unconventional manner. Rather than beginning with the answer, we are starting with a question for innovators - what can you do to help LA Metro better achieve its goals of mobility, reduced environmental impact, safety, and customer experience? This includes both large scale infrastructure projects, where a public-private partnership (P3 delivery model could potentially deliver a project faster, better, or cheaper). It also includes small-scale technological or operational improvements that can have a more immediate impact. With the release of our new unsolicited proposal policy in February at our kickoff Transformation Through Transportation Event, we drew attention to the idea that LA Metro is open to new ideas and that they will be given fair consideration. The new unsolicited proposal policy promises a response within 60

days to any proposal that meets basic criteria for an unsolicited proposal. OEI is responsible for putting together a project evaluation team, made up of expert personnel within LA Metro, to evaluate and respond to each proposal. If initial proposals (Phase I) are of interest to LA Metro, proposers are encouraged to submit a more detailed (Phase II) proposal for further evaluation. The end result from any Phase II proposal will be either 1) Rejection of the proposal, 2) An RFP process, or 3) A sole source agreement.

Since the release of the new unsolicited proposals policy, OEI has been receiving a steady stream of proposals, approximately one per week. As of this date we have received eight proposals. All of these proposals are smaller scale improvements or pilot programs rather than large-scale infrastructure projects. We expect that larger P3 project proposals will take more time to develop, but we have had some conversations with potential proposers for the High Desert Corridor, Sepulveda Pass, and 710 South projects. We have also had conversations with some parties interested in proposing new ideas for transportation and infrastructure improvements that are not included in the long-range plan.

OEI and LA Metro must respect the confidential nature of the unsolicited proposal process. However, we can say that we have received proposals to:

- Provide better information for on-board passengers about their location
- Partner on new mobility services that could provide improved service for certain customers
- Partner on new mobility services that could provide better access to our existing stations
- Upgrade existing equipment
- Utilize a new financing tool
- Provide incentives for people to switch modes
- Facilitate a policy discussion
- Provide better operations information
- Improve fare collection

Development of Strategic Plan

The Metro Strategic Plan will establish a clear vision for what LA Metro hopes to become in the future. OEI is currently developing a work plan for the strategic planning process. The idea behind a strategic plan is to work with the Board, staff, and larger community to define mobility goals for the County. This will mean developing agency goals, objectives, and performance measures, and then working to make the changes that will enable us to achieve these ends. Likely necessary improvements will include breaking down silos within Metro, creating a culture that rewards innovation and enables risk-taking, and infusing an improved customer-orientation throughout the agency.

We expect the strategic planning process to take at least one year. We have set the internal goal of completing the process and releasing a strategic plan in 2017. Once complete, the strategic plan is intended to guide the agency over the next decade and beyond. It is also intended to be an outward-facing public document that is easily digestible and comprehensible for the entire community. The next steps in the process are listed below, and targeted milestone dates will be provided once the

work plan is complete in June 2016.

- Finalize work plan, including schedule; determine tasks that will require contractor assistance
- Develop scope of work for RFP
- Procure contractor to assist with strategic planning process
- Work with contractor, Board, staff, and general public to develop strategic plan
- Present draft strategic plan for comment
- Present draft strategic plan to Board for final comments
- Board approval of strategic plan

NEXT STEPS

Staff will continue to provide regular progress updates to the Board.

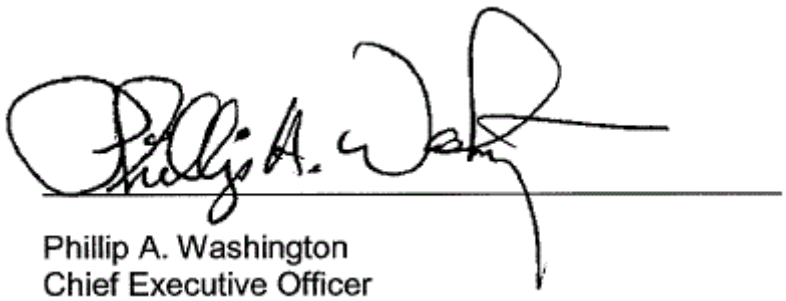
Next steps on the strategic plan process can be found under the “Development of Strategic Plan” subsection under “Discussion.”

ATTACHMENTS

Attachment A - OEI Presentation

Prepared by: Dr. Joshua L. Schank, Chief Innovation Officer, (213) 922-5533

Reviewed by: Phillip A. Washington, Chief Executive Officer, (213) 922-7555



Phillip A. Washington
Chief Executive Officer

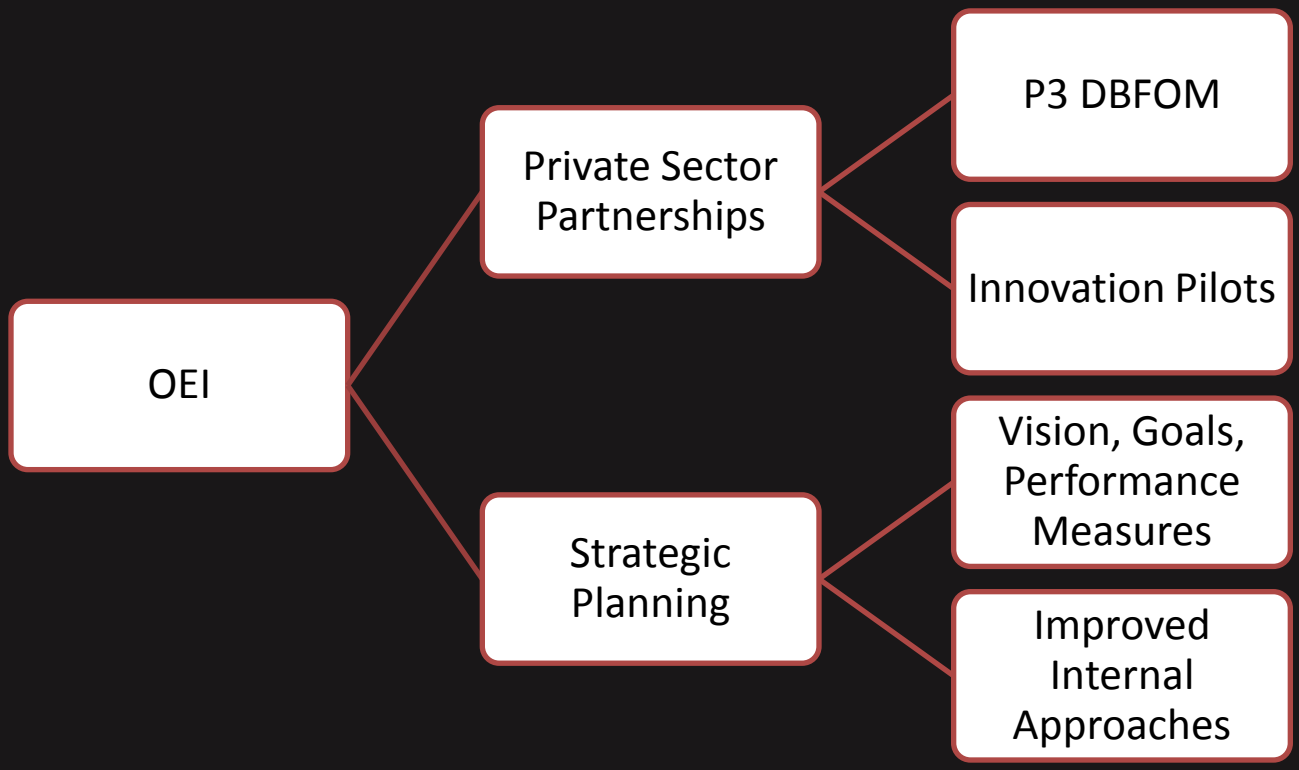
REVISED

Office of Extraordinary Innovation

Los Angeles County Metro

Metro

Office of Extraordinary Innovation



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Vision

OEI is an incubator and implementer of innovative ideas for LA Metro

Metro

Goals

- Improve mobility, environment, customer experience, and transportation safety in the Los Angeles region through innovative, low-cost approaches
- Improve internal processes and strategies and break down silos at Metro to create a more effective public agency

Metro

Near-Term Objectives

- Create an environment of innovation, openness, and experimentation
- Introduce pilot programs that can demonstrate the potential to improve mobility
- Develop at least one major P3 infrastructure project
- Begin an effective strategic planning process
- Complete internal and external benchmarking process

Metro

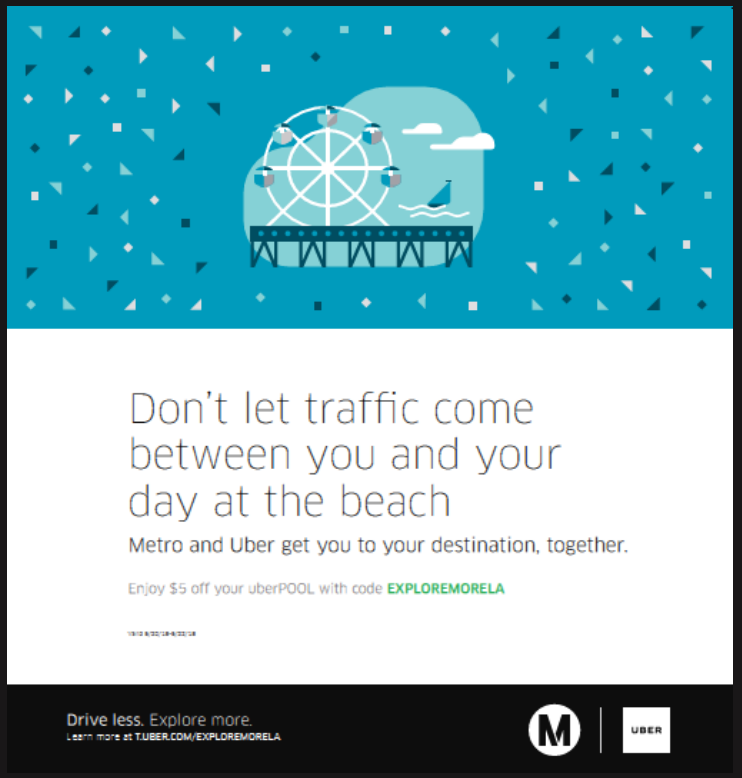
Unsolicited Proposal Update

Originator	Summary
TransitVUE	Dynamic illuminator signage lets you know where you are on the Metro Orange Line
BYD	Buy back pilot electric buses; supply new ones with options
Southern AM	Retrofit of bus fareboxes with cellular
VIA	Utilize dynamic vehicle routing software to provide more demand responsive transportation
Uber	Uber to provide first last mile service and service in underserved/ low income areas
CanAM Enterprises	Innovative capital financing tool
TranspoGroupAV	Create autonomous vehicles working group to create leadership in this space
RideAmigos	Interdisciplinary pilot to change commuter behavior in Century City and incentivize switching away from Single Occupancy Vehicle travel
Optibus	Address delays before they impact customers by alerting operations about buses that might be late for next trips
Skybus	Pilot vanpool to a suburban business park to prove concept and technology
Green Commuter	Use Tesla Model Xs for Metro employee vanpool, with the option to use the buses for other things during the day
aUniform	Demo of self-illuminating safety vests

Metro

UberPOOL + Expo Partnership

- **First successful partnership with a Transportation Network Company**
- **Completed in 6 weeks**
- **Spun off of an Unsolicited Proposal**
  - Over 10,000 people entered the Expo promotional codes offered by Uber (considered by Uber to be above average for events of this size and nature)
  - Uber brand ambassadors handed out 40,000 promo cards with the Metro logo
  - Cross promotional message reached customers across physical/ digital communication channels



Deal ends on Friday, June 3rd, at which point Metro and Uber will begin to debrief and analyze the impacts

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OEI Initiatives

- Strategic Plan
- Podcast / Metro Storytelling
- Transit Center Grant LOIs
- Mobility On Demand Sandbox
- Partner with NFL & Olympic Committee
- Legislative Advocacy / Research
  - P3 Authorization
  - Infrastructure Finance
  - Bus on Shoulder Ops

- Innovation Advisory Council
- Innovation Newsletter
- Ride Along with OEI
- Academic Fellowship
- Metro Internal Fellowships

Metro

Areas of Exploration

- P3 Project Development
- Core service provision
- Autonomous / Connected Vehicles
- TNCs / Regulations
- Pre-emption / Expo Speed
- Strategic Planning
- Customer Facing Tech
- Payment Integration
- Wi-Fi / 4G LTE
- Bio Science Partnerships
- Regional Rail

Metro

Most Pressing Challenge

Metro


Thank you
Metro

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

Metro

Board Report

File #: 2016-0286, **File Type:** Informational Report **Agenda Number:** 43

REGULAR BOARD MEETING
MAY 26, 2016

SUBJECT: CHIEF COMMUNICATIONS OFFICER QUARTERLY REPORT

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE the **Chief Communications Officer's Quarterly Report.**

ISSUE

The LA Metro Chief Communications Officer provides a quarterly update to the Board of Directors on the efforts of the Communications Department. The report covers accomplishments of the previous quarter and a look-ahead to the coming quarter. This report was held until the May Board cycle so that the CCO can provide an overview of the Potential Ballot Measure Public Input Process.

DISCUSSION

The Communications Team has had a number of accomplishments in the third-quarter of FY2016, January -March 2016.

Potential Ballot Measure Public Input Process

Upon the Board's release of the Potential Ballot Measure Draft Expenditure Plan in March, the Metro Communications Team began implementing a multi-faceted public outreach and input process across LA County.

As a continuation of the overarching Long Range Transportation Plan Education Program, the public input process has occurred through four main sectors of the community: Elected Officials Engagement, Key Stakeholder Engagement, Public Engagement, and Media Engagement.

From March-May 2016, Metro staff has done 100 stakeholder and community presentations and meetings, held nine public meetings and one virtual online meeting, and conducted 13 telephone town hall meetings.

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Public meeting outcome
A total of 510 people participated in the 10 public meetings - 452 attended the traditional public meetings and 58 attended the virtual online meeting. During the meetings, Metro asked the meeting audiences a series of five questions and utilized an electronic polling system to get immediate responses from the groups. When asked if they would vote for the sales tax measure if the election were held at that time, an average of 72 percent said they would vote for the tax.

Telephone town hall outcome
As another method to educate the public and get feedback on the plan, Metro hosted 13 telephone town hall meetings - one for each area represented by all Metro Board members. The live telephone forums provided an opportunity for thousands of people to engage with Board members and Metro staff, ask questions and provide input through live electronic polling.

Second Education Rollout
Another education campaign push on Metro's Plan to Ease Traffic began rolling out earlier this month through a variety of tactics including but not limited to bus and shelter ads; billboards; print advertising; news blogs and articles; press events showcasing project progress, radio spots; web updates; social media campaign; and educational videos.

Campaigns
"It's Off Limits" Sexual Harassment Campaign
Metro launched its latest campaign against sexual harassment called "It's Off Limits" on the bus and rail system. Through bus and rail adverting and Take One cards encouraging victims and witnesses to stand up against sexual harassment. In addition, Metro is utilizing digital media to encourage people to stand up and speak up against sexual harassment. Metro is one of the few transit agencies worldwide that surveys its customers on unwanted sexual contact including, but limited to, unwanted touching, gestures and indecent exposure. In two previous sexual harassment campaigns, Metro has succeeded in driving down reported incidents of sexual harassment from 22 percent to 19 percent, according to the semi-annual Customer Satisfaction Survey. In addition, the campaign has caused a 36 percent increase in reports of sexual harassment to the Los Angeles County Sheriff's Department, comparing the first quarter of 2014 to 2016.

Safety Outreach
From January-March 2016, the Transit Safety Program staff reached people nearly three million times through safety presentations, events, tours, outreach materials and ad impressions. The program conducted VIP Tours in preparation for the Opening of the Gold Line Foothill Extension, supported Media Relations Safety Event in February at the Arcadia Station with interviews of Rail Safety Ambassadors. In January, TSP participated in the Santa Monica State of the City Address, as well as continuing safety outreach in preparation of the opening of the Expo 2 Extension, including social media outreach using NextDoor to inform residents of rail testing schedules. The team partnered with Our Authors Study Club, Inc. (OASC) for a Black History Month tour of the Blue Line to promote ridership and rail safety.

Press and Special Events

The Communications Team planned and orchestrated 10 special events and news conferences in the third quarter. When Metro has a milestone, project or program to promote, the Public Relations Team determines the most effective and efficient way to optimize staff and financial resources to generate awareness and publicity for the agency's accomplishments. While some milestones are more conducive to a special event, others are better positioned to promote through a press event or news release and social media campaign. Major events highlighted include the Gold Line Extension opening, the Expo II opening date, the launch of the 501 express-service, and the expenditure plan.

Earned Media Summary

- News Releases: 25
- News Conferences/Special Events: 10
- Total Tracked News Coverage: 579
- Sentiment: 424 Positive, 45 Neutral, 110 Negative

Major Announcements: Gold Line Foothill Extension Opening, NoHo to Pasadena Service Launch, Crenshaw/LAX Tunnel Boring Machine, Expo Phase II opening announcement, Division 13 Opening, Industry Forum, Potential Ballot Measure.

Social Media

Social Media continued its strong momentum from 2015 and already generated over 22 million impressions across Facebook and Twitter for Q1 2016. The quick start to the year is due to a big social push promoting the Gold Line Extension opening and the PBM Education Program. Growth continues to trend upward as our fan base on Metro's Facebook page increased 40% and our follower base on Metro's Twitter account increased 15%. Implementation of additional Facebook tracking pixels and integration of TAP's database has increased our custom audience data on Facebook to over 1 million likely riders. More data means greater demographic and behavioral insights on our customers. The most successful social media campaign to date is the Expo Line Phase 2 announcement where we reached 1.2M people and generated almost 400K views of the stop motion graphic with a very efficient cost per view of $0.02. All of our social efforts January-March has helped garner over 960,000 page views on The Source, which already accounts for almost 50% of the total page views in 2015.

Community Meetings and Events

Community and Municipal Affairs has represented the agency at more than 200 meetings and events so far in FY16, reaching more than 60,000 people, distributing more than 335,000 notices about rail operations and leading 24 tours introducing people to our rail system. The staff continues to keep local elected officials and their staff updated and engaged on Metro programs and projects.

Construction Relations

Community Leadership Council (CLC) Meetings

- CLC Quarterly Meeting held on February 22 at Supervisor Mark Ridley-Thomas Expo Office. The agenda items included a tree-to-drums presentation, workgroup presentation updates and an

update on Crenshaw/LAX Joint Development. Supervisor Mark Ridley-Thomas was in attendance.

- Economic Development Workgroup was held on March 3 at the Crenshaw Project Office. The agenda items included presentations and updates on Business Assistance Programs, East Shop Play, and PLA/CCP & Joint Development.

- Community Engagement Workgroup was held March 22 at the Crenshaw Project Office. The agenda items included presentations on Walking Maps pilot program, community engagement program recap, Halfway There Community Celebration overview and Eat Shop Play updates. During the meeting we facilitated an activity and brainstorm where community stakeholders provided input on themes, organizations and businesses that should be included in the Walking Maps.

Community Engagement Programs

- Facilitated Tree-to-Drum donation programs including identifying local performing arts organizations recipients, presentation of drums and live performance during the CLC Quarterly Meeting.

- Facilitated Inglewood Youth Job Shadow Day on February 25 at Gateway and Union Station. The program matches Inglewood students with a business of their choice for a day in order to give the student a chance to experience first-hand how that business actually operates. During the job shadow day, these students toured Metro, learned about Metro's projects, programs, careers, and learned about how Metro's systems are operated. Select departments provided these students an overview their area of work in a short 10-minute presentations. The students also got a tour of Union Station.

Regional Connector

- The Mangrove 20-ft. sound wall signage is in place with GoLittleTokyo.com messaging, Metro messaging, and area parking locations. The 2nd phase installation which includes "Businesses Are Open" messaging in large scale will be completed shortly. This shared space design was created in partnership with Metro and Little Tokyo Community Council's Marketing & Advertising Team and is a unique response to a mitigation requirement addressing area business impacts.

- Metro Regional Connector's Business Assistance Center team partner, Asian Pacific Islander Small Business Program, announced a series of free workshops to assist small businesses advance through on-line marketing and financial planning. The announcement was made at the Business Assistance Center Open House on February 25th. The first workshop was held in April with others to come. Outreach to local businesses to engage them in promotional tactics to sustain their businesses during construction is on-going.

- Successfully implemented a county-wide outreach plan in support of the Little Tokyo Station track relocation (shoofly) which completed one-day ahead of schedule

- Successfully implemented outreach on four major road closures taking place along different segments of the project alignment:
    - 5-month closure of the intersection at 2nd/Broadway
    - 3 ½ year closure of northbound Flower St between 1st St and 3rd St
    - Lane reductions on the eastside of Flower St between 4th and 5th St as part of pile installation
    - Shoofly activities at 1st/Alameda

- Successfully kept stakeholders informed on the progress of construction project wide with very limited number of complaints; the team has been proactive in coordinating activities with stakeholders.

- The project successfully cleared the injunction on Flower St for pile installation.

- The project successfully completed bridge demolition at 2nd/Hope.

Crenshaw/LAX Transit Project

- Metro celebrated the naming of the Crenshaw/LAX Transit Project Tunnel Boring Machine (Harriet) with an event on February 1st attended by Mayor Eric Garcetti, Supervisor Mark Ridley-Thomas and other elected officials.

- Metro Construction Relations participated in the 2016 Empowerment Congress by hosting a table and disseminating project information on January 16th. In addition, Metro Construction Relations participated in the 2016 Kingdom Day Parade and Festival with Metro's antique bus and Director Jackie Dupont-Walker; Metro hosted two tables the festival in Leimert Park and featured information on hiring and outreach on January 18th.

- Metro Construction Relations used the January 28 Construction Update Community Meeting to focus on the Park Mesa Heights At-Grade Section; the meeting very contentious. Following the meeting, Metro Construction Relations joined CEO Phil Washington in a meeting with key stakeholders. Working with Phil Washington, Construction Relations was able to work closely with LADOT and WSCC to resolve several issues and hold a successful follow-up community meeting in February.

- Metro Construction Relations facilitated a meeting with tenants in the Union Equity Building to inform them of Metro's intent to purchase their buildings and eventually use them for parking at the Fairview Heights Station. Following the meeting Metro Construction Relations hosted a community meeting to inform the community about the process moving forward.

Purple Line Extension

- PLE attended approx. 50 briefings since January 1, 2016, including many to finalize the decision to proceed with 22 weekends for the La Brea decking. Outreach continues with marketing materials and ad buys in the works.

- Staff continues to meet weekly with LADOT and Elected Officials offices to coordinate traffic plans, street and sidewalk closures and any other disruptions to local traffic. Maintaining driver and pedestrian visibility is essential during major pile operations behind k-rail.

- Monthly Executive Coordination meetings have been scheduled with mayoral and city council staff along with city agency heads to review construction progress and outreach efforts. These meetings have been very beneficial and project staff has received compliments on our continued communication methods.

Eat, Shop, Play

- January - Organized Metro's participation in the 31st annual MLK Parade, 2M TV viewers (ABC). Metro staff and Director JDW rode in a 1950's bus to commemorate Rosa Parks
- February - Developed an exciting new public engagement campaign for 2016 called "Fortune Fridays" (CLAX, PLE, RC), to launch in May
- March - Recruited 5x new sponsors for the CLAX March cash prize drawing ($500 and $250 levels)

Other

- Arranged to have 4x project-area restaurants add "The Harriet" to their menus, in honor of the Metro TBM (permanent menu items)

- Put together x6 Play Meet Up events at Gateway

- Start of outreach for Metro Red Line Pershing Square Escalator Replacement Project.

- Completed signage placement discussions for Universal Pedestrian Bridge Project

Mitigations that Attract Regional Interest in Small Area Businesses (January)
Working to ease access to small businesses during construction, Metro initiated a two-hour free parking validation program in Little Tokyo, 1 of 3 remaining Japan-towns in the nation. The program design was forged by Metro working with Little Tokyo business leaders and local parking operators at the initial phase of the Gold Line service interruption. Today, approximately 200 businesses in the heart of Little Tokyo partner with Metro to promote the validation program with their customers. The validation program will be in effect through August 2016, the anticipated beginning of the tunneling operation. Metro's social media team has also promoted the unique cultural, entertainment and culinary experiences of the area while working with local organizations to attract visitors. Since January 2016, the Regional Connector's Facebook audience alone has grown by 46%.

Business Assistance Center Launches Workshop Series (February)
Metro's Regional Connector construction and community relations staff and the Regional Connector

Business Assistance Center team partner, Asian Pacific Islander Small Business Program, announced a series of free workshops to assist small businesses advance through on-line marketing and financial planning. The announcement was made at the BAC Open House on February 25th. The first workshop will be held in April, with others to follow May and June. Outreach to local businesses, to engage them in adopting promotional tactics to bolster business during construction, is on-going.

Supporting Business & Sustaining Culture through Public Messaging (March)
The first phase of the Mangrove 20 ft. Sound wall signage design is in place with "culturally appropriate" GoLittleTokyo.com messaging, Metro transit accomplishments and area parking directional signage. The second phase installation which includes "Business Are Open" in large scale will be completed shortly. This shared space design was created in partnership with Metro and Little Tokyo Community Council's Marketing & Advertising Team and is a unique response to a mitigation requirement addressing area business impacts.

Government Relations
Federal and State

- Metro Government Relations is closely tracking several major federal grant opportunities - including the new FASTLANE grant and the existing TIGER grant program, among others. Metro will be vigorously competing for these valuable federal grants by working with key stakeholders, including members of the Los Angeles County Congressional Delegation.

- Metro Government Relations is closely tracking the Federal Fiscal Year 2017 appropriations process - where we are working to secure $375 million in New Starts funding for our rail transit projects.

- Metro's Government Relations staff has effectively worked to thoroughly brief our State Legislative Delegation and our Congressional Delegation and partners in the Administration through a number of legislative briefings on details related to our Potential Ballot Measure for public comment.

- Metro's Government Relations staff has reviewed over 2,000 bills introduced in the Senate and Assembly for the CA State Legislature and will be bringing bills forward for Board consideration throughout the coming months.

Expo II Extension Grand Opening
The grand opening of Metro's Expo 2 Extension on Friday, May 20 kicks off with a VIP train ride for Metro Board Members, staff, elected officials and community leaders to the opening ceremony at the Downtown Santa Monica Station at 4th and Colorado. After the official opening of the line, the public will be able to ride the Expo Line for free through Friday night.

Staff collaborated with communities along the new extension for the station parties on Saturday, May 21. The local communities planned their own station parties with Metro support to showcase the unique characteristics of their communities. Free rides for the public will continue throughout the day

and evening on May 21.

Customer Service

Customer Relations and Customer Programs and Services

- Answered 484,391 calls in 3rd quarter on 323.GOMETRO compared to 581,105 2nd quarter calls answered); NOTE: 3RD quarter FY16 is low due to missing statistical data from 1/28 - 2/16/16 on server side; compared to 3rd quarter in FY15 total was 599,714 calls answered)

- Average wait time for customer calls from January - March 2016 was 15 seconds

- Processed 34,404 reduced fare orders in 3rd quarter (student/college/seniors/disabled)

Net TAP Revenue Sales

- FY16 2nd quarter for ALL Customer Service Centers - $1,705,778.

- FY16 3rd quarter for ALL Customer Service Centers - $1,623,092.

Customer Commute Services

Annual/Business Transit Access Pass (A/BTAP) Sales Update

Metro Commute Services started 30 new accounts this quarter, 29 BTAP accounts and 1 ATAP account. A direct link to the Employer Programs page has been added to the Metro.net home page, along with an online form to collect information on potential leads electronically. 9% of new leads came via the online form in during the first week that it was operational.

UPASS

Initial Internal Stakeholder and External Task Force meetings were held in March and April. Eighteen (18) schools attended the External Task Force Meeting. Staff has identified the first step as transitioning current ITAP participants and schools reloading monthly College/Vocational (C/V) passes onsite via CPOS into a pilot program. Metro and the schools agree that the elimination of the full-time unit requirement and the use of TAP chip sticker technology to transition away from the C/V application process would be beneficial to increase program participation. Also, a one-time purchase agreement was made with Los Angeles City College (LACC) to purchase 1,000 pre-loaded 12-week student TAP cards for participants in their Extended Opportunity Programs & Services (EOP&S). A similar program is being discussed for a 10-week student internship program at Jet Propulsion Laboratory (JPL).

Promotional Employer Pass Program

Staff has designed a short-term Promotional Employer Pass Program (PEPP), which, if approved, will boost ridership on new lines, while providing employers a chance to “test drive” employer pass programs without making a long-term commitment. Passes would be made available for a reduced fare rate for a 3-month trial period. The one-time promotional program would only be open to new employers along new service corridors, and the employers would be required to make a one-time

payment upfront for 10% of their employees. The employers would also be required to collect TAP registration data and Title IV analysis aggregate data. The goal is that employers will get a better understanding of the benefits of providing transit passes to employees and will ultimately transition into an Employer Annual Pass Program (EAPP).

FINANCIAL IMPACT

No financial impact.

NEXT STEPS

The Communications Team will continue the education program for the potential ballot measure including reporting the results from the public poll being conducted in May. The team will also share the outcome of the first Measure R Quality of Life Report highlighting the benefits being realized through current local investment in transportation.

Prepared by: Pauletta Tonilas, Chief Communications Officer, (213) 922-3777

Reviewed by: Phillip A. Washington, Chief Executive Officer, (213) 922-7555

Phillip A. Washington
Chief Executive Officer

Chief Communications Officer Quarterly Report

May 26, 2016

Metro

Education Campaigns

- Gold Line Extension
- Expo 2 Extension
- Safety and Security Campaign
- “It’s Off Limits” Sexual Harassment Awareness Campaign

Metro

Expo 2 Grand Opening Reach

- Total national reach: 3.06 billion (web, print, TV, radio)
- Trended on Twitter for six hours
- Generated over 4.8 million impressions on digital media
- Five videos garnered over 1 million views including live viewing of train breaking banner
- The Source earned 69,500 views

Metro

Press and Special Events

- Planned and orchestrated 10 special events and news conferences
  - Transformation Through Transportation Industry Forum
  - 501 NoHo to Pasadena Express
  - Gold Line Extension Opening
  - Draft Expenditure Plan Media Briefing

Metro

Earned Media

- 25 news releases distributed from Jan.-March
- 579 media stores about Metro or mentioning Metro
  - 81 percent of those stories were positive or neutral

Metro

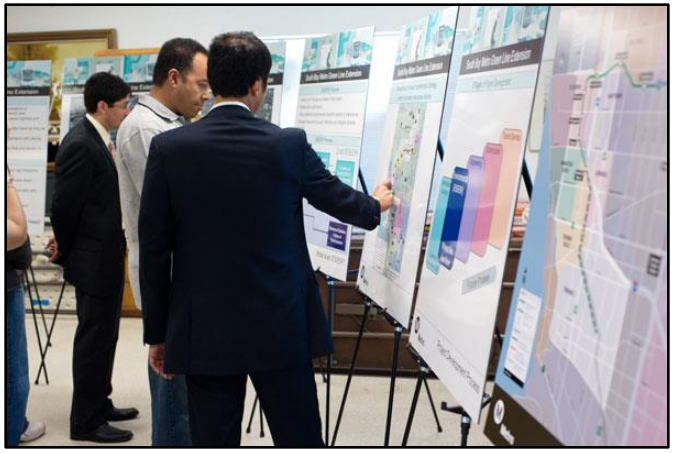
Social Media

- Have generated over 22 million impressions across the main Metro Facebook and Twitter channels
- Likes on Metro's Facebook page has increased 40% and followers on Metro's main Twitter account has increased 15%
- 960,000 page views generated on The Source
- Most successful social media campaign to date is Expo 2 campaign featuring motion graphics

Metro

Community Relations Activities

- From Jan.-March 2016, staff reached more than 60,000 people at more than 200 public meetings and events
- The Safety Outreach program reached people nearly three million times through safety events, presentations, tours, materials and ad impressions



Metro

Construction Relations Activities

- Held various stakeholder meetings, workshops and briefings
- Broadened reach of Eat, Shop, Play
- Held Crenshaw/LAX Tunnel Boring Machine event
- Enhanced mitigations of Regional Connector impacts
- Conducted extensive outreach about upcoming Purple Line Extension closure for La Brea decking

Metro

Government Relations

State

- Reviewed over 2,000 bills introduced in Senate and Assembly
- Presenting bills and coordinating and communicating Board positions on various bills
- Held numerous delegation briefings on potential ballot measure

Metro

Government Relations

Federal

- Tracking several major grant opportunities
  - FASTLANE and TIGER grant programs
- Working to secure $375 million in New Starts funding for FY17
- Held numerous delegation briefings on potential ballot measure

Metro

Customer Service

- Answered 484,000 calls in 3rd quarter FY16
  - Down from 2nd quarter due to missing data from server error
- Average wait time for customer calls from Jan-March was 15 seconds
- 34,400 reduced fare applications processed
- Evaluating expansion of customer centers around the county
- Implementing a mobile customer center

Metro

Commute Services

- Coordinated development of UPASS program to increase ridership among college/university students
- Designed short-term Promotional Employee Pass Program for businesses along new lines
- Increased fare per boarding collections on A/BTAP

Metro

Potential Ballot Measure Activities

- Provided 85 stakeholder and community presentations
- Developed PBM fact sheet
- Held round of focus groups
- Held media briefings
- Revised creative and launched second phase of outdoor ad and social media campaigns

Look-Ahead

- Southwestern Yard Groundbreaking – May 27
- Quality of Life Report Rollout – May 31
- Public Poll Presentation to Board – June 15/16
- Downtown Bike Share Launch – July 8
- Red Line/Orange Line Ped Tunnel – July

Metro

Draft Expenditure Plan

Public Input Summary

Metro

Public Input Received in Many Ways

- **9** Metro-hosted public meetings throughout the County
- **1** Metro-hosted virtual online public meeting
- **2** Co-hosted public meetings
- **14** Telephone Town Halls
- **84 meetings** attended by Metro staff
- Voice mail
- Written comments received by
  - US Mail
  - E-mail
  - Comment cards at public meetings
  - Written on flip charts at public meetings
  - Social Media

Public Meeting Overview

- **9** Metro-hosted public meetings throughout the County
- **1** Virtual Meeting
- **2** Co-hosted Public Meetings
- **563** Attendees
- **702** Written Comments
- **485** Participated in live polling about The Plan
- **73%** would vote for the proposed sales tax

Telephone Town Hall Overview

- **14** Telephone Town Halls
- **47,947 participants**
- **219 people** asked questions live
- **455 people** left voice mail messages
- **81%** would support continuing the tax to keep the system in good working condition (1198 Respondents)
- **68%** would vote for the proposed sales tax if the election were held today (929 Respondents)
- **835** listened to podcasts after the live town halls

Social Media Overview

- Reached **2.9 million people** in LA County
- Generated **28,945 likes**
- Drove **119,117 clicks** to plan and project posts on *The Source*
- **126,656 people** took action
  - Facebook defines “taking action” as the number of unique people who have liked, shared or commented on posts
- Nearly **45,000 page views** of the “The Plan” website

1,535 Written Public Comments

- Key stakeholders
  - 77 letters from elected officials, cities, organizations
- General Public
  - 316 Emails
  - 440 Social Media Posts
  - 147 Comment Cards
  - 555 Public Meeting Comments (Flip Charts)

Community/Stakeholder Presentations

- Metro staff educated/participated in **84 meetings** hosted by others where Draft Expenditure Plan was presented and/or discussed
  - COGs
  - City Councils
  - Chambers of commerce/business groups
  - Key institutions
  - Service organizations
  - Civic associations
  - Neighborhood councils
  - Homeowner groups
  - Community events

Major Themes: **General**

- Build fewer projects, get them done faster
- Support 50-year sales tax so more projects could be built
- Increase Local Return
- Transit Connectivity: Support for Transit-Oriented Communities (TOC), Complete Streets, First/Last Mile, Green Streets, Active Transportation Projects
- Provide more funding for rail and bus; less for highways
- Provide more funding for highways
- Continue sales tax to keep the system in good working condition
- Increase quality and reliability of bus and rail service

Major Themes: **Projects**

- **Orange Line:** Grade-separate, convert to LRT, connect to Burbank Airport and Gold Line
- **Sepulveda Pass:** Accelerate and connect Van Nuys LRT
- **Crenshaw North Extension:** Accelerate
- **Green Line Extension to Torrance:** Accelerate
- **West Santa Ana Branch:** Accelerate
- **Gold Line Eastside Extension:** Accelerate
- **First/Last Mile and Active Transportation:** Provide more Funding
- **Metrolink:** Service expansion/improvements
- **I-5 Widening between I-605/I-710:** Accelerate
- **SR-710:** Non-tunnel alternatives
- **Crenshaw Line:** Build Park Mesa Tunnel/Vermont Corridor

Major Themes: **Rail**

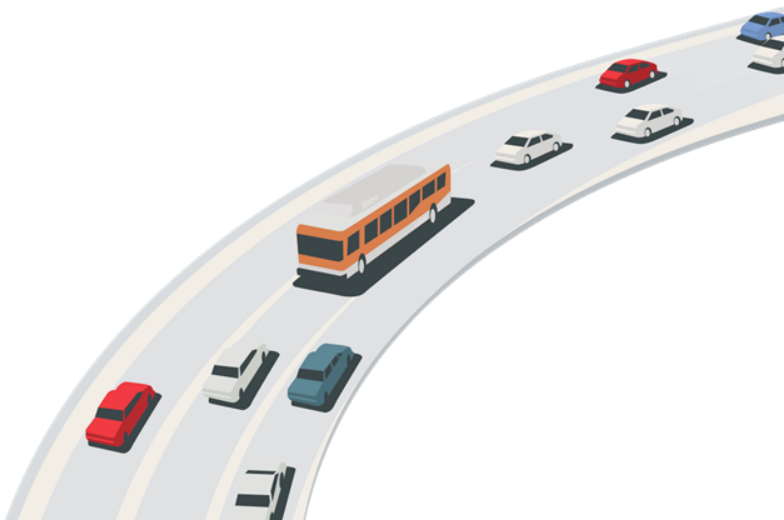
- Build more rail lines faster
- Grade-separate lines
- Improve bus/rail connections
- Provide more parking at stations
- Upgrade BRT to LRT (Orange Line)
- Improve safety, amenities and maintenance at stations
- Provide better wayfinding signage
- Provide more money for Metrolink

Major Themes: **Bus**

- Increase bus service, especially to housing, employment and education centers
- Increase service to CSUN
- Provide more BRT lines to serve major transit corridors and connect to rail lines
- Improve the quality and reliability of bus service, especially in communities of color
- Improve safety, amenities and maintenance at stops
- Improve wayfinding signage
- Expand DASH and Express bus service
- Utilize technology for improved bus/rail integration

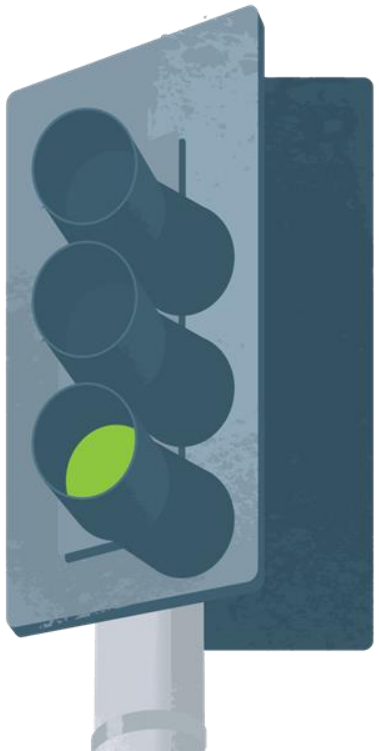
Major Themes: **Streets & Highways**

- More HOV or Toll Lanes
- Fix potholes and sidewalks
- Improve streets for safer pedestrian use by seniors, children and the disabled
- Spend less money on highways and more money on transit
- State of Good Repair should apply to streets and highways as well as transit



Major Themes: **Local Funding**

- Increase Local Return to 25% for street repairs, Complete Streets, First/Last Mile and Active Transportation
- Do not increase Local Return
- Smaller, disadvantaged cities need their fair share of funding for transit services, street repairs and bicycle and pedestrian improvements
- Local Return funding formulas should be based on population, employment and housing growth
- Require cities to use part of funding for road maintenance



Key Stakeholders Submitting Comments

Organization Name	Organization Name
• Congressmember Adam B. Schiff	• Paramount, Mayor Daryl Hofmeyer
• Congressmember Lucille Roybal-Allard and Congressmember Linda T. Sanchez	• Signal Hill, Former Mayor Larry Forester and Mayor Lori Y. Woods
• Senator Kevin De Leon, Senator Tony Mendoza and Senator Ricardo Lara	• Redondo Beach, City Manager Joseph M. Hoefgen
• Assemblymember Richard Bloom	• La Canada Flintridge, City Manager Mark R. Alexander
• West Hollywood, Councilmember Lindsey Horvath	• South Pasadena, City Manager Sergio Gonzalez
• Santa Fe Springs, Mayor Richard J. Moore	• Rancho Palos Verdes, City Manager Doug Willmore
• Long Beach, Mayor Robert Garcia	• Hawthorne, City Manager Arnold Shadbehr
• Temple City, Mayor Vincent Yu	• Alhambra, Deputy City Manager Mary Chavez
• Commerce, Mayor Ivan Altamirano and City Administrator Jorge Rifa	• Glendale, Mayor Paula Devine
• Carson, City Administrator Cecil Rhambo	• Lakewood, Mayor Ron Piazza

Key Stakeholders Submitting Comments

Organization Name	Organization Name
• Torrance, Mayor Patrick J. Furey	• Arcadia, Mayor Tom Beck
• South Gate, Mayor W. H. Bill De Witt	• Bradbury, Councilmember Bruce Lathrop
• Los Angeles, Council Member David Ryu	• Marsha McLean, Council Member, City of Santa Clarita
• Arroyo Verdugo Cities	• South Bay Cities Council of Governments
• Southern California Association of Governments - SCAG	• San Fernando Valley Council of Governments
• I-5 Consortium Cities Joint Power Authority	• Gateway Cities Council of Governments
• Caltrans – District 7	• Santa Clarita Valley Chamber of Commerce
• LA Fashion District, Arts District and South Park Business Improvement Districts	• Encino Chamber of Commerce
• Cedars-Sinai	• American Cancer Society
• Los Angeles County Business Federation (BizFed)	• Central City Association
• Torrance Chamber of Commerce	• Valley Industry and Commerce Association (VICA)
• Bell Gardens, Norwalk, SFS and CIC Chambers of Commerce	• Commerce Industrial Council

Key Stakeholders Submitting Comments

Organization Name	Organization Name
• Rancho Cold Storage	• Metrolink
• Los Angeles County Municipal Operators Association	• Sherman Oaks Homeowner's Association
• Automobile Club of Southern California (AAA)	• Black Community, Clergy and Labor Alliance
• Move LA	• Climate Resolve
• No 710 Action Committee	• Brentwood Community Council
• South Brentwood Residents Association	• Enviro Metro
• Coalition for Environmental Health and Justice	• Investing in Place and Los Angeles County Bicycle Coalition
• Fixing Angelenos Stuck in Traffic (FAST)	• Sierra Club
• Neighborhood Housing Services	• Strategic Actions for a Just Economy and others
• Beyond the 710	• North County Transportation Coalition
• Coalition for a Safe Environment and Maglev Technology, Inc.	• It's Our Turn (SFV)
• HBK Investments, LLC – Factory Place Arts District	

Public Input Collection

- All input will be compiled into one notebook
- Binder with all feedback will be available in the Board Office for review starting in June
- An electronic copy will also be available no later than posting of June Board Report


Go Metro
Metro Rapid
Go Metro
Metro Rail
Thank you
Metro

Board Report

File #: 2016-0359, **File Type:** Informational Report **Agenda Number:** 51.

REVISED
REGULAR BOARD MEETING
JUNE 23, 2016

SUBJECT: DRAFT LONG RANGE TRANSPORTATION PLAN FINANCIAL MODEL INFORMATION FOR THE POTENTIAL BALLOT MEASURE EXPENDITURE PLAN

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE **Financial Forecasting Model Information for the Potential Ballot Measure Expenditure Plan**.

ISSUE

In April 2016, the Metro Board of Directors approved a motion by Directors Knabe, Dubois and Butts, instructing the CEO to "report to the Board with copies of the draft 'Financial Forecasting Model for the potential Ballot Measure Expenditure Plan' for review and discussion by the Board" at the May Board Meeting (Motion, Attachment A). In response to the Motion staff is providing the attached information about major transit and highway projects from the current Long Range Transportation Plan (LRTP) Financial Model (Attachment B), as compared with the Draft Potential Ballot Measure Expenditure Plan.

DISCUSSION

The LRTP is a thirty-year action plan identifying project priorities and schedules for the region, including those approved through Measure R, last adopted in 2009. The next LRTP may be longer to better capture anticipated benefits of projects proposed through the potential ballot measure. The process for updating the LRTP is a multi-year effort that is anticipated to be complete in 2017.

The Financial Forecast Model Update (the Model) of costs and available resources for the LRTP projects is presented annually to include changing assumptions and current economic conditions. The last Financial Forecast Update was presented to the Board in June 2015. The Model has been updated and one copy is provided to each Board Office with this report. The public may view the Model online at https://media.metro.net/docs/LRTP_Financial_Forecast_Update_3-30-16.pdf. The development of the Potential Ballot Measure and its Draft Expenditure Plan is ongoing. Staff anticipated providing the model in June 2016, with a request to adopt the Potential Ballot Measure Ordinance. To properly prepare for this integration a consultant was hired in late November to upgrade the computer based financial model for greater capacity and integration of financial best management practices. Time was not sufficient to fully integrate the new computer model with the base of the Metro Board approved LRTP ending in 2040, and the Plan, which includes 50 years of

additional revenues and expenditures beyond 2017.

Attachment C was created in partial response to the Motion. It provides information from the Model as compared to the emerging recommendations for the Expenditure Plan, for all major highway and transit projects shown in the Expenditure Plan.

FINANCIAL IMPACT

The attached information will have no impact on the FY 2016 Budget as the necessary expenditures have already been included in the FY 2016 Budget.

ALTERNATIVES CONSIDERED

Due to the complexity of the modeling effort involved, Metro staff could not provide the fully detailed Financial Forecast Model in the time available. We considered and ruled out providing incomplete work and decided instead to focus on modeling and providing the major project detail found in Attachment C. With respect to the substance of the information provided, numerous alternatives were considered in response to the request from the Metro Board of Directors. The preliminary recommended information here represents the best combination of the existing and Potential Ballot Measure funding to maximize the acceleration of major project schedules consistent with prior actions of the Metro Board of Directors.

One substantive alternative considered was a lower level of State Regional Improvement Program (RIP) funds in FY 2022 and beyond. We first considered $100 million per year in these funds, consistent with our prior modeling, and then considered up to $150 million per year of these funds. Given the ongoing work by the Governor and the State legislature to address declining amount and value of State fuel tax revenues, we determined it was prudent to recommend the $150 million per year level of State RIP funding beginning with the new years to be programmed in the 2018 State Transportation Improvement Program, FY 2022. This is consistent with a Statewide level of STIP funds of approximately $900 million per year. While bringing this assumption into fruition will require actions of the State Legislature and the Governor, we believe it is appropriate for the Metro Board of Directors to plan for how it wants these revenues to be deployed to accomplish the Potential Ballot Measure Expenditure Plan."

NEXT STEPS

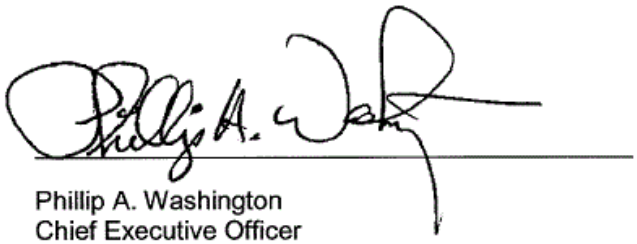
The information and action items scheduled to be presented to the Metro Board in June include: an updated Model; a draft ordinance; taxpayer oversight recommendations; a summary of public input and outreach; and other related potential ballot measure requests.

ATTACHMENTS

Attachment A - April 14, 2016 Construction Committee Motion by Directors Knabe, Dubois and Butts
Attachment B - LRTP Financial Forecasting Model Update
Attachment C - Comparison of LRTP Financial Forecasting Model with the Potential Ballot Measure Expenditure Plan

Prepared by: David Yale, Managing Executive Officer, (213) 922-2469
Kalieh Honish, Deputy Executive Officer, (213) 922-7109
Mark Linsenmayer, Director, (213) 922-2475

Reviewed by: Therese McMillan, Chief Planning Officer, (213)922-7077



Phillip A. Washington
Chief Executive Officer

MTA Construction Committee
April 14, 2016

MOTION BY
DIRECTOR KNABE, DUBOIS AND BUTTS

Financial Forecasting Model for PBM Expenditure Plan

According to Metro, additional funding through a proposed ballot measure for transportation is needed to deliver a comprehensive list of transportation projects that will reshape Los Angeles County for the next 40-50 years, many of these projects were originally proposed under Measure R, a half-cent sales tax approved by the voters in 2008 for a period of 30 years. Metro is working very hard to deliver the projects promised by Measure R.

In order to ensure that the Board has the information needed to evaluate the financial impact of the proposed ballot measure and to ensure that the projects promised in the potential ballot measure are appropriately funded over time, to ensure the ultimate delivery of these projects to the voters, the CEO should provide the Board with Metro staff's draft "Financial Forecasting Model for the Potential Ballot Measure Expenditure Plan" for review and discussion by the Board.

The Metro Board must look closely at the programs and projects in the Financial Forecasting Model for the Potential Ballot Measure Expenditure Plan and to evaluate the assumptions and cash flow in the model to determine if the assumptions and the funding levels are sound. The Board must also receive additional information and a clearer picture of the financial assumptions to consider whether the amount of funding that would be presented to the voters and promised under the Potential Ballot Measure (and based on our experience with Measure R) can indeed be met.

WE, THEREFORE, MOVE THAT THE BOARD:

Instruct the CEO to report to the Board during the May 2016 Board cycle with copies of the draft "Financial Forecasting Model for the Potential Ballot Measure Expenditure Plan" for review and discussion by the Board at the May 26, 2016 Board meeting.

ATTACHMENT B

Long Range Transportation Plan (LRTP) Financial Model

Document Available Online at:

https://media.metro.net/docs/LRTP_Financial_Forecast_Update_3-30-16.pdf

Airport Metro Connector (Crenshaw/LAX Accomm., AMC Transit Station)

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2016 2017	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025
Prop. A 35%	6.8		6.8	6.8	-	-						6.8			
Proposition C 25%	12.9		12.9	12.9	-	-	-		-			3.2	9.7		
Proposition R 35%	-		-	-	-	-								-	-
Measure M -Transit Construction (35%)	-		-	-	-	-									
TIGER	-		-	-	-	-									
Local Agency	-		-	-	-	-									
Lease revenues	-		-	-	-	-						-			
Measure R TIFIA Loan	-		-	-	-	-									
Measure R 35% ($200) (FIS 460303)	200.0	12.8	190.8	187.2	-	-	4.9	10.5	99.9	25.1	35.0	8.4	3.4		-
CMAQ	33.2	18.7	33.2	14.5	-	-	14.5	-	-			-	-	-	-
RSTP	-		-	-	-	-									
Total Revenues	**252.9**	**31.5**	**243.7**	**221.4**	**-**	**-**	**19.4**	**10.5**	**99.9**	**25.1**	**35.0**	**18.4**	**13.1**	**-**	**-**

Potential Ballot Measure

Prop. A 35%	6.8		6.8	6.8	-	-	-	-	-	-	-	6.8	-	-	-
Proposition C 25%	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition R 35%	-		-	-	-	-									
Measure M -Transit Construction (35%)	337.7		337.7	337.7	-	-	-	-	43.0	-	9.7	87.4	133.2	64.4	-
TIGER	33.3		33.3	33.3	-	-	-	-	-	-	-	4.6	28.7	-	-
Local Agency	18.9		18.9	18.9	-	-	-	-	-	-	-	-	-	18.9	-
Lease revenues	-		-	-	-	-									
Measure R TIFIA Loan	-		-	-	-	-									
Measure R 35% ($200) (FIS 460303)	200.0	12.8	190.8	187.2	-	-	4.9	19.2	52.3	49.8	61.0	-	-	-	-
CMAQ	33.2	18.7	33.2	14.5	-	-	14.5	-	-	-	-	-	-	-	-
RSTP	-		-	-	-	-									
Total Revenues	**629.9**	**31.5**	**620.7**	**598.4**	**-**	**-**	**19.4**	**19.2**	**95.2**	**49.8**	**70.7**	**98.8**	**161.9**	**83.3**	**-**

Difference

Prop. A 35%	0.0	-	0.0	0.0	-	-	-	-	-	-	-	0.0	-	-	-
Proposition C 25%	(12.9)	-	(12.9)	(12.9)	-	-	-	-	-	-	-	(3.2)	(9.7)	-	-
Proposition R 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	337.7	-	337.7	337.7	-	-	-	-	43.0	-	9.7	87.4	133.2	64.4	-
TIGER	33.3	-	33.3	33.3	-	-	-	-	-	-	-	4.6	28.7	-	-
Local Agency	18.9	-	18.9	18.9	-	-	-	-	-	-	-	-	-	18.9	-
Lease revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R TIFIA Loan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R 35% ($200) (FIS 460303)	-	-	-	-	-	-	-	8.6	(47.6)	24.8	26.0	(8.4)	(3.4)	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	**377.0**	**-**	**377.0**	**377.0**	**-**	**-**	**-**	**8.6**	**(4.6)**	**24.8**	**35.7**	**80.4**	**148.8**	**83.3**	**-**

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Sepulveda Pass Transit Corridor (Ph 2)

2016 LRTP Update

($ in millions) Rev. Service Date 6/30/2039	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2023 2024	2024 2025	2025 2026	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034
PROJECT REVENUES																	
Proposition C 25%	106.9		106.9	-	106.9	-									34.1	44.0	17.8
Proposition C 40% Cash	302.5		302.5	-	302.5	-				-	-	-	-			102.0	52.0
Measure R 35%	1,000.0	0.32	999.7	-	999.7	-								-			
Local Agency Funds (3% of costs)	74.0		74.0	-	74.0	-										17.0	57.0
Measure M -Transit Construction (35%)	-		-	-	-	-											
Regional Improvement Prog (RIP)-PPM	1.0	1.0	-	-	-	-											
Section 5309 - New Starts	900.0		900.0	-	900.0	-	-	-	-	-					100.0	100.0	100.0
Toll Revenue -Sepulveda Pass	83.7		83.7	-	83.7	-									2.6		25.3
RSTP	-		-	-	-	-											
Total Revenues	2,468.0	1.32	2,466.7	-	2,466.7	-	-	-	-	-	-	-	-	-	136.7	263.0	252.0

Potential Ballot Measure

PROJECT REVENUES																	
Proposition C 25%	-		-	-	-	-											
Proposition C 40% Cash	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R 35%	1,000.0	0.32	999.7	-	999.7	-	-	-	-	-	-	162.1	398.8	462.0	316.3	10.5	(200.0)
Local Agency Funds (3% of costs)	234.2		234.2	-	234.2	-	-	-	-	-	-	-	-	-	234.2	-	-
Measure M -Transit Construction (35%)	3,922.7		3,922.7	47.6	3,875.0	-	47.6	147.1	353.6	266.2	385.9	546.1	527.4	579.4	708.7	360.6	-
Regional Improvement Prog (RIP)-PPM	1.0	1.0	-	-	-	-											
Section 5309 - New Starts	1,750.0		1,750.0	-	1,750.0	-	-	-	-	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Toll Revenue -Sepulveda Pass	900.0		900.0	18.2	881.8	-	18.2	56.1	134.9	108.8	154.5	83.2	52.0	53.0	123.9	115.4	
RSTP	-		-	-	-	-											
Total Revenues	7,807.9	1.32	7,806.6	65.8	7,740.7	-	65.8	203.2	488.5	575.0	740.4	991.4	1,178.2	1,294.4	1,583.1	686.6	

Difference

PROJECT REVENUES																	
Proposition C 25%	(106.9)	-	(106.9)	-	(106.9)	-	-	-	-	-	-	-	-	-	(34.1)	(44.0)	(17.8)
Proposition C 40% Cash	(302.5)	-	(302.5)	-	(302.5)	-	-	-	-	-	-	-	-	-	-	(102.0)	(52.0)
Measure R 35%	0.0	-	0.0	-	0.0	-	-	-	-	-	-	162.1	398.8	462.0	316.3	10.5	(200.0)
Local Agency Funds (3% of costs)	160.2	-	160.2	-	160.2	-	-	-	-	-	-	-	-	-	234.2	(17.0)	(57.0)
Measure M -Transit Construction (35%)	3,922.7	-	3,922.7	47.6	3,875.0	-	47.6	147.1	353.6	266.2	385.9	546.1	527.4	579.4	708.7	360.6	-
Regional Improvement Prog (RIP)-PPM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Section 5309 - New Starts	850.0	-	850.0	-	850.0	-	-	-	-	200.0	200.0	200.0	200.0	200.0	100.0	100.0	100.0
Toll Revenue -Sepulveda Pass	816.3	-	816.3	18.2	798.1	-	18.2	56.1	134.9	108.8	154.5	83.2	52.0	53.0	121.3	115.4	(25.3)
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	5,339.9	-	5,339.9	65.8	5,274.1	-	65.8	203.2	488.5	575.0	740.4	991.4	1,178.2	1,294.4	1,446.4	423.6	(252.0)

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Sepulveda Pass Transit Corridor (Ph 2)

2016 LRTP Update

($ in millions) Rev. Service Date 6/30/2039	Project Total	2034 2035	2035 2036	2036 2037	2037 2038	2038 2039	2039 2040	2040 2041	2041 2042	2042 2043	2043 2044	2044 2045	2045 2046	2046 2047	2047 2048	2048 2049	2049 2050
PROJECT REVENUES																	
Proposition C 25%	106.9	45.4	4.2	7.3	7.5	(13.335)	(40.0)										
Proposition C 40% Cash	302.5	100.0	48.4														
Measure R 35%	1,000.0	-	-	143.1	527.6	329.0											
Local Agency Funds (3% of costs)	74.0		-														
Measure M -Transit Construction (35%)	-																
Regional Improvement Prog (RIP)-PPM	1.0																
Section 5309 - New Starts	900.0	100.0	100.0	100.0	100.0	100.0	100.0										
Toll Revenue -Sepulveda Pass	83.7	3.0	4.5	13.8	12.8	21.8											
RSTP	-			-	-												
Total Revenues	2,468.0	248.4	157.2	264.2	647.9	437.4	60.0	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

PROJECT REVENUES																	
Proposition C 25%	-																
Proposition C 40% Cash	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R 35%	1,000.0	(100.0)	(50.0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Funds (3% of costs)	234.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	3,922.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog (RIP)-PPM	1.0																
Section 5309 - New Starts	1,750.0	100.0	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toll Revenue -Sepulveda Pass	900.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-																
Total Revenues	7,807.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Difference

PROJECT REVENUES																	
Proposition C 25%	(106.9)	(45.4)	(4.2)	(7.3)	(7.5)	13.335	40.0	-	-	-	-	-	-	-	-	-	-
Proposition C 40% Cash	(302.5)	(100.0)	(48.4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R 35%	0.0	(100.0)	(50.0)	(143.1)	(527.6)	(329.0)	-	-	-	-	-	-	-	-	-	-	-
Local Agency Funds (3% of costs)	160.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	3,922.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog (RIP)-PPM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Section 5309 - New Starts	850.0	-	(50.0)	(100.0)	(100.0)	(100.0)	(100.0)	-	-	-	-	-	-	-	-	-	-
Toll Revenue -Sepulveda Pass	816.3	(3.0)	(4.5)	(13.8)	(12.8)	(21.8)	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	5,339.9	(248.4)	(157.2)	(264.2)	(647.9)	(437.4)	(60.0)	-	-	-	-	-	-	-	-	-	-

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Gold Line Eastside Extension One Alignment

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026	2026 2027
Prop. A 35%	3.5	3.5	-	-	-	-										
Prop. C 40%	4.5	4.5	-	-	-	-										
Proposition C 25%	210.7		210.7	-	210.7	-										
TIRCP	-		-	-	-	-										
Measure R 35%	1,271.0	0.7	1,270.3	-	1,270.3	-									6.8	10.4
Measure M -Transit Construction (35%)	-		-	-	-	-										
Repay Capital Projects Loan Fund	13.9	12.0	3.9	1.9	-	-										
Local Agency Funds (3% of costs)	74.7		74.7	-	74.7	-										
Regional Improvement Prog Funds (RIP)	0.5	0.5	-	-	-	-										
CMAQ	-		-	-	-	-										
Total Revenues	1,578.7	21.1	1,559.6	1.9	1,555.7	-	-	-	-	-	-	-	-	-	6.8	10.4

Potential Ballot Measure

Prop. A 35%	3.5	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40%	4.5	4.5	-	-	-	-										
Proposition C 25%	578.9		578.9	-	578.9	-	-	-	-	-	-	-	-	-	-	-
TIRCP	273.0		273.0	-	273.0	-	-	-	-	-	-	-	-	-	-	-
Measure R 35%	1,271.7	0.7	1,271.0	-	1,271.0	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	1,640.2		1,640.2	-	1,640.2	-	-	-	-	-	-	-	-	-	-	-
Repay Capital Projects Loan Fund	12.0	12.0	-	-	-	-										
Local Agency Funds (3% of costs)	135.9		135.9	-	135.9	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	463.1	0.5	462.6	-	462.6	-	-	-	-	-	-	-	-	-	-	-
CMAQ	169.2		169.2	-	169.2	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	4,551.9	21.1	4,530.8	-	4,530.8	-	-	-	-	-	-	-	-	-	-	-

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition C 25%	368.1	-	368.1	-	368.1	-	-	-	-	-	-	-	-	-	-	-
TIRCP	273.0	-	273.0	-	273.0	-	-	-	-	-	-	-	-	-	-	-
Measure R 35%	0.8	-	0.8	-	0.8	-	-	-	-	-	-	-	-	-	(6.8)	(10.4)
Measure M -Transit Construction (35%)	1,640.2	-	1,640.2	-	1,640.2	-	-	-	-	-	-	-	-	-	-	-
Repay Capital Projects Loan Fund	(1.9)	-	(3.9)	(1.9)	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Funds (3% of costs)	61.2	-	61.2	-	61.2	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	462.6	-	462.6	-	462.6	-	-	-	-	-	-	-	-	-	-	-
CMAQ	169.2	-	169.2	-	169.2	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	2,973.2	-	2,971.2	(1.9)	2,975.1	-	-	-	-	-	-	-	-	-	(6.8)	(10.4)

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Gold Line Eastside Extension One Alignment

($ in millions)	Project Total	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034	2034 2035	2035 2036	2036 2037	2037 2038	2038 2039	2039 2040	2040 2041	2041 2042	2042 2043
Prop. A 35%	3.5																
Prop. C 40%	4.5																
Proposition C 25%	210.7					83.0	212.4	113.7	(25.5)	13.7	(122.1)	(64.5)					
TIRCP	-																
Measure R 35%	1,271.0	14.4	138.8	229.2	251.0	241.7		63.3	120.1	8.1	122.1	64.5					
Measure M -Transit Construction (35%)	-																
Repay Capital Projects Loan Fund	13.9																
Local Agency Funds (3% of costs)	74.7		-	-			74.7										
Regional Improvement Prog Funds (RIP)	0.5																
CMAQ	-																
Total Revenues	1,578.7	14.4	138.8	229.2	251.0	324.7	287.1	176.9	94.6	21.8	-	-	-	-			

Prop. A 35%	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40%	4.5																
Proposition C 25%	578.9	-	-	-	-	-	-	383.0	195.9	-	-	-	-	-	-	-	-
TIRCP	273.0	-	39.0	39.0	39.0	39.0	39.0	39.0	39.0	-	-	-	-	-	-	-	-
Measure R 35%	1,271.7	-	63.8	117.7	226.1	382.6	480.7	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	1,640.2	-	58.4	90.2	154.8	239.2	328.5	507.6	261.4	-	-	-	-	-	-	-	-
Repay Capital Projects Loan Fund	12.0																
Local Agency Funds (3% of costs)	135.9	-	-	-	-	-	-	-	135.9	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	463.1	-	-	-	-	-	-	412.6	50.0	-	-	-	-	-	-	-	-
CMAQ	169.2	-	-	2.3	7.7	-	59.3	60.0	40.0	-	-	-	-	-	-	-	-
Total Revenues	4,551.9	-	161.2	249.2	427.6	660.8	907.5	1,402.2	722.2	-	-	-	-	-			

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition C 25%	368.1	-	-	-	-	(83.0)	(212.4)	269.3	221.3	(13.7)	122.1	64.5	-	-	-	-	-
TIRCP	273.0	-	39.0	39.0	39.0	39.0	39.0	39.0	39.0	-	-	-	-	-	-	-	-
Measure R 35%	0.8	(14.4)	(75.0)	(111.5)	(24.9)	140.9	480.7	(63.3)	(120.1)	(8.1)	(122.1)	(64.5)	-	-	-	-	-
Measure M -Transit Construction (35%)	1,640.2	-	58.4	90.2	154.8	239.2	328.5	507.6	261.4	-	-	-	-	-	-	-	-
Repay Capital Projects Loan Fund	(1.9)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Funds (3% of costs)	61.2	-	-	-	-	-	(74.7)	-	135.9	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	462.6	-	-	-	-	-	-	412.6	50.0	-	-	-	-	-	-	-	-
CMAQ	169.2	-	-	2.3	7.7	-	59.3	60.0	40.0	-	-	-	-	-	-	-	-
Total Revenues	2,973.2	(14.4)	22.4	20.0	176.6	336.1	620.4	1,225.3	627.6	(21.8)	(0.0)	-	-	-			

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South Bay Green Line Extension

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2028 2029	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034	2034 2035	2035 2036	2036 2037	2037 2038	2038 2039
PROJECT REVENUES																	
Prop. A 35%	3.1	3.1	-	-	-	-											
Repay Capital Projects Loan Fund	2.6	6.2	(3.2)	-	(3.6)	-	-		(3.6)								
Local Agency Funds (3% of costs)	16.6		16.6	-	16.6	-						16.6					
Measure R 35% $272	272.0	0.005	272.0	-	272.0	-	8.9	19.5	16.7	66.2						48.7	112.0
Measure M -Transit(35%)	0.0	0.005	-	-	-	-											
Prop C - Discretionary (40%)	0.0	0.005	-	-	-	-											
Prop C 25%	229.9	5.195	224.7	-	224.7	-				15.8	129.5	125.7	85.2	29.2		(48.7)	(112.0)
CMAQ	30.8		30.8	-	30.8	-		10.8	20.0						-	-	-
RSTP	-		-	-	-	-						-		-			
Total Revenues	555.0	14.5	540.9	-	540.5	-	8.9	30.3	33.1	82.0	129.5	142.3	85.2	29.2	-	-	-

Potential Ballot Measure

Prop. A 35%	3.1	3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repay Capital Projects Loan Fund	6.2	6.2	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Funds (3% of costs)	40.8		40.8	-	40.8	-	-	-	-	-	-	-	40.8	-	-	-	-
Measure R 35% $272	272.0	0.005	272.0	-	272.0	-	-	-	-	-	90.3	160.5	21.2	-	-	-	-
Measure M -Transit(35%)	949.3	0.005	949.3	-	949.3	-	-	-	44.1	136.4	234.1	385.8	149.0	-	-	-	-
Prop C - Discretionary (40%)	0.0	0.005	-	-	-	-											
Prop C 25%	5.2	5.2	-	-	-	-											
CMAQ	82.1		82.1	-	82.1	-	-	-	18.4	56.7	7.1	-	-	-	-	-	-
RSTP	-		-	-	-	-											
Total Revenues	1,358.7	14.5	1,344.6	-	1,344.2	-	-	-	62.5	193.1	331.4	546.2	211.0	-	-	-	-

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repay Capital Projects Loan Fund	3.6	-	3.6	-	3.6	-	-	-	3.6	-	-	-	-	-	-	-	-
Local Agency Funds (3% of costs)	24.2	-	24.2	-	24.2	-	-	-	-	-	-	(16.6)	40.8	-	-	-	-
Measure R 35% $272	0.0	-	0.0	-	0.0	-	(8.9)	(19.5)	(16.7)	(66.2)	90.3	160.5	21.2	-	-	(48.7)	(112.0)
Measure M -Transit(35%)	949.3	-	949.3	-	949.3	-	-	-	44.1	136.4	234.1	385.8	149.0	-	-	-	-
Prop C - Discretionary (40%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C 25%	(224.7)	-	(224.7)	-	(224.7)	-	-	-	-	(15.8)	(129.5)	(125.7)	(85.2)	(29.2)	-	48.7	112.0
CMAQ	51.3	-	51.3	-	51.3	-	-	(10.8)	(1.6)	56.7	7.1	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	803.7	-	803.7	-	803.7	-	(8.9)	(30.3)	29.4	111.1	201.9	403.9	125.8	(29.2)	-	-	-

DRAFT

I-710 South Corridor Project (Ph 1 & Ph 2) -- Revised

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2016 2017	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026
PROJECT REVENUES																
Local Agency Funds (3% of costs)	0.9	0.9	-	-	-	-										
Measure R - Highway (20%)	430.0	0.6	429.4	37.6	391.8	-	8.0	6.0	10.0	8.6	5.0					26.8
Prop C 25%	43.2	5.4	37.8	37.8	-	-			11.6	26.2						-
Measure M -Highway (17%)	-		-	-	-	-										
TCRP	-		-	-	-	-										
Regional Improvement Program (RIP)	146.9		146.9	53.0	93.9	-	-	-	-	-		37.1	15.9	-	-	-
CMAQ	7.7		7.7	-	7.7	-	-	-	-	-			-	-	-	-
RSTP	54.9		54.9	-	54.9	-										
Total Revenues	683.6	6.9	676.6	128.4	548.3	-	8.0	6.0	21.6	34.8	5.0	37.1	15.9	-	-	26.8

Potential Ballot Measure

Local Agency Funds (3% of costs)	0.9	0.9	-	-	-	-										
Measure R - Highway (20%)	412.8	0.6	412.2	37.6	374.6	-	8.0	6.0	10.0	8.6	5.0			-	-	17.6 ~~5.5~~
Prop C 25%	745.5	5.4	740.1	37.8	702.3	-			11.6	26.2				-	-	-
Measure M -Highway (17%)	763.0	-	748.6	-	748.6	14.4								-	-	9.2
TCRP	-	-	-	-	-	-										
Regional Improvement Program (RIP)	156.1	-	118.2	53.0	65.3	37.9	-	-	-	-		37.1	15.9	-	-	-
CMAQ	-	-	-	-	-	-										
RSTP	-	-	-	-	-	-										
Total Revenues	2,078.3	6.9	2,019.2	128.4	1,890.8	52.2	8.0	6.0	21.6	34.8	5.0	37.1	15.9	-	-	26.8

Difference

Local Agency Funds (3% of costs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R - Highway (20%)	(17.2)	-	(17.2)	-	(17.2)	-	-	-	-	-	-	-	-	-	-	(9.2)
Prop C 25%	702.3	-	702.3	-	702.3	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway (17%)	763.0	-	748.6	-	748.6	14.4	-	-	-	-	-	-	-	-	-	9.2
TCRP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Program (RIP)	9.2	-	(28.6)	-	(28.6)	37.9	-	-	-	-	-	-	-	-	-	-
CMAQ	(7.7)	-	(7.7)	-	(7.7)	-	-	-	-	-	-	-	-	-	-	-
RSTP	(54.9)	-	(54.9)	-	(54.9)	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	1,394.8	-	1,342.6	-	1,342.6	52.2	-	-	-	-	-	-	-	-	-	0.0

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I-710 South Corridor Project (Ph 1 & Ph 2) -- Revised

($ in millions)	Project Total	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034	2034 2035	2035 2036	2036 2037	2037 2038	2038 2039	2039 2040	2040 2041
PROJECT REVENUES																
Local Agency Funds (3% of costs)	0.9															
Measure R - Highway (20%)	430.0	20.0	20.0	10.0	10.0	25.0	57.0	65.0	28.0	130.0						
Prop C 25%	43.2															
Measure M -Highway (17%)	-															
TCRP	-															
Regional Improvement Program (RIP)	146.9	-	-	-		-	-	-		50.0	31.2	12.7		-	-	-
CMAQ	7.7	-	-	-	-	7.7	-									
RSTP	54.9					6.5	2.3			3.9	4.5	11.9	8.4	8.7	8.6	-
Total Revenues	683.6	20.0	20.0	10.0	10.0	39.2	59.3	65.0	28.0	183.9	35.7	24.6	8.4	8.7	8.6	-

Local Agency Funds (3% of costs)	0.9															
Measure R - Highway (20%)	412.8	13.3	13.7	2.7 ~~40.3~~	51.9	53.5	57.6	69.7	90.5	~~102.6~~ 4.1	-	-	-	-	-	-
Prop C 25%	745.5	-	-	-	-	-	-	-	-	120.3 ~~138.1~~	138.0 ~~158~~	147.6	115.5	95.1	85.8	-
Measure M -Highway (17%)	763.0	22.2	22.8	67.2	86.5	89.1	58.7	26.5	38.9	60.2	90.9	63.8	43.8	36.1	32.6	14.4
TCRP	-															
Regional Improvement Program (RIP)	156.1	-	-	-	-	-	-	-	-	16.3	28.4 ~~81.4~~	20.6	-	-	-	37.9
CMAQ	-															
RSTP	-															
Total Revenues	2,078.3	35.5	36.5	69.9	138.4	142.6	116.3	96.2	129.4	200.9	257.3	232.0	159.3	131.2	118.4	52.2

Local Agency Funds (3% of costs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R - Highway (20%)	(17.2)	(6.7)	(6.3)	(7.3)	41.9	28.5	0.6	4.7	62.5	(125.9)	-	-	-	-	-	-
Prop C 25%	702.3	-	-	-	-	-	-	-	-	120.3	138.0	147.6	115.5	95.1	85.8	-
Measure M -Highway (17%)	763.0	22.2	22.8	67.2	86.5	89.1	58.7	26.5	38.9	60.2	90.9	63.8	43.8	36.1	32.6	14.4
TCRP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Program (RIP)	9.2	-	-	-	-	-	-	-	-	(33.7)	(2.8)	7.9	-	-	-	37.9
CMAQ	(7.7)	-	-	-	-	(7.7)	-	-	-	-	-	-	-	-	-	-
RSTP	(54.9)	-	-	-	-	(6.5)	(2.3)	-	-	(3.9)	(4.5)	(11.9)	(8.4)	(8.7)	(8.6)	-
Total Revenues	1,394.8	15.5	16.5	~~59.9~~ 97.5	128.4	103.4	57.0	31.2	~~101.4~~ 113.5	~~17.0~~ 34.8	~~221.6~~ -- 294.6	207.4	150.9	122.5	109.7	52.2

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I5_605_710

I-5 Corridor Improvements (I-605 to I-710)

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2038 2039	2039 2040	2040 2041	2041 2042	2042 2043	2043 2044	2044 2045	2045 2046	2046 2047	2047 2048
Proposition C 25%	-		-	-	-	-										
Meas R 20%	-		-	-	-	-										
CMAQ	-	-	-	-	-	-										
RSTP	-	-	-	-	-	-										
Regional Improvement Funds (RIP)	-	-	-	-	-	-										
Measure M -Highway (17%)	-	-	-	-	-	-										
SHOPP	-	-	-	-	-	-										
	-	-	-	-	-	-										
Total Revenues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Potential Ballot Measure

Proposition C 25%	90.0		-	-	-	90.0	-	-	-	-	6.6	19.3	24.8	25.6	13.7	-
Meas R 20%	-		-	-	-	-										
CMAQ	-		-	-	-	-										
RSTP	-		-	-	-	-										
Regional Improvement Funds (RIP)	9.0		-	-	-	9.0	-	-	2.6	6.4	-	-	-	-	-	-
Measure M -Highway (17%)	2,275.4		-	-	-	2,275.4	-	-	60.9	146.3	150.7	443.5	571.0	588.1	315.0	-
SHOPP	-															
	-		-	-	-	-										
Total Revenues	**2,374.4**	**-**	**-**	**-**	**-**	**2,374.4**	**-**	**-**	**63.5**	**152.7**	**157.3**	**462.8**	**595.8**	**613.7**	**328.7**	**-**

Difference

Proposition C 25%	90.0	-	-	-	-	90.0	-	-	-	-	6.6	19.3	24.8	25.6	13.7	-
Meas R 20%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Funds (RIP)	9.011	-	-	-	-	9.0	-	-	2.6	6.4	-	-	-	-	-	-
Measure M -Highway (17%)	2,275.350	-	-	-	-	2,275.4	-	-	60.9	146.3	150.7	443.5	571.0	588.1	315.0	-
SHOPP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	**2,374.4**	**-**	**-**	**-**	**-**	**2,374.4**	**-**	**-**	**63.5**	**152.7**	**157.3**	**462.8**	**595.8**	**613.7**	**328.7**	**-**

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405to110

I-405/I-110 HOV Ramps & Intrchng Improv

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2038 2039	2039 2040	2040 2041	2041 2042	2042 2043	2043 2044	2044 2045	2045 2046	2046 2047
Proposition C 25%	-		-	-	-	-									
Meas R 20%	-		-	-	-	-									
CMAQ	-	-	-	-	-	-									
RSTP	-	-	-	-	-	-									
Regional Improvement Funds (RIP)	-	-	-	-	-	-									
Measure R Extend -Highway (17%)	-	-	-	-	-	-									
SHOPP	-	-	-	-	-	-									
	-	-	-	-	-	-									
Total Revenues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Potential Ballot Measure

Proposition C 25%	-		-	-	-	-									
Meas R 20%	-		-	-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Regional Improvement Funds (RIP)	-		-	-	-	-									
Measure R Extend -Highway (17%)	508.330		-	-	-	508.3	-	-	-	148.0	203.3	157.0	-	-	-
SHOPP	-														
	-		-	-	-	-									
Total Revenues	**508.3**	**-**	**-**	**-**	**-**	**508.3**	**-**	**-**	**-**	**148.0**	**203.3**	**157.0**	**-**	**-**	**-**

Difference

Proposition C 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meas R 20%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Funds (RIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SHOPP	508.3	-	-	-	-	508.3	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	**508.3**	**-**	**-**	**-**	**-**	**508.3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

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605_10

I-605/I-10 Interchange

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2040 2041	2041 2042	2042 2043	2043 2044	2044 2045	2045 2046	2046 2047	2047 2048	2048 2049	2049 2050	2050 2051
Proposition C 25%	-		-	-	-	-											
Prop C 10%	-		-	-	-	-											
Measure R 2%	-		-	-	-	-											
CMAQ	-		-	-	-	-											
Measure R Extend -Highway (17%)	-		-	-	-	-											
RSTP - Transit	-			-	-	-											
Total Revenues	-	-	-	-	-	-											

Potential Ballot Measure

Proposition C 25%	970.9		-	-	-	970.9	-	-	-	59.3	427.9	451.2	32.4	-	-	-	-
Prop C 10%	-		-	-	-	-											
Measure R 2%	-		-	-	-	-											
CMAQ	-		-	-	-	-											
Measure R Extend -Highway (17%)	274.3		-	-	-	274.3	-	-	15.4	15.8	114.1	120.4	8.7	-	-	-	-
RSTP - Transit	-			-	-	-											
Total Revenues	1,245.2	-	-	-	-	1,245.2											

Difference

Proposition C 25%	970.9	-	-	-	-	970.9	-	-	-	59.3	427.9	451.2	32.4	-	-	-	-
Prop C 10%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R 2%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R Extend -Highway (17%)	274.3	-	-	-	-	274.3	-	-	15.4	15.8	114.1	120.4	8.7	-	-	-	-
RSTP - Transit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	1,245.2	-	-	-	-	1,245.2											

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SR 60/I-605 Inter HOV Direct Connect

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2038 2039	2039 2040	2040 2041	2041 2042	2042 2043	2043 2044	2044 2045	2045 2046	2046 2047	2047 2048
Prop. A 35%	-		-	-	-	-										
Prop. C 40%	-		-	-	-	-										
Measure R - Highway Projects (20%)	-		-	-	-	-										
Prop C - 25%	-		-	-	-	-										
Local Agency Transit Contributions	-		-	-	-	-										
Measure R Extend -Highway (17%)	-		-	-	-	-										
Interregional Improvement Program (IIP)																
Regional Improvement Prog Funds (RIP)	-		-	-	-	-										
CMAQ	-		-	-	-	-										
RSTP	-		-	-	-	-										
Total Revenues	-	-	-	-	-	-	-	-								

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-										
Prop. C 40%	-		-	-	-	-										
Measure R - Highway Projects (20%)	-		-	-	-	-										
Prop C - 25%	774.1		-	-	-	774.1	-	-	-	-	33.0	45.3	326.6	344.4	24.8	-
Local Agency Transit Contributions	-		-	-	-	-										
Measure R Extend -Highway (17%)	283.0		-	-	-	283.0	-	-	-	-	15.9	16.3	117.8	124.2	8.9	-
Interregional Improvement Program (IIP)																
Regional Improvement Prog Funds (RIP)	11.0		-	-	-	11.0	-	-	-	-	11.0	-	-	-	-	-
CMAQ	-		-	-	-	-										
RSTP	-		-	-	-	-										
Total Revenues	1,068.1	-	-	-	-	1,068.1	-	-								

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R - Highway Projects (20%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - 25%	774.1	-	-	-	-	774.1	-	-	-	-	33.0	45.3	326.6	344.4	24.8	-
Local Agency Transit Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R Extend -Highway (17%)	283.0	-	-	-	-	283.0	-	-	-	-	15.9	16.3	117.8	124.2	8.9	-
Interregional Improvement Program (IIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	11.0	-	-	-	-	11.0	-	-	-	-	11.0	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	1,068.1	-	-	-	-	1,068.1	-	-								

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I-110 Express Lane So to 405/110 Inter

2016 LRTP Update

	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2017 2018	2038 2039	2039 2040	2040 2041	2041 2042	2042 2043	2043 2044	2044 2045	2045 2046	2046 2047
Congestion Mitigation & Air Quality	-		-	-	-	-		-	-							
Regional Improvement Program Funds (RIP)	-		-	-	-	-										
Local Agency Funds	-		-	-	-	-										
Prop C - 25%	-		-	-	-	-										
Local Agency Transit Contributions	-		-	-	-	-										
Measure M -Highway (17%)	-		-	-	-	-										
Section 5339 - Alternatives Analysis	-		-	-	-	-										
Total Revenues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Potential Ballot Measure

Congestion Mitigation & Air Quality	165.20		-	-	-	165.2	-	-	-	-	-	-	60.0	60.0	45.2	-
Regional Improvement Program Funds (RIP)	195.74		-	-	-	195.7	-	-	-	-	-	-	67.0	65.3	63.4	-
Local Agency Funds	-		-	-	-	-										
Prop C - 25%	131.96		-	-	-	132.0	-	-	-	-	-	-	16.5	71.8	43.7	-
Local Agency Transit Contributions	-		-	-	-	-										
Measure M -Highway (17%)	111.10		-	-	-	111.1	-	-	-	-	-	-	32.4	44.4	34.3	-
Section 5339 - Alternatives Analysis	-		-	-	-	-										
Total Revenues	**604.0**	**-**	**-**	**-**	**-**	**604.0**	**-**	**-**	**-**	**-**	**-**	**-**	**175.9**	**241.5**	**186.6**	**-**

Difference

Congestion Mitigation & Air Quality	165.20	-	-	-	-	165.2	-	-	-	-	-	-	60.0	60.0	45.2	-
Regional Improvement Program Funds (RIP)	195.74	-	-	-	-	195.7	-	-	-	-	-	-	67.0	65.3	63.4	-
Local Agency Funds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - 25%	131.96	-	-	-	-	132.0	-	-	-	-	-	-	16.5	71.8	43.7	-
Local Agency Transit Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway (17%)	111.10	-	-	-	-	111.1	-	-	-	-	-	-	32.4	44.4	34.3	-
Section 5339 - Alternatives Analysis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	**604.0**	**-**	**-**	**-**	**-**	**604.0**	**-**	**-**	**-**	**-**	**-**	**-**	**175.9**	**241.5**	**186.6**	**-**

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I-405 South Bay Curve Improvements

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2041 2042	2042 2043	2043 2044	2044 2045	2045 2046	2046 2047	2047 2048	2048 2049	2049 2050
Prop. A 35%	-		-	-	-	-									
Prop. C 40% Direct Cash	-		-	-	-	-									
Measure R - Highway (20%)	-		-	-	-	-									
Prop C - 25%	-		-	-	-	-									
Local Agency Transit Contributions	-		-	-	-	-									
Measure M Extend -Highway (17%)	-		-	-	-	-									
TCRP	-														
Interregional Improvement Program (IIP)															
Regional Improvement Program (RIP)	-			-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-									
Prop. C 40% Direct Cash	-		-	-	-	-									
Measure R - Highway (20%)	-		-	-	-	-									
Prop C - 25%	72.840		-	-	-	72.8	-	-	-	-	12.1	60.8	-	-	-
Local Agency Transit Contributions	-		-	-	-	-									
Measure M Extend -Highway (17%)	333.290		-	-	-	333.3	-	-	-	97.1	133.3	103.0	-	-	-
TCRP	-		-	-	-	-									
Interregional Improvement Program (IIP)	-		-	-	-	-									
Regional Improvement Program (RIP)	484.560		-	-	-	484.6	-	-	-	162.3	210.8	111.4	-	-	-
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	**890.7**	**-**	**-**	**-**	**-**	**890.7**	**-**	**-**	**-**	**259.4**	**356.2**	**275.2**	**-**	**-**	**-**

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40% Direct Cash	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R - Highway (20%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - 25%	72.840	-	-	-	-	72.8	-	-	-	-	12.1	60.8	-	-	-
Local Agency Transit Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M Extend -Highway (17%)	333.290	-	-	-	-	333.3	-	-	-	97.1	133.3	103.0	-	-	-
TCRP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interregional Improvement Program (IIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Program (RIP)	484.560	-	-	-	-	484.6	-	-	-	162.3	210.8	111.4	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	**890.7**	**-**	**-**	**-**	**-**	**890.7**	**-**	**-**	**-**	**259.4**	**356.2**	**275.2**	**-**	**-**	**-**

DRAFT

Crenshaw Northern Extension

Yellow Book

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2039 2040	2040 2041	2041 2042	2042 2043	2043 2044	2044 2045	2045 2046	2046 2047	2047 2048	2048 2049	2049 2050
Prop. A 35%	-		-	-	-	-											
Prop. C 40%	-		-	-	-	-											
Proposition C 25%	-		-	-	-	-											
Local Agency Funds	-		-	-	-	-											
Measure M -Transit (35%)	-		-	-	-	-											
CMAQ	-		-	-	-	-											
RSTP	-		-	-	-	-											
Total Revenues	-	-	-	-	-	-	-										

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-											
Prop. C 40%	-		-	-	-	-											
Proposition C 25%	-		-	-	-	-											
Local Agency Funds	149.0		-	-	-	149.0	-	-	-	-	-	-	43.9	105.1	-	-	-
Measure M -Transit (35%)	3,870.2		-	-	-	3,870.2	-	162.0	234.2	430.0	685.6	856.1	1,254.5	447.7	(200.0)	-	-
CMAQ	-		-	-	-	-											
RSTP	-		-	-	-	-											
Total Revenues	4,019.3	-	-	-	-	4,019.3	-										

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition C 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Funds	149.0	-	-	-	-	149.0	-	-	-	-	-	-	43.9	105.1	-	-	-
Measure M -Transit (35%)	3,870.2	-	-	-	-	3,870.2	-	162.0	234.2	430.0	685.6	856.1	1,254.5	447.7	(200.0)	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	4,019.3	-	-	-	-	4,019.3	-										

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Sepulveda Pass Westwood to LAX (Ph 3)

Yellow Book

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2047 2048	2048 2049	2049 2050	2050 2051	2051 2052	2052 2053	2053 2054	2054 2055	2055 2056	2056 2057	2057 2058	2058 2059
Prop. A 35%	-		-	-	-	-												
Prop. C 40%	-		-	-	-	-												
Proposition C 25%	-		-	-	-	-												
PBM - Augment	-		-	-	-	-												
Measure M - Transit Capital - (35%)	-		-	-	-	-												
Local Agency Funds (3% of costs)	-		-	-	-	-												
Interregional Improvement Program (IIP)																		
Regional Improvement Prog Funds (RIP)	-		-	-	-	-												
Section 5309 - New Starts	-		-	-	-	-												
CMAQ	-		-	-	-	-												
Toll Revenue	-		-	-	-	-												
Total Revenues	-	-	-	-	-	-												

Potential Ballot Measure

Prop. A 35%	647.1		-	-	-	647.1	-	-	12.0	263.6	371.6	-	-	-	-	-	-	-
Prop. C 40%	6,165.7		-	-	-	6,165.7	-	-	-	-	-	660.0	######	######	######	662.7	(200.0)	(200.0)
Proposition C 25%	-		-	-	-	-												
PBM - Augment	-		-	-	-	-												
Measure M - Transit Capital - (35%)	181.8		-	-	-	181.8	16.3	6.6	16.3	25.1	37.9	26.6	18.3	15.1	13.6	6.0	-	-
Local Agency Funds (3% of costs)	324.3		-	-	-	324.3	-	-	-	-	-	324.3	-	-	-	-	-	-
Interregional Improvement Program (IIP)																		
Regional Improvement Prog Funds (RIP)	31.2		-	-	-	31.2	-	31.2	-	-	-	-	-	-	-	-	-	-
Section 5309 - New Starts	-		-	-	-	-												
CMAQ	174.5		-	-	-	174.5	31.5	23.0	-	-	-	-	-	-	60.0	60.0	-	-
Toll Revenue	1,485.0		-	-	-	1,485.0	43.2	20.7	448.2	307.6	415.6	161.7	22.0	22.0	22.0	22.0	-	-
Total Revenues	9,009.5	-	-	-	-	9,009.5												

Difference

Prop. A 35%	647.1	-	-	-	-	647.1	-	-	12.0	263.6	371.6	-	-	-	-	-	-	-
Prop. C 40%	6,165.7	-	-	-	-	6,165.7	-	-	-	-	-	660.0	######	######	######	662.7	(200.0)	(200.0)
Proposition C 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PBM - Augment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M - Transit Capital - (35%)	181.8	-	-	-	-	181.8	16.3	6.6	16.3	25.1	37.9	26.6	18.3	15.1	13.6	6.0	-	-
Local Agency Funds (3% of costs)	324.3	-	-	-	-	324.3	-	-	-	-	-	324.3	-	-	-	-	-	-
Interregional Improvement Program (IIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	31.2	-	-	-	-	31.2	-	31.2	-	-	-	-	-	-	-	-	-	-
Section 5309 - New Starts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	174.5	-	-	-	-	174.5	31.5	23.0	-	-	-	-	-	-	60.0	60.0	-	-
Toll Revenue	1,485.0	-	-	-	-	1,485.0	43.2	20.7	448.2	307.6	415.6	161.7	22.0	22.0	22.0	22.0	-	-
Total Revenues	9,009.5	-	-	-	-	9,009.5												

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Lincoln Blvd BRT

Yellc

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2048 2049	2049 2050	2050 2051	2051 2052	2052 2053	2053 2054	2054 2055	2055 2056
Prop. A 35%	-		-	-	-	-								
Prop. C 40%	-		-	-	-	-								
Proposition C 25%	-		-	-	-	-								
Local Agency Transit Contributions	-		-	-	-	-								
Measure M Extend -Transit (35%)	-		-	-	-	-								
Interregional Improvement Program (IIP)														
Regional Improvement Prog Funds (RIP)	-		-	-	-	-								
CMAQ	-		-	-	-	-								
RSTP	-		-	-	-	-								
Total Revenues	-	-	-	-	-	-								

Pot

Prop. A 35%	-		-	-	-	-								
Prop. C 40%	-		-	-	-	-								
Proposition C 25%	-		-	-	-	-								
Local Agency Transit Contributions	8.2		-	-	-	8.2	-	-	-	-	-	8.2	-	-
Measure M Extend -Transit (35%)	266.1		-	-	-	266.1	-	12.8	39.4	67.6	111.5	34.8	-	-
Interregional Improvement Program (IIP)	-		-	-	-	-								
Regional Improvement Prog Funds (RIP)	-		-	-	-	-								
CMAQ	-		-	-	-	-								
RSTP	-		-	-	-	-								
Total Revenues	274.3	-	-	-	-	274.3								

Dif

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition C 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Transit Contributions	8.2	-	-	-	-	8.2	-	-	-	-	-	8.2	-	-
Measure M Extend -Transit (35%)	266.1	-	-	-	-	266.1	-	12.8	39.4	67.6	111.5	34.8	-	-
Interregional Improvement Program (IIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	274.3	-	-	-	-	274.3								

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Green Line Eastern Extension (Norwalk)

Yellow Book

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2049 2050	2050 2051	2051 2052	2052 2053	2053 2054	2054 2055	2055 2056	2056 2057	2057 2058
Prop. A 35%	-		-	-	-	-									
Prop. C 40% Direct Cash	-		-	-	-	-									
Proposition C 25%	-		-	-	-	-									
Local Agency Transit Contributions	-		-	-	-	-									
TCRP	-														
Interregional Improvement Program (IIP)															
Regional Improvement Program (RIP)	-			-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Potential Ballot Measure

Prop. A 35%	2,161.4		-	-	-	2,161.4	-	79.3	122.5	210.4	325.0	446.3	689.6	288.3	-
Prop. C 40% Direct Cash	-		-	-	-	-									
Proposition C 25%	-		-	-	-	-									
Local Agency Transit Contributions	66.8		-	-	-	66.8	-	-	-	-	-	-	-	66.8	-
TCRP	-														
Interregional Improvement Program (IIP)															
Regional Improvement Program (RIP)	-			-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	**2,228.3**	**-**	**-**	**-**	**-**	**2,228.3**	**-**	**79.3**	**122.5**	**210.4**	**325.0**	**446.3**	**689.6**	**355.1**	**-**

Difference

Prop. A 35%	2,161.4	-	-	-	-	2,161.4	-	79.3	122.5	210.4	325.0	446.3	689.6	288.3	-
Prop. C 40% Direct Cash	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition C 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Transit Contributions	66.8	-	-	-	-	66.8	-	-	-	-	-	-	-	66.8	-
TCRP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interregional Improvement Program (IIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Program (RIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	**2,228.3**	**-**	**-**	**-**	**-**	**2,228.3**	**-**	**79.3**	**122.5**	**210.4**	**325.0**	**446.3**	**689.6**	**355.1**	**-**

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Orange Line Conversion to Light Rail

Yellow Book

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2049 2050	2050 2051	2051 2052	2052 2053	2053 2054	2054 2055	2055 2056	2056 2057	2057 2058
Interregional Improvement Program (IIP)	-														
Prop C - 25%	-														
Local Agency Transit Contributions	-														
Regional Improvement Prog Funds-Transit	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R Extend -Transit Construction (35%)	-		-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-		-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-		-	-	-	-									
Total Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

	-		-	-	-	-									
Interregional Improvement Program (IIP)	-		-	-	-	-									
Prop C - 25%	2,181.4		-	-	-	2,181.4	-	-	-	93.2	371.3	541.4	880.5	295.0	-
Local Agency Transit Contributions	124.1		-	-	-	124.1	-	-	-	-	-	-	-	124.1	-
Regional Improvement Prog Funds-Transit	782.4		-	-	-	782.4	-	109.9	169.8	198.3	79.1	77.1	75.1	73.0	-
Measure R Extend -Transit Construction (35%)	1,047.6		-	-	-	1,047.6	-	37.3	57.6	98.9	152.8	209.8	324.2	167.0	-
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	4,135.4	-	-	-	-	4,135.4	-	147.2	227.4	390.4	603.2	828.3	1,279.8	659.1	-

Difference

	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interregional Improvement Program (IIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - 25%	2,181.4	-	-	-	-	2,181.4	-	-	-	93.2	371.3	541.4	880.5	295.0	-
Local Agency Transit Contributions	124.1	-	-	-	-	124.1	-	-	-	-	-	-	-	124.1	-
Regional Improvement Prog Funds-Transit	782.4	-	-	-	-	782.4	-	109.9	169.8	198.3	79.1	77.1	75.1	73.0	-
Measure R Extend -Transit Construction (35%)	1,047.6	-	-	-	-	1,047.6	-	37.3	57.6	98.9	152.8	209.8	324.2	167.0	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	4,135.4	-	-	-	-	4,135.4	-	147.2	227.4	390.4	603.2	828.3	1,279.8	659.1	-

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City of San Fernando Bike Master Plan

Yellow Book

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2050 2051	2051 2052	2052 2053	2053 2054	2054 2055	2055 2056	2056 2057	2057 2058	2058 2059	2059 2060	2060 2061
Prop. A 35%	-		-	-	-	-											
Prop. C 40%	-		-	-	-	-											
Proposition C 25%	-		-	-	-	-											
Measure M Extend -Highway (17%)	-		-	-													
Interregional Improvement Program (IIP)																	
Regional Improvement Prog Funds (RIP)	-		-	-	-	-											
CMAQ	-		-	-	-	-											
RSTP	-		-	-	-	-											
Total Revenues	-	-	-	-	-	-											

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-											
Prop. C 40%	-		-	-	-	-											
Proposition C 25%	-		-	-	-	-											
Measure M Extend -Highway (17%)	13.7		-	-	-	13.7	-	4.0	5.5	4.2	-	-	-	-	-	-	-
Interregional Improvement Program (IIP)																	
Regional Improvement Prog Funds (RIP)	-		-	-	-	-											
CMAQ	-		-	-	-	-											
RSTP	-		-	-	-	-											
Total Revenues	13.7	-	-	-	-	13.7											

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition C 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M Extend -Highway (17%)	13.7	-	-	-	-	13.7	-	4.0	5.5	4.2	-	-	-	-	-	-	-
Interregional Improvement Program (IIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	13.7	-	-	-	-	13.7											

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Historic Downtown Streetcar

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2049 2050	2050 2051	2051 2052	2052 2053	2053 2054	2054 2055	2055 2056	2056 2057	2057 2058	2058 2059	2059 2060
Prop. A 35%	-		-	-	-	-											
Prop. C 40% Direct Cash	-		-	-	-	-											
Proposition C 25%	-		-	-	-	-											
Local Agency Transit Contributions	-		-	-	-	-											
Measure M -Transit (35%)	-		-	-	-	-											
TCRP	-																
Interregional Improvement Program (IIP)																	
Regional Improvement Program (RIP)	-			-	-	-											
CMAQ	-		-	-	-	-											
RSTP	-		-	-	-	-											
Total Revenues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-											
Prop. C 40% Direct Cash	-		-	-	-	-											
Proposition C 25%	-		-	-	-	-											
Local Agency Transit Contributions	17.6		-	-	-	17.6	-	-	-	-	-	-	-	17.6	-	-	-
Measure M -Transit (35%)	570.1		-	-	-	570.1	-	-	-	27.3	84.4	144.9	238.8	74.6	-	-	-
TCRP	-																
Interregional Improvement Program (IIP)																	
Regional Improvement Program (RIP)	-			-	-	-											
CMAQ	-		-	-	-	-											
RSTP	-		-	-	-	-											
Total Revenues	**587.7**	**-**	**-**	**-**	**-**	**587.7**	**-**	**-**	**-**	**27.3**	**84.4**	**144.9**	**238.8**	**92.2**	**-**	**-**	**-**

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40% Direct Cash	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition C 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Transit Contributions	17.6	-	-	-	-	17.6	-	-	-	-	-	-	-	17.6	-	-	-
Measure M -Transit (35%)	570.1	-	-	-	-	570.1	-	-	-	27.3	84.4	144.9	238.8	74.6	-	-	-
TCRP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interregional Improvement Program (IIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Program (RIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	**587.7**	**-**	**-**	**-**	**-**	**587.7**	**-**	**-**	**-**	**27.3**	**84.4**	**144.9**	**238.8**	**92.2**	**-**	**-**	**-**

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Gold Line Eastside Extension One Alignment

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'67	2056 2057	2057 2058	2058 2059	2059 2060	2060 2061	2061 2062	2062 2063	2063 2064	2064 2065	2065 2066	2066 2067
Prop. A 35%	-		-	-	-	-											
Prop. C 40%	-		-	-	-	-											
Proposition C 25%	-		-	-	-	-											
Local Agency Transit Contributions	-		-	-	-	-											
Measure M Extend -Transit (35%)	-		-	-	-	-											
Local Agency Transit Contributions	-		-	-	-	-											
Measure M -Transit (35%)	-		-	-	-	-											
CMAQ	-		-	-	-	-											
RSTP	-		-	-	-	-											
Total Revenues	-		-	-	-	-											

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-											
Prop. C 40%	-		-	-	-	-											
Proposition C 25%	-		-	-	-	-											
Local Agency Transit Contributions	306.6		-	-	-	306.6	-	-	-	-	-	306.6	-	-	-		
Measure M Extend -Transit (35%)	9,913.2		-	-	-	9,913.2	-	475.1	1,467.9	2,519.9	4,152.8	1,297.4	-	-	-		
Local Agency Transit Contributions	-		-	-	-	-											
Measure M -Transit (35%)	-		-	-	-	-											
CMAQ	-		-	-	-	-											
RSTP	-		-	-	-	-											
Total Revenues	10,219.8	-	-	-	-	10,219.8											

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition C 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Transit Contributions	306.6	-	-	-	-	306.6	-	-	-	-	-	306.6	-	-	-	-	-
Measure M Extend -Transit (35%)	9,913.2	-	-	-	-	9,913.2	-	475.1	1,467.9	2,519.9	4,152.8	1,297.4	-	-	-	-	-
Local Agency Transit Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit (35%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	10,219.8	-	-	-	-	10,219.8											

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High Desert Corridor - LA Co. Portion

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'67	2058 2059	2059 2060	2060 2061	2061 2062	2062 2063	2063 2064	2064 2065	2065 2066	2066 2067
Proposition C 25%	-		-	-	-	-									
Measure M -Highway (17%)	-		-	-	-	-									
MeasureM Extend -Highway (17%)	-		-	-	-	-									
Measure M Extend -Transit (35%)	-		-	-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

Proposition C 25%	-		-	-	-	-									
Measure M -Highway (17%)	2,903.1		-	-	-	2,903.1	-	-	-	-	162.6	167.5	1,207.8	1,273.6	91.5
MeasureM Extend -Highway (17%)	2,177.3		-	-	-	2,177.3	-	-	-	-	122.0	125.6	905.8	955.2	68.6
Measure M Extend -Transit (35%)	2,177.3		-	-	-	2,177.3	-	-	-	-	122.0	125.6	905.8	955.2	68.6
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	7,257.7	-	-	-	-	7,257.7	-	-	-	-	406.6	418.8	3,019.4	3,184.1	228.8

Difference

Proposition C 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway (17%)	2,903.1	-	-	-	-	2,903.1	-	-	-	-	162.6	167.5	1,207.8	1,273.6	91.5
MeasureM Extend -Highway (17%)	2,177.3	-	-	-	-	2,177.3	-	-	-	-	122.0	125.6	905.8	955.2	68.6
Measure M Extend -Transit (35%)	2,177.3	-	-	-	-	2,177.3	-	-	-	-	122.0	125.6	905.8	955.2	68.6
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	7,257.7	-	-	-	-	7,257.7	-	-	-	-	406.6	418.8	3,019.4	3,184.1	228.8

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Westside Purple Line Extension Section 3

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2016 2017	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023
2016 LRTP Update													
Repay Cap Proj Loans Fnd 3562	13.4	9.8	3.6	-	3.6	-							
Local Agency	-		-	-	-	-							
Measure M -Transit Construction (35%)	-		-	-	-	-							
Measure R 35% (865523)	72.4	8.0	64.4	-	64.4	-							
Regional Improvement Funds	282.2		282.2	-	282.2	-							-
Section 5309 - New Starts	1,500.0		1,500.0	-	1,500.0	-							
CMAQ	259.1		259.1	-	259.1	-							
RSTP	77.3		77.3	-	77.3	-	-	-	-	-	-	-	-
Total Revenues	2,204.4	17.8	2,186.6	-	2,186.6	-	-	-	-	-	-	-	-
Potential Ballot Measure													
Repay Cap Proj Loans Fnd 3562	9.8	9.8	-	-	-	-							
Local Agency	69.8		69.8	69.8	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	994.3		994.3	994.3	-	-	-	-	-	414.7	332.8	209.2	37.5
Measure R 35% (865523)	579.0	48.7	579.0	1,004.9	(474.6)	-	276.6	357.1	328.8	-	-	-	124.1
Regional Improvement Funds	-		-	-	-	-							
Section 5309 - New Starts	675.0		675.0	191.0	484.0	-	-	-	-	-	-	53.0	53.0
CMAQ	-		-	-	-	-							
RSTP	-		-	-	-	-							
Total Revenues	2,327.9	58.5	2,318.1	2,260.0	9.4	-	276.6	357.1	328.8	414.7	332.8	262.2	214.6
Difference													
Repay Cap Proj Loans Fnd 3562	(3.6)	-	(3.6)	-	(3.6)	-	-	-	-	-	-	-	-
Local Agency	69.8	-	69.8	69.8	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	994.3	-	994.3	994.3	-	-	-	-	-	414.7	332.8	209.2	37.5
Measure R 35% (865523)	506.6	40.7	514.6	1,004.9	(539.0)	-	276.6	357.1	328.8	-	-	-	124.1
Regional Improvement Funds	(282.2)	-	(282.2)	-	(282.2)	-	-	-	-	-	-	-	-
Section 5309 - New Starts	(825.0)	-	(825.0)	191.0	(1,016.0)	-	-	-	-	-	-	53.0	53.0
CMAQ	(259.1)	-	(259.1)	-	(259.1)	-	-	-	-	-	-	-	-
RSTP	(77.3)	-	(77.3)	-	(77.3)	-	-	-	-	-	-	-	-
Total Revenues	123.5	40.7	131.5	2,260.0	(2,177.1)	-	276.6	357.1	328.8	414.7	332.8	262.2	214.6

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Westside Purple Line Extension Section 3

2016 LRTP Update

($ in millions)	Project Total	2023 2024	2024 2025	2025 2026	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034	2034 2035	2035 2036	2036 2037	2037 2038	2038 2039
Repay Cap Proj Loans Fnd 3562	13.4		-						3.6								
Local Agency	-																
Measure M -Transit Construction (35%)	-																
Measure R 35% (865523)	72.4										64.4						
Regional Improvement Funds	282.2	-			-	-	-	-	13.7	61.5	93.2	95.0		18.8	-	-	-
Section 5309 - New Starts	1,500.0						150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	
CMAQ	259.1							5.3	8.7	57.4	60.0	60.0	57.1	10.7			-
RSTP	77.3	-	-				16.1	15.6	-	0.7	14.2	13.6	9.2	8.0			
Total Revenues	2,204.4	-	-	-	-	-	166.1	170.9	176.0	269.5	381.8	318.6	216.2	187.5	150.0	150.0	-

Potential Ballot Measure

Repay Cap Proj Loans Fnd 3562	9.8																
Local Agency	69.8	69.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	994.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R 35% (865523)	579.0	(81.7)	(154.6)	(120.0)	(100.0)	(100.0)	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Funds	-																
Section 5309 - New Starts	675.0	85.0	164.0	120.0	100.0	100.0	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-																
RSTP	-																
Total Revenues	2,327.9	73.1	9.4	-	-	-	-	-	-	-	-	-	-	-	-	-	

Difference

Repay Cap Proj Loans Fnd 3562	(3.6)	-	-	-	-	-	-	-	(3.6)	-	-	-	-	-	-	-	-
Local Agency	69.8	69.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	994.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R 35% (865523)	506.6	(81.7)	(154.6)	(120.0)	(100.0)	(100.0)	-	-	-	-	(64.4)	-	-	-	-	-	-
Regional Improvement Funds	(282.2)	-	-	-	-	-	-	-	(13.7)	(61.5)	(93.2)	(95.0)	-	(18.8)	-	-	-
Section 5309 - New Starts	(825.0)	85.0	164.0	120.0	100.0	100.0	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	-
CMAQ	(259.1)	-	-	-	-	-	-	(5.3)	(8.7)	(57.4)	(60.0)	(60.0)	(57.1)	(10.7)	-	-	-
RSTP	(77.3)	-	-	-	-	-	(16.1)	(15.6)	-	(0.7)	(14.2)	(13.6)	(9.2)	(8.0)	-	-	-
Total Revenues	123.5	73.1	9.4	-	-	-	(166.1)	(170.9)	(176.0)	(269.5)	(381.8)	(318.6)	(216.2)	(187.5)	(150.0)	(150.0)	-

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Southbay Transport. System and Mobility Improvement

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026	2026 2027
Prop. A 35%	-		-	-	-	-										
Proposition C 25%	-		-	-	-	-										
Measure M -Transit Construction (35%)	-		-	-	-	-										
Local Agency Funds	-		-	-	-	-										
Measure R 35%	-		-	-	-	-										
CMAQ	-		-	-	-	-										
RSTP	-		-	-	-	-										
Total Revenues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-										
Proposition C 25%	39.7		39.7	-	39.7	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	234.0		234.0	116.5	117.5	-	15.6	15.6	16.1	16.6	17.0	17.6	18.1	18.6	19.2	19.8
Local Agency Funds	8.5		8.5	-	8.5	-	-	-	-	-	-	-	-	-	-	-
Measure R 35%	-		-	-	-	-										
CMAQ	-		-	-	-	-										
RSTP	-		-	-	-	-										
Total Revenues	**282.1**	**-**	**282.1**	**116.5**	**165.6**	**-**	**15.6**	**15.6**	**16.1**	**16.6**	**17.0**	**17.6**	**18.1**	**18.6**	**19.2**	**19.8**

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition C 25%	39.7	-	39.7	-	39.7	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	234.0	-	234.0	116.5	117.5	-	15.6	15.6	16.1	16.6	17.0	17.6	18.1	18.6	19.2	19.8
Local Agency Funds	8.5	-	8.5	-	8.5	-	-	-	-	-	-	-	-	-	-	-
Measure R 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	**282.1**	**-**	**282.1**	**116.5**	**165.6**	**-**	**15.6**	**15.6**	**16.1**	**16.6**	**17.0**	**17.6**	**18.1**	**18.6**	**19.2**	**19.8**

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Southbay Transport. System and Mobility Improveme

2016 LRTP Update

($ in millions)	Project Total	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032
Prop. A 35%	-					
Proposition C 25%	-					
Measure M -Transit Construction (35%)	-					
Local Agency Funds	-					
Measure R 35%	-					
CMAQ	-					
RSTP	-					
Total Revenues	**-**	**-**	**-**	**-**	**-**	**-**

Potential Ballot Measure

Prop. A 35%	-					
Proposition C 25%	39.7	-	-	3.0	22.2	14.4
Measure M -Transit Construction (35%)	234.0	20.4	21.0	18.6	-	-
Local Agency Funds	8.5	-	-	-	-	8.5
Measure R 35%	-					
CMAQ	-					
RSTP	-					
Total Revenues	**282.1**	**20.4**	**21.0**	**21.6**	**22.2**	**22.9**

Difference

Prop. A 35%	-	-	-	-	-	-
Proposition C 25%	39.7	-	-	3.0	22.2	14.4
Measure M -Transit Construction (35%)	234.0	20.4	21.0	18.6	-	-
Local Agency Funds	8.5	-	-	-	-	8.5
Measure R 35%	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-
RSTP	-	-	-	-	-	-
Total Revenues	**282.1**	**20.4**	**21.0**	**21.6**	**22.2**	**22.9**

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High Desert Corridor (HDC) Right-of-Way

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026
Prop. A 35%	-		-	-	-	-									
Prop. C 25%	-		-	-	-	-									
Proposition C 25%	-		-	-	-	-									
Measure M -Highway Construction (17%)	-		-	-	-	-									
Prop 1B State Infrastructure Bonds	-		-	-	-	-									
TCRP	-		-	-	-	-									
Interregional Improvement Program (IIP)			-	-	-	-									
Regional Improvement Program (RIP)	-		-	-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-									
Prop. C 25%	108.1		108.1	108.1	-	-	-	30.0	41.2	36.9	-	-	-	-	-
Proposition C 25%	-		-	-	-	-									
Measure M -Highway Construction (17%)	170.0		170.0	170.0	-	-	-	51.0	70.0	49.0	-	-	-	-	-
Prop 1B State Infrastructure Bonds	-		-	-	-	-									
TCRP	-		-	-	-	-									
Interregional Improvement Program (IIP)	-		-	-	-	-									
Regional Improvement Program (RIP)	-		-	-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	**278.2**	**-**	**278.2**	**278.2**	**-**	**-**	**-**	**81.0**	**111.2**	**85.9**	**-**	**-**	**-**	**-**	**-**

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 25%	108.1	-	108.1	108.1	-	-	-	30.0	41.2	36.9	-	-	-	-	-
Proposition C 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	170.0	-	170.0	170.0	-	-	-	51.0	70.0	49.0	-	-	-	-	-
Prop 1B State Infrastructure Bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCRP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interregional Improvement Program (IIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Program (RIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	**278.2**	**-**	**278.2**	**278.2**	**-**	**-**	**-**	**81.0**	**111.2**	**85.9**	**-**	**-**	**-**	**-**	**-**

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I-5 N Cap. Enhancements (SR-14 to Lake Hughes Rd)

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2016 2017	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024
Proposition C 25%	83.0		83.0	12.7	70.3	-	-	-	-	-			12.7	
Meas R 20% (460313,326,405701) ($410)	410.0	93.8	316.2	316.2	-	-		-	27.0	27.8	200.6	60.7	-	-
CMAQ	-	0.0	-	-	-	-								
Measure M -Highway Construction (17%)	-	0.0	-	-	-	-								
PBM -- Extend	-	0.0	-	-	-	-								
RSTP	3.8	0.0	3.8	-	3.8	-								
Regional Improvement Funds (RIP)	62.0	0.0	62.0	62.0	-	-							15.6	46.4
SHOPP	-	-	-	-	-	-								
Toll Revenue Bond	274.3	-	274.3	274.3	-	-						274.3		
Total Revenues	**833.1**	**93.8**	**739.3**	**665.2**	**74.1**	**-**	**-**	**-**	**27.0**	**27.8**	**200.6**	**335.0**	**28.3**	**46.4**

Potential Ballot Measure

Proposition C 25%	123.4		123.4	123.4	-	-		-	-	-	-	-	-	123.4
Meas R 20% (460313,326,405701) ($410)	410.0	93.8	316.2	316.2	-	-		-	27.0	27.8	200.6	60.7	-	-
CMAQ	9.9		9.9	9.9	-	-		-	-	-	-	7.4	2.5	-
Measure M -Highway Construction (17%)	240.0		240.0	240.0	-	-		14.4	14.8	106.9	95.8	8.1	-	-
PBM -- Extend	-		-	-	-	-								
RSTP	-		-	-	-	-								
Regional Improvement Funds (RIP)	49.756		49.8	49.8	-	-		-	-	-	-	37.1	12.7	
SHOPP	-		-	-	-	-								
Toll Revenue Bond	-		-	-	-	-								
Total Revenues	**833.1**	**93.8**	**739.3**	**739.3**	**-**	**-**	**-**	**14.4**	**41.8**	**134.8**	**296.4**	**113.3**	**15.2**	**123.4**

Difference

Proposition C 25%	40.4	-	40.4	110.7	(70.3)	-	-	-	-	-	-	-	(12.7)	123.4
Meas R 20% (460313,326,405701) ($410)	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	9.9	-	9.9	9.9	-	-	-	-	-	-	-	7.4	2.5	-
Measure M -Highway Construction (17%)	240.0	-	240.0	240.0	-	-	-	14.4	14.8	106.9	95.8	8.1	-	-
PBM -- Extend	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	(3.8)	-	(3.8)	-	(3.8)	-	-	-	-	-	-	-	-	-
Regional Improvement Funds (RIP)	(12.2)	-	(12.2)	(12.2)	-	-	-	-	-	-	-	37.1	(2.9)	(46.4)
SHOPP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toll Revenue Bond	(274.3)	-	(274.3)	(274.3)	-	-	-	-	-	-	-	(274.3)	-	-
Total Revenues	**(0.0)**	**-**	**(0.0)**	**74.1**	**(74.1)**	**-**	**-**	**14.4**	**14.8**	**106.9**	**95.8**	**(221.7)**	**(13.1)**	**77.0**

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I-5 N Cap. Enhancements (SR-14 to Lake Hughes Rd)

2016 LRTP Update

($ in millions)	Project Total	2024 2025	2025 2026	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034	2034 2035	2035 2036	2036 2037	2037 2038	2038 2039	2039 2040
Proposition C 25%	83.0											43.8				9.9	16.6
Meas R 20% (460313,326,405701) ($410)	410.0	-	-	-	-	-											
CMAQ	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	-																
PBM -- Extend	-																
RSTP	3.8		2.1	1.7	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Funds (RIP)	62.0			-	-	-	-	-	-	-	-	-	-	-	-	-	-
SHOPP	-																
Toll Revenue Bond	274.3																
Total Revenues	**833.1**	**-**	**2.1**	**1.7**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**43.8**	**-**	**-**	**-**	**9.9**	**16.6**

Potential Ballot Measure

Proposition C 25%	123.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meas R 20% (460313,326,405701) ($410)	410.0	-	-	-	-	-	-	-	-								
CMAQ	9.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	240.0	-	-	-	-												
PBM -- Extend	-																
RSTP	-																
Regional Improvement Funds (RIP)	49.756	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SHOPP	-																
Toll Revenue Bond	-																
Total Revenues	**833.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	

Difference

Proposition C 25%	40.4	-	-	-	-	-	-	-	-	-	-	(43.8)	-	-	-	(9.9)	(16.6)
Meas R 20% (460313,326,405701) ($410)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	9.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	240.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PBM -- Extend	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	(3.8)	-	(2.1)	(1.7)	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Funds (RIP)	(12.2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SHOPP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toll Revenue Bond	(274.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	**(0.0)**	**-**	**(2.1)**	**(1.7)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**(43.8)**	**-**	**-**	**-**	**(9.9)**	**(16.6)**

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Gold Line Foothill Extension to Claremont

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2015 2016	2016 2017	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025
Prop C - Discretionary (40%)	-		-	-	-	-										
Local Agency Transit Contributions	-		-	-	-	-										
Measure R 2%	-		-	-	-	-										
Measure M -Transit Construction (35%)	-		-	-	-	-										
Measure R 35%	23.1	6.0	23.1	17.1	-	-	6.0	17.1								
CMAQ	-		-	-	-	-										
RSTP - Transit	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	23.1	6.0	23.1	17.1	-	-	6.0	17.1	-	-	-	-	-	-	-	-

Potential Ballot Measure

Prop C - Discretionary (40%)	142.3		142.3	39.3	103.0	-			-	3.1	4.8	8.3	12.8	10.3	-	103.0
Local Agency Transit Contributions	48.4		48.4	34.4	14.0	-			-	-	-	-	-	7.3	27.1	14.0
Measure R 2%	-		-	-	-	-										
Measure M -Transit Construction (35%)	1,019.0		1,019.0	962.6	56.4	-			-	40.8	63.0	108.1	167.0	229.4	354.4	56.4
Measure R 35%	23.1	6.0	23.1	17.1	-	-	6.0	17.1								
CMAQ	-		-	-	-	-										
RSTP - Transit	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	1,232.8	6.0	1,232.8	1,053.4	173.4	-	6.0	17.1	-	43.9	67.8	116.4	179.8	246.9	381.5	173.4

Difference

Prop C - Discretionary (40%)	142.3	-	142.3	39.3	103.0	-	-	-	-	3.1	4.8	8.3	12.8	10.3	-	103.0
Local Agency Transit Contributions	48.4	-	48.4	34.4	14.0	-	-	-	-	-	-	-	-	7.3	27.1	14.0
Measure R 2%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	1,019.0	-	1,019.0	962.6	56.4	-	-	-	-	40.8	63.0	108.1	167.0	229.4	354.4	56.4
Measure R 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP - Transit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	1,209.7	-	1,209.7	1,036.3	173.4	-	-	-	-	43.9	67.8	116.4	179.8	246.9	381.5	173.4

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BRT Connector Orange/Red Line to Gold Line

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026
Prop. A 35%	-		-	-	-	-									
Prop. C 40%	-		-	-	-	-									
Proposition C 25%	-		-	-	-	-									
Measure M -Transit Construction (35%)	-		-	-	-	-									
Measure R TIFIA Loan	-		-	-	-	-									
Measure R 35% Cash	-		-	-	-	-									
Local Agency Funds	-		-	-	-	-									
Interregional Improvement Program (IIP)			-	-	-	-									
Regional Improvement Prog Funds (RIP)	-		-	-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-		-	-						
Total Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-									
Prop. C 40%	-		-	-	-	-									
Proposition C 25%	7.9		7.9	7.9	-	-	-	-	7.9	-	-	-	-	-	-
Measure M -Transit Construction (35%)	267.0		267.0	267.0	-	-	-	-	83.8	94.4	88.8	-	-	-	-
Measure R TIFIA Loan	-		-	-	-	-									
Measure R 35% Cash	-		-	-	-	-									
Local Agency Funds	8.5		8.5	8.5	-	-	-	-	-	-	8.5	-	-	-	-
Interregional Improvement Program (IIP)			-	-	-	-									
Regional Improvement Prog Funds (RIP)	-		-	-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	283.4	-	283.4	283.4	-	-	-	-	91.7	94.4	97.3	-	-	-	-

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition C 25%	7.9	-	7.9	7.9	-	-	-	-	7.9	-	-	-	-	-	-
Measure M -Transit Construction (35%)	267.0	-	267.0	267.0	-	-	-	-	83.8	94.4	88.8	-	-	-	-
Measure R TIFIA Loan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R 35% Cash	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Funds	8.5	-	8.5	8.5	-	-	-	-	-	-	8.5	-	-	-	-
Interregional Improvement Program (IIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	283.4	-	283.4	283.4	-	-	-	-	91.7	94.4	97.3	-	-	-	-

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East San Fernando Valley Transit Corridors

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2015 2016	2016 2017	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023
Proposition C 25%	32.2	1.8	30.4	30.4	-	-	-	-	-			-	2.4	28.0
Prop A - Rail Development Account (35%)														
Repayment of cap proj loans fund 3562	-	0.6	(0.6)	(0.6)	-	-			-			-	(0.6)	
Section 5339 Alternative Analysis	1.0	1.0	-	-	-	-								
CMAQ	-		-	-	-	-								
Measure M -Transit Construction (35%)	-		-	-	-	-								
Traffic Congestion Relief Program Funds (TCRP)	63.4	3.5	59.8	59.8	-	-	-	-	-	-	52.1	7.1	0.6	
Transit and Intercity Rail Capital Program (TICRP) - Sta	-		-	-	-	-								
Measure R - Transit Capital - (35%)	68.5	4.7	65.5	63.8	-	-	1.7	0.6	-	-	-	-	-	37.0
Local Agency Funds	5.0	1.9	3.1	3.1	-	-	-	-	-	-		1.0	0.1	2.0
Total Revenues	**170.1**	**13.5**	**158.3**	**156.6**	**-**	**-**	**1.7**	**0.6**	**-**	**-**	**52.1**	**8.1**	**2.6**	**67.0**

Potential Ballot Measure

Proposition C 25%	244.9	1.8	243.1	-	243.1	-			-	-	-	-	-	-
Prop A - Rail Development Account (35%)	30.0		30.0	-	30.0	-			-	-	-	-	-	-
Repayment of cap proj loans fund 3562	0.6	0.6	-	-	-	-			-	-	-	-	-	-
Section 5339 Alternative Analysis	1.0	1.0	-	-	-	-								
CMAQ	61.7		61.7	-	61.7	-			-	-	-	-	-	-
Measure M -Transit Construction (35%)	917.3		917.3	328.4	588.9	-			-	-	-	-	53.1	134.3
Traffic Congestion Relief Program Funds (TCRP)	63.3	3.5	59.8	59.8	-	-			-	-	-	55.9	3.9	-
Transit and Intercity Rail Capital Program (TICRP) - Sta	149.4		149.4	93.5	55.9	-			-	-	-	-	-	5.5
Measure R - Transit Capital - (35%)	68.5	4.7	65.5	42.3	21.5	-	1.7	0.6	-	-	-	-	33.2	8.5
Local Agency Funds	47.5	1.9	45.7	-	45.7	-			-	-	-	-	-	-
Total Revenues	**1,584.2**	**13.5**	**1,572.4**	**524.0**	**1,046.7**	**-**	**1.7**	**0.6**	**-**	**-**	**-**	**55.9**	**90.2**	**148.2**

Difference

Proposition C 25%	212.7	-	212.7	(30.4)	243.1	-	-	-	-	-	-	-	(2.4)	(28.0)
Prop A - Rail Development Account (35%)	30.0	-	30.0	-	30.0	-	-	-	-	-	-	-	-	-
Repayment of cap proj loans fund 3562	0.6	-	0.6	0.6	-	-	-	-	-	-	-	-	0.6	-
Section 5339 Alternative Analysis	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	61.7	-	61.7	-	61.7	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	917.3	-	917.3	328.4	588.9	-	-	-	-	-	-	-	53.1	134.3
Traffic Congestion Relief Program Funds (TCRP)	(0.0)	-	(0.0)	(0.0)	-	-	-	-	-	-	(52.1)	48.8	3.3	-
Transit and Intercity Rail Capital Program (TICRP) - Sta	149.4	-	149.4	93.5	55.9	-	-	-	-	-	-	-	-	5.5
Measure R - Transit Capital - (35%)	(0.0)	-	(0.0)	(21.5)	21.5	-	-	-	-	-	-	-	33.2	(28.5)
Local Agency Funds	42.5	-	42.5	(3.1)	45.7	-	-	-	-	-	-	(1.0)	(0.1)	(2.0)
Total Revenues	**1,414.1**	**-**	**1,414.1**	**367.4**	**1,046.7**	**-**	**-**	**-**	**-**	**-**	**(52.1)**	**47.8**	**87.7**	**81.2**

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East San Fernando Valley Transit Corridors

2016 LRTP Update

($ in millions)	Project Total	2023 2024	2024 2025	2025 2026	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034	2034 2035	2035 2036	2036 2037
Proposition C 25%	32.2	0.0			-	-	-	-	-	-	-	-	-	-	-
Prop A - Rail Development Account (35%)															
Repayment of cap proj loans fund 3562	-														
Section 5339 Alternative Analysis	1.0														
CMAQ	-														
Measure M -Transit Construction (35%)	-														
Traffic Congestion Relief Program Funds (TCRP)	63.4														
Transit and Intercity Rail Capital Program (TICRP) - Sta	-														
Measure R - Transit Capital - (35%)	68.5	26.2													
Local Agency Funds	5.0														
Total Revenues	**170.1**	**26.2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Potential Ballot Measure

Proposition C 25%	244.9	-	-	102.8	140.3	-	-	-	-	-	-	-	-	-	-
Prop A - Rail Development Account (35%)	30.0	-	-	-	30.0	-	-	-	-	-	-	-	-	-	-
Repayment of cap proj loans fund 3562	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Section 5339 Alternative Analysis	1.0														
CMAQ	61.7	-	1.3	30.0	30.4	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	917.3	140.9	257.3	331.6	-	-	-	-	-	-	-	-	-	-	-
Traffic Congestion Relief Program Funds (TCRP)	63.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit and Intercity Rail Capital Program (TICRP) - Sta	149.4	88.1	55.9	-	-	-	-	-	-	-	-	-	-	-	-
Measure R - Transit Capital - (35%)	68.5	-	-	21.5	-	-	-	-	-	-	-				
Local Agency Funds	47.5	-	-	-	45.7	-	-	-	-	-	-	-	-	-	-
Total Revenues	**1,584.2**	**229.0**	**314.5**	**485.9**	**246.3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Difference

Proposition C 25%	212.7	(0.0)	-	102.8	140.3	-	-	-	-	-	-	-	-	-	-
Prop A - Rail Development Account (35%)	30.0	-	-	-	30.0	-	-	-	-	-	-	-	-	-	-
Repayment of cap proj loans fund 3562	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Section 5339 Alternative Analysis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	61.7	-	1.3	30.0	30.4	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	917.3	140.9	257.3	331.6	-	-	-	-	-	-	-	-	-	-	-
Traffic Congestion Relief Program Funds (TCRP)	(0.0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit and Intercity Rail Capital Program (TICRP) - Sta	149.4	88.1	55.9	-	-	-	-	-	-	-	-	-	-	-	-
Measure R - Transit Capital - (35%)	(0.0)	(26.2)	-	21.5	-	-	-	-	-	-	-	-	-	-	-
Local Agency Funds	42.5	-	-	-	45.7	-	-	-	-	-	-	-	-	-	-
Total Revenues	**1,414.1**	**202.8**	**314.5**	**485.9**	**246.3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

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Crenshaw/LAX Track Enhancement Project

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026	2026 2027
Prop. A 35%	-		-	-	-	-										
Prop. C 40%	-		-	-	-	-										
Proposition C 25%	-		-	-	-	-										
Measure M -Highway Construction (17%)	-		-	-	-	-										
Measure M -Transit Construction (35%)			-	-	-	-										
Measure R Extend -Transit Construction (35%)	-		-	-	-	-										
CMAQ	-		-	-	-	-										
RSTP	-		-	-	-	-		-	-							
Total Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-										
Prop. C 40%	-		-	-	-	-										
Proposition C 25%	6.2		6.2	6.2	-	-	-	-	-	-	6.2	-	-	-	-	-
Measure M -Highway Construction (17%)	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	49.6		49.6	49.6	-	-	-	-	-	-	11.8	18.6	19.2	-	-	-
Measure R Extend -Transit Construction (35%)	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-		-	-	-	-										
RSTP	-		-	-	-	-										
Total Revenues	55.8	-	55.8	55.8	-	-	-	-	-	-	18.1	18.6	19.2	-	-	-

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop. C 40%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposition C 25%	6.2	-	6.2	6.2	-	-	-	-	-	-	6.2	-	-	-	-	-
Measure M -Highway Construction (17%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	49.6	-	49.6	49.6	-	-	-	-	-	-	11.8	18.6	19.2	-	-	-
Measure R Extend -Transit Construction (35%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	55.8	-	55.8	55.8	-	-	-	-	-	-	18.1	18.6	19.2	-	-	-

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SR-71 Gap from I-10 to Rio Rancho

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2016 2017	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025
Prop C 25% (cash flow) 50% combined limit	198.9	9.4	195.5	48.0	141.5	-	9.0	15.0	-	-	-	6.0	9.0	9.0	9.2
Traffic Congestion Relief (TCRP)	13.6	13.6	-	-	-	-									
Measure M -Highway Construction (17%)	-		-	-	-	-									
CMAQ	183.8		183.8	56.1	127.6	-	0		0	0	0	7.4	48.7	-	65.0
RSTP	11.3		11.3	-	11.3	-	-	-			-	-	-	-	-
Regional Improvement Prog Funds (RIP)	1.6	1.6	-	-	-	-									
	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	409.1	24.59	390.6	104.1	280.4	-	9.0	15.0	-	-	-	13.4	57.7	9.0	74.2

Potential Ballot Measure

Prop C 25% (cash flow) 50% combined limit	198.2	9.4	188.8	48.5	140.3	-		-	-	-	-	-	0.5	48.0	136.3
Traffic Congestion Relief (TCRP)	13.6	13.6	-	-	-	-									
Measure M -Highway Construction (17%)	26.4		26.4	26.4	-	-		-	-	-	-	7.2	7.4	11.8	-
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Regional Improvement Prog Funds (RIP)	211.0	1.6	209.4	150.1	59.3	-	-	-	-	-	-	16.6	16.6	116.9	50.0
	-		-	-	-	-									
Total Revenues	449.2	24.59	424.6	225.0	199.6	-	-	-	-	-	-	23.8	24.5	176.7	186.3

Diff

Prop C 25% (cash flow) 50% combined limit	(0.7)	-	(6.7)	0.5	(1.2)	-	(9.0)	(15.0)	-	-	-	(6.0)	(8.5)	39.0	127.1
Traffic Congestion Relief (TCRP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	26.4	-	26.4	26.4	-	-	-	-	-	-	-	7.2	7.4	11.8	-
CMAQ	(183.8)	-	(183.8)	(56.1)	(127.6)	-	-	-	-	-	-	(7.4)	(48.7)	-	(65.0)
RSTP	(11.3)	-	(11.3)	-	(11.3)	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	209.4	-	209.4	150.1	59.3	-	-	-	-	-	-	16.6	16.6	116.9	50.0
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	40.1	-	34.1	120.9	(80.8)	-	(9.0)	(15.0)	-	-	-	10.4	(33.2)	167.7	112.0

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SR-71 Gap from I-10 to Rio Rancho

2016 LRTP Update

($ in millions)	Project Total	2025 2026	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034	2034 2035	2035 2036	2036 2037	2037 2038	2038 2039	2039 2040	2040 2041	2041 2042
Prop C 25% (cash flow) 50% combined limit	198.9	55.8	37.0	34.9	4.6													
Traffic Congestion Relief (TCRP)	13.6																	
Measure M -Highway Construction (17%)	-																	
CMAQ	183.8	30.0	30.4	-	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	11.3			9.6			1.7		-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	1.6													-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	409.1	85.8	67.4	44.5	4.6	2.2	1.7	-	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

Prop C 25% (cash flow) 50% combined limit	198.2	4.1	-	-	-	-	-	-										
Traffic Congestion Relief (TCRP)	13.6																	
Measure M -Highway Construction (17%)	26.4	-	-	-	-	-	-											
CMAQ	-																	
RSTP	-																	
Regional Improvement Prog Funds (RIP)	211.0	9.3	-	-	-	-	-											
	-																	
Total Revenues	449.2	13.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Diff

Prop C 25% (cash flow) 50% combined limit	(0.7)	(51.7)	(37.0)	(34.9)	(4.6)	-	-	-	-	-	-	-	-	-	-	-	-	-
Traffic Congestion Relief (TCRP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	26.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	(183.8)	(30.0)	(30.4)	-	-	(2.2)	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	(11.3)	-	-	(9.6)	-	-	(1.7)	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	209.4	9.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	40.1	(72.4)	(67.4)	(44.5)	(4.6)	(2.2)	(1.7)	-	-	-	-	-	-	-	-	-	-	-

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West Santa Ana Branch

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026	2026 2027	2027 2028	2028 2029
PROJECT REVENUES														
Local Agency Funds	19.5		19.5	-	19.5	-						19.5		
CMAQ	-		-	-	-	-								
Section 5309 New Starts	-		-	-	-	-								
Proposition C 25%	306.8	1.1	305.8	32.4	273.4	-			32.4	42.2	5.0	-	-	
Measure M -Transit Construction (35%)	-		-	-	-	-								
Prop A - Rail Devel. (35%)	-		-	-	-	-								
Measure R 35% $240 (FIS 460201)	240.0	3.8	237.1	-	236.2	-	-	-	-	158.8	77.4			
Measure R 20% transfer assumed	82.7		82.7	-	82.7	-	-	-	-	77.3	5.4	-	-	-
Regional Improvement Prog Funds	-		-	-	-	-	-	-	-			-	-	-
Proposition C 40%	-		-	-	-	-								
Total Revenues	649.0	4.8	645.1	32.4	611.8	-	-	-	32.4	278.3	87.8	19.5	-	-

Potential Ballot Measure

Local Agency Funds	193.1		38.1	-	38.1	155.0	-	-	-	-	-	-	38.1	
CMAQ	61.7		-	-	-	61.7	-	-	-	-	-	-	-	
Section 5309 New Starts	1,950.0		1,050.0	-	1,050.0	900.0	-	-	-	-	-	-	-	
Proposition C 25%	225.3	1.1	224.2	-	224.2	-	-	-	-	-	-	159.6	64.6	
Measure M -Transit Construction (35%)	2,306.0		1,849.9	121.5	1,728.4	456.1	23.4	36.1	62.0	95.8	219.3	221.9	58.9	10.0
Prop A - Rail Devel. (35%)	30.0		30.0	-	30.0	-	-	-	-	-	-	-	30.0	
Measure R 35% $240 (FIS 460201)	239.0	3.8	236.1	112.4	122.8	-	21.6	33.4	57.4	88.7	34.1	-	-	
Measure R 20% transfer assumed	-		-	-	-	-	-	-	-	-	-	-	-	
Regional Improvement Prog Funds	62.2		-	-	-	62.2								
Proposition C 40%	1,370.1		1,502.6	-	1,502.6	(132.4)								
Total Revenues	6,437.3	4.8	4,930.8	233.9	4,696.0	######	45.0	69.5	119.4	184.5	253.4	381.5	191.6	10.0

Difference

Local Agency Funds	173.6	-	18.6	-	18.6	155.0	-	-	-	-	-	(19.5)	38.1	-
CMAQ	61.7	-	-	-	-	61.7	-	-	-	-	-	-	-	-
Section 5309 New Starts	1,950.0	-	1,050.0	-	1,050.0	900.0	-	-	-	-	-	-	-	-
Proposition C 25%	(81.6)	-	(81.6)	(32.4)	(49.2)	-	-	-	(32.4)	(42.2)	(5.0)	159.6	64.6	-
Measure M -Transit Construction (35%)	2,306.0	-	1,849.9	121.5	1,728.4	456.1	23.4	36.1	62.0	95.8	219.3	221.9	58.9	10.0
Prop A - Rail Devel. (35%)	30.0	-	30.0	-	30.0	-	-	-	-	-	-	-	30.0	-
Measure R 35% $240 (FIS 460201)	(1.0)	-	(1.0)	112.4	(113.4)	-	21.6	33.4	57.4	(70.1)	(43.3)	-	-	-
Measure R 20% transfer assumed	(82.7)	-	(82.7)	-	(82.7)	-	-	-	-	(77.3)	(5.4)	-	-	-
Regional Improvement Prog Funds	62.2	-	-	-	-	62.2	-	-	-	-	-	-	-	-
Proposition C 40%	1,370.1	-	1,502.6	-	1,502.6	(132.4)	-	-	-	-	-	-	-	-
Total Revenues	5,788.3	-	4,285.8	201.5	4,084.3	######	45.0	69.5	87.0	(93.8)	165.6	362.0	191.6	10.0

* Includes $86.4 million in a replacement project credit of Proposition C 25% funds per a January 2016 Board Action (see Item 20).

** Includes $108.4 million in Measure R 20% Highway Funds transferred to West Santa Ana Branch per a January 2016 Board Action (see Item 20) and footnote [*] in the Measure R expenditure plan.

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West Santa Ana Branch

2016 LRTP Update

($ in millions)	Project Total	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034	2034 2035	2035 2036	2036 2037	2037 2038	2038 2039	2039 2040	2040 2041	2041 2042
PROJECT REVENUES														
Local Agency Funds	19.5					-								
CMAQ	-					-								
Section 5309 New Starts	-					-								
Proposition C 25%	306.8		100.0	100.0	26.2									
Measure M -Transit Construction (35%)	-													
Prop A - Rail Devel. (35%)	-													
Measure R 35% $240 (FIS 460201)	240.0													
Measure R 20% transfer assumed	82.7	-	-	-	-	-	-	-	-	-	-			
Regional Improvement Prog Funds	-	-	-	-	-	-	-	-	-	-	-			
Proposition C 40%	-													
Total Revenues	649.0	-	100.0	100.0	26.2	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

Local Agency Funds	193.1	-	-	-	-	-	-	-	-	-	-	-	115.5	39.5
CMAQ	61.7	-	-	-	-	-	-	-	-	-	-	-	31.3	30.4
Section 5309 New Starts	1,950.0	-	-	-	-	-	100.0	150.0	200.0	200.0	200.0	200.0	200.0	200.0
Proposition C 25%	225.3	-	-	-	-	-	-	-	-					
Measure M -Transit Construction (35%)	2,306.0	10.0	10.0	10.0	13.2	40.8	98.2	115.5	148.8	189.2	226.7	260.1	318.1	138.0
Prop A - Rail Devel. (35%)	30.0	-	-	-	-	-	-							
Measure R 35% $240 (FIS 460201)	239.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R 20% transfer assumed	-													
Regional Improvement Prog Funds	62.2												15.6	46.6
Proposition C 40%	1,370.1				30.3	93.7	125.2	115.1	141.3	257.0	343.1	396.7	367.6	-
Total Revenues	6,437.3	10.0	10.0	10.0	43.5	134.5	323.4	380.6	490.1	646.2	769.9	856.8	1,048.0	454.5

Difference

Local Agency Funds	173.6	-	-	-	-	-	-	-	-	-	-	-	115.5	39.5
CMAQ	61.7	-	-	-	-	-	-	-	-	-	-	-	31.3	30.4
Section 5309 New Starts	1,950.0	-	-	-	-	-	100.0	150.0	200.0	200.0	200.0	200.0	200.0	200.0
Proposition C 25%	(81.6)	-	(100.0)	(100.0)	(26.2)	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	2,306.0	10.0	10.0	10.0	13.2	40.8	98.2	115.5	148.8	189.2	226.7	260.1	318.1	138.0
Prop A - Rail Devel. (35%)	30.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R 35% $240 (FIS 460201)	(1.0)	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R 20% transfer assumed	(82.7)	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds	62.2	-	-	-	-	-	-	-	-	-	-	-	15.6	46.6
Proposition C 40%	1,370.1	-	-	-	30.3	93.7	125.2	115.1	141.3	257.0	343.1	396.7	367.6	-
Total Revenues	5,788.3	10.0	(90.0)	(90.0)	17.4	134.5	323.4	380.6	490.1	646.2	769.9	856.8	1,048.0	454.5

* Includes $86.4 million in a replacement project credit of Pro

** Includes $108.4 million in Measure R 20% Highway Funds t

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West Santa Ana Branch

2016 LRTP Update

($ in millions)	Project Total	2042 2043	2043 2044	2044 2045	2045 2046
PROJECT REVENUES					
Local Agency Funds	19.5				
CMAQ	-				
Section 5309 New Starts	-				
Proposition C 25%	306.8				
Measure M -Transit Construction (35%)	-				
Prop A - Rail Devel. (35%)	-				
Measure R 35% $240 (FIS 460201)	240.0				
Measure R 20% transfer assumed	82.7				
Regional Improvement Prog Funds	-				
Proposition C 40%	-				
Total Revenues	649.0	-	-	-	-

Potential Ballot Measure

Local Agency Funds	193.1				
CMAQ	61.7				
Section 5309 New Starts	1,950.0	200.0	200.0	100.0	-
Proposition C 25%	225.3				
Measure M -Transit Construction (35%)	2,306.0	-	-		
Prop A - Rail Devel. (35%)	30.0				
Measure R 35% $240 (FIS 460201)	239.0	-	-	-	-
Measure R 20% transfer assumed	-				
Regional Improvement Prog Funds	62.2				
Proposition C 40%	1,370.1	(200.0)	(200.0)	(100.0)	-
Total Revenues	6,437.3	-	-	-	

Difference

Local Agency Funds	173.6	-	-	-	-
CMAQ	61.7	-	-	-	-
Section 5309 New Starts	1,950.0	200.0	200.0	100.0	-
Proposition C 25%	(81.6)	-	-	-	-
Measure M -Transit Construction (35%)	2,306.0	-	-	-	-
Prop A - Rail Devel. (35%)	30.0	-	-	-	-
Measure R 35% $240 (FIS 460201)	(1.0)	-	-	-	-
Measure R 20% transfer assumed	(82.7)	-	-	-	-
Regional Improvement Prog Funds	62.2	-	-	-	-
Proposition C 40%	1,370.1	(200.0)	(200.0)	(100.0)	-
Total Revenues	5,788.3	-	-	-	-

* Includes $86.4 million in a replacement project credit of Pro

** Includes $108.4 million in Measure R 20% Highway Funds t

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LA River Waterway & System Bikepath

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026
Prop. A 35%	-		-	-	-	-									
Prop C - 25%	-		-	-	-	-									
Local Agency Transit Contributions	-		-	-	-	-									
Measure M -Highway Construction (17%)	-		-	-	-	-									
Measure M -Metro Active Transport. Program (2%)	-		-	-	-	-									
Measure R - Metro Active Transport. Program (2%)	-		-	-	-	-									
Total Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-									
Prop C - 25%	58.2		58.2	-	58.2	-	-	-	-	-	-	-	-	58.2	-
Local Agency Transit Contributions	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Metro Active Transport. Program (2%)	365.0		365.0	292.5	72.5	-	-	-	-	-	-	123.2	169.3	72.5	-
Measure R - Metro Active Transport. Program (2%)	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	423.2	-	423.2	292.5	130.7	-	-	-	-	-	-	123.2	169.3	130.7	-

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - 25%	58.2	-	58.2	-	58.2	-	-	-	-	-	-	-	-	58.2	-
Local Agency Transit Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Metro Active Transport. Program (2%)	365.0	-	365.0	292.5	72.5	-	-	-	-	-	-	123.2	169.3	72.5	-
Measure R - Metro Active Transport. Program (2%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	423.2	-	423.2	292.5	130.7	-	-	-	-	-	-	123.2	169.3	130.7	-

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Complete LA River Bikepath

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026
Prop. A 35%	-		-	-	-	-									
Prop C - 25%	-		-	-	-	-									
Measure M -Highway Construction (17%)	-		-	-	-	-									
Measure M -Metro Active Transportation Program (2%)	-		-	-	-	-									
Measure R Extend -Metro Active Transportation Program (	-		-	-	-	-									
Local Angency Funds	-		-	-	-	-									
Regional Improvement Prog Funds (RIP)	-		-	-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-		-	-						
Total Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-									
Prop C - 25%	9.6		9.6	-	9.6	-	-	-	-	-	-	-	-	9.6	-
Measure M -Highway Construction (17%)	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Metro Active Transportation Program (2%)	60.0		60.0	48.1	11.9	-	-	-	-	-	-	20.3	27.8	11.9	-
Measure R Extend -Metro Active Transportation Program (	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Local Angency Funds			-	-	-	-	-								
Regional Improvement Prog Funds (RIP)	-		-	-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	69.6	-	69.6	48.1	21.5	-	-	-	-	-	-	20.3	27.8	21.5	-

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - 25%	9.6	-	9.6	-	9.6	-	-	-	-	-	-	-	-	9.6	-
Measure M -Highway Construction (17%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Metro Active Transportation Program (2%)	60.0	-	60.0	48.1	11.9	-	-	-	-	-	-	20.3	27.8	11.9	-
Measure R Extend -Metro Active Transportation Program (	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Angency Funds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regional Improvement Prog Funds (RIP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	69.6	-	69.6	48.1	21.5	-	-	-	-	-	-	20.3	27.8	21.5	-

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Orange Line BRT Improvements

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026	2026 2027	2027 2028
Prop. A 35%	-		-	-	-	-									
Prop C - 25%	-		-	-	-	-									
Measure M -Transit Construction (35%)	-		-	-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-	-								
Total Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Potential Ballot Measure

Prop. A 35%	-		-	-	-	-									
Prop C - 25%	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	341.2		341.2	120.1	221.2	-	-	35.4	36.4	37.5	10.8	33.3	57.2	94.2	36.4
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	341.2	-	341.2	120.1	221.2	-	-	35.4	36.4	37.5	10.8	33.3	57.2	94.2	

Difference

Prop. A 35%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Transit Construction (35%)	341.2	-	341.2	120.1	221.2	-	-	35.4	36.4	37.5	10.8	33.3	57.2	94.2	36.4
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	341.2	-	341.2	120.1	221.2	-	-	35.4	36.4	37.5	10.8	33.3	57.2	94.2	36.4

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SR-57 and SR-60 Interchange Improve.

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2023 2024	2024 2025	2025 2026	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032
PROJECT REVENUES															
Regional Surface Transportation	-		-	-	-	-									
Regional Improvement Program Funds (RIP)	-		-	-	-	-									
Prop C - 25%	-		-	-	-	-									
Local Agency Transit Contributions	-		-	-	-	-									
Measure M -Highway (17%)	-		-	-	-	-									
Toll Revenue	-		-	-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-	-	-							
Total Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

Regional Surface Transportation	49.5		49.5	-	49.5	-	-	-	-	-	9.6	16.1	15.6	8.2	-
Regional Improvement Program Funds (RIP)	264.3		264.3	-	264.3	-	-	-	26.6	44.0	53.7	59.7	16.2	64.1	-
Prop C - 25%	410.1		410.1	-	410.1	-	-	20.2	22.0	6.1	84.1	114.0	163.7	-	-
Local Agency Transit Contributions	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway (17%)	306.9		306.9	-	306.9	-	-	7.3	17.7	18.2	53.5	68.9	70.9	70.5	-
Toll Revenue	-		-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	1,030.8	-	1,030.8	-	1,030.8	-	-	27.5	66.3	68.3	200.9	258.7	266.4	142.7	-

Difference

Regional Surface Transportation	49.5	-	49.5	-	49.5	-	-	-	-	-	9.6	16.1	15.6	8.2	-
Regional Improvement Program Funds (RIP)	264.3	-	264.3	-	264.3	-	-	-	26.6	44.0	53.7	59.7	16.2	64.1	-
Prop C - 25%	410.1	-	410.1	-	410.1	-	-	20.2	22.0	6.1	84.1	114.0	163.7	-	-
Local Agency Transit Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway (17%)	306.9	-	306.9	-	306.9	-	-	7.3	17.7	18.2	53.5	68.9	70.9	70.5	-
Toll Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	1,030.8	-	1,030.8	-	1,030.8	-	-	27.5	66.3	68.3	200.9	258.7	266.4	142.7	-

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I-105 Express Lanes from I-405 to I-605

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026	2026 2027	2027 2028	2028 2029	2029 2030
PROJECT REVENUES															
Section 5309 New Starts	-		-	-	-	-									
Measure R - Transit Capital - (35%)	-		-	-	-	-									
Prop C - Discretionary (40%)	-		-	-	-	-									
Prop C - 25%	-		-	-	-	-									
Measure M -Highway (17%)	-		-	-	-	-									
Toll Revenue	-		-	-	-	-									
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-			-	-					
Total Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

Section 5309 New Starts	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R - Transit Capital - (35%)	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - Discretionary (40%)	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - 25%	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	260.0		260.0	100.5	159.5	-	-	-	-	-	-	66.5	91.4	70.6	-
Toll Revenue -Sepulveda Pass	50.5		50.5	-	50.5	-	-	-	-	-	50.5	-	-	-	-
CMAQ	-		-	-	-	-									
RSTP	-		-	-	-	-									
Total Revenues	310.5	-	310.5	100.5	210.1	-	-	-	100.5	103.5	106.6	-	-	-	-

Difference

Section 5309 New Starts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R - Transit Capital - (35%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - Discretionary (40%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	260.0	-	260.0	100.5	159.5	-	-	-	100.5	103.5	56.0	-	-	-	-
Toll Revenue -Sepulveda Pass	50.5	-	50.5	-	50.5	-	-	-	-	-	50.5	-	-	-	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	310.5	-	310.5	100.5	210.1	-	-	-	100.5	103.5	106.6	-	-	-	-

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Sepulveda Pass Transit Corridor (Ph 1)

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2017 2018	2018 2019	2019 2020	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2025 2026	2026 2027
PROJECT REVENUES																
Section 5309 New Starts	-		-	-	-	-										
Measure R - Transit Capital - (35%)	-		-	-	-	-										
Prop C - Discretionary (40%)	-		-	-	-	-										
Prop C - 25%	-		-	-	-	-										
Local Agency Transit Contributions	-		-	-	-	-	-									
Measure M -Highway Construction (17%)	-		-	-	-	-										
Toll Revenue -Sepulveda Pass	-		-	-	-	-										
CMAQ	-		-	-	-	-										
RSTP	-		-	-	-	-							-	-		
Total Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

Section 5309 New Starts	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R - Transit Capital - (35%)	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - Discretionary (40%)	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - 25%	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Transit Contributions	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	260.0		260.0	100.5	159.5	-	-	-	-	-	-	-	100.5	103.5	56.0	-
Toll Revenue -Sepulveda Pass	50.5		50.5	-	50.5	-	-	-	-	-	-	-	-	-	50.5	-
CMAQ	-		-	-	-	-										
RSTP	-		-	-	-	-										
Total Revenues	310.5	-	310.5	100.5	210.1	-	-	-	-	-	-	-	100.5	103.5	106.6	-

Difference

Section 5309 New Starts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure R - Transit Capital - (35%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - Discretionary (40%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prop C - 25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Transit Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measure M -Highway Construction (17%)	260.0	-	260.0	100.5	159.5	-	-	-	-	-	-	-	100.5	103.5	56.0	-
Toll Revenue -Sepulveda Pass	50.5	-	50.5	-	50.5	-	-	-	-	-	-	-	-	-	50.5	-
CMAQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	310.5	-	310.5	100.5	210.1	-	-	-	-	-	-	-	100.5	103.5	106.6	-

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Vermont Transit Corridor

2016 LRTP Update

($ in millions)	Project Total	Prior to FY17	Years '16-'40	Years '17-'24	Years '25-'40	Years '41-'57	2022 2023	2023 2024	2024 2025	2025 2026	2026 2027	2027 2028	2028 2029
PROJECT REVENUES													
Prop C - Discretionary (40%)	-		-	-	-	-							
Prop C - 25%	-		-	-	-	-							
Local Agency Transit Contributions	-		-	-	-	-							
Congestion Mitigation & Air Quality (CMAQ)	-		-	-	-	-							
Measure M -Transit Construction (35%)	-		-	-	-	-							
TIRCP - State Discretionary Grants			-	-	-	-							
RSTP	-		-	-	-	-	-						
Total Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-

Potential Ballot Measure

Prop C - Discretionary (40%)	129.0		129.0	-	129.0	-	-	-	-	0.0	100.7	28.3	-
Prop C - 25%	-		-	-	-	-	-	-	-	-	-	-	-
Local Agency Transit Contributions	15.9		15.9	-	15.9	-	-	-	-	-	-	15.9	-
Congestion Mitigation & Air Quality (CMAQ)	180.0		180.0	-	180.0	-	-	-	31.8	84.0	64.2	-	-
Measure M -Transit Construction (35%)	25.0		25.0	1.5	23.6	-	-	1.5	4.5	7.7	11.4	-	-
TIRCP - State Discretionary Grants	180.0		180.0	23.2	156.8	-	-	23.2	39.8	39.0	39.0	39.0	-
RSTP	-		-	-	-	-							
Total Revenues	530.0	-	530.0	24.7	505.3	-	-	24.7	76.1	130.7	215.4	83.2	-

Difference

Prop C - Discretionary (40%)	129.0	-	129.0	-	129.0	-	-	-	-	0.0	100.7	28.3	-
Prop C - 25%	-	-	-	-	-	-	-	-	-	-	-	-	-
Local Agency Transit Contributions	15.9	-	15.9	-	15.9	-	-	-	-	-	-	15.9	-
Congestion Mitigation & Air Quality (CMAQ)	180.0	-	180.0	-	180.0	-	-	-	31.8	84.0	64.2	-	-
Measure M -Transit Construction (35%)	25.0	-	25.0	1.5	23.6	-	-	1.5	4.5	7.7	11.4	-	-
TIRCP - State Discretionary Grants	180.0	-	180.0	23.2	156.8	-	-	23.2	39.8	39.0	39.0	39.0	-
RSTP	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	530.0	-	530.0	24.7	505.3	-	-	24.7	76.1	130.7	215.4	83.2	-

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