

Metro

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



Agenda - Final

Thursday, March 17, 2016

10:15 AM

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

System Safety, Security and Operations Committee

John Fasana, Chair

Michael Antonovich, Vice Chair

Jacquelyn Dupont-Walker

Don Knabe

Ara Najarian

Carrie Bowen, non-voting member

Phillip A. Washington, Chief Executive Officer

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

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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.

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- 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.

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

CALL TO ORDER

ROLL CALL

24. APPROVE Consent Calendar item: 25.

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

CONSENT CALENDAR

25. RECEIVE AND FILE **monthly update on Transit Policing performance.** [2016-0158](#)

Attachments: [Attachment A - Transit Policing Division Report January 2016](#)
[Attachment B - Matrix of Bus Operator Assault Suspects](#)
[Attachment C - Presentation of Security Apps](#)

NON-CONSENT

26. **Operations Employee of the Month.** [2015-1751](#)

Attachments: [March 2016 Employee of the Month](#)

27. RECEIVE oral **report on System Safety, Security and Operations.** [2015-1752](#)

28. AUTHORIZE: [2016-0035](#)

A. the Chief Executive Officer to award a not-to-exceed contract under Bid Number OP17007 to **NABI Parts Inc., for the purchase of Bus Operator Safety Barrier Installation Kits** for a base amount not to exceed \$5,443,449, inclusive of sales tax; and

B. the amendment of the **FY16 Adopted Budget to add 4 represented full time equivalents (FTE's).**

Attachments: [Attachment A - Procurement Summary](#)
[Attachment B - DEOD Summary](#)

29. AUTHORIZE the Chief Executive Officer (CEO) to award a 16-month firm fixed price contract, Contract No. PS451860016612, to **Cambria Solutions, Inc. in the amount of \$1,149,538 for Metro ExpressLanes Consultant Services for Development of Solicitation Packages.** [2015-1772](#)

Attachments: [Attachment A PS16612 Procurement Summary](#)
 [Attachment B PS16612 DEOD Summary](#)

30. AUTHORIZE the Chief Executive Officer (CEO) to: [2016-0149](#)

- A. ESTABLISH the life of project (LOP) budget in the amount of \$112.7 million for the **Emergency Security Operations Center (ESOC) Phase One**, CP No. 212121; and
- B. AWARD a 36-month firm fixed price Contract No. AE451150019779 to **HDR Engineering, Inc., in the amount of \$5,936,638 for Metro's ESOC Architectural and Engineering design services.**

Attachments: [Attachment A - Procurement Summary.pdf](#)
 [Attachment B - DEOD Summary .pdf](#)
 [Attachment C - Sources and Uses](#)

31. CONSIDER: [2015-1714](#)

- A. RECEIVING AND FILING report on the **evaluation results of the All Door Boarding pilot test on the Wilshire BRT** (Line 720); and
- B. APPROVING expanding the pilot program to the Silver Line (Line 910) starting Summer 2016.

Attachments: [Attachment A - Line 720 All Door Boarding Pilot Project Evaluation](#)
 [Attachment B - All Door Boarding Fare Equity Analysis - Feb 2016](#)

Adjournment

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.



Board Report

File #: 2016-0158, **File Type:** Informational Report

Agenda Number: 25

**SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE
MARCH 17, 2016**

SUBJECT: MONTHLY UPDATE ON TRANSIT POLICING PERFORMANCE

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE **monthly update on Transit Policing performance.**

ISSUE

On September 4, 2014, the board requested that staff provide a monthly update on transit policing performance to Systems Safety and Operations Committee. Specifically, the board requested monthly updates on criminal activity, fare enforcement, response time, deployment and perception of safety.

DISCUSSION

In January 2016, staff continues to be proactive in working with Operations, Los Angeles County Sheriff's Department (LASD), and Communications in addressing perception of safety, criminal activity, fare enforcement, response time, and deployment.

In the new law enforcement services contract, staff is including key performance indicators as tools to track performance.

Below are the key highlights for January 2016:

Actions to Improve the Ridership Experience

- Staff is working with Communications to develop a marketing campaign for safety and security. Marketing materials have been distributed to the system and continue to circulate. Staff is continuing to increase presence on the system using new technologies and redeployment of personnel.
- High Visibility
 - Transit Security Officers (TSO) and Los Angeles County Sheriffs have been engaging

and interacting with patrons and operators to increase presence and increase the perception of safety on the Metro system.

- TSO Bus Boarding Activity: The total number of TSO Bus Boardings for the month of January is 2,697. The total number of fare checks is 27,323.
- LASD Bus Riding Team (BRT): The total number of BRT Bus Rides for the months of January 2016 is 710. The total number of fare checks is 35,076.

Criminal Activity:

JANUARY 2016



Bus Operator Assaults:

- In January 2016, there were 6 operator assaults. Of the 6 total operator assaults for January 2016, 33.3% of the Non-Aggravated Assaults have had a suspect taken into custody. The majority of bus operator assaults are fare related followed by demanding a stop.

- Comparing the months of January 2016 to January 2015, Operator Assaults have decreased 50%.
- Attachment B contains the matrix for the suspects who have assaulted Bus Operators that LASD has been tracking.
- Of the 6 total operator assaults from January 2016, there were 6 non-aggravated assaults. Of the 6 assaults, 3 used spit as their method of assault, followed by 2 who used their hands and 1 that threw cold liquid.
- In the month of January 2016, there were 50,302,672 bus boardings and 6 total operator assaults, equating to 1 bus operator assault per 8.4 million boardings.

Operator Safety:

- The Metro Communications team is rolling out a new marketing campaign targeted at reducing Bus Operator assaults. The campaign features photographs of Metro bus operators and their children and grandchildren, and the accompanying messages are emotional, first-person pleas from these children to respect and protect our operators and their families.
- The sustained campaign will be featured on all Metro buses as well as online and outdoor ads, at Metro bus divisions, and on metro.net and all Metro's social media channels.

LASD Success Stories

- **01/12/2016** - At approximately 7:00 AM, detectives from the TPD Central Ops Bureau alongside Crime Impact Team 1 served a search warrant on the residence of a 15 year old male in connection to burglaries the juvenile may have committed. The juvenile was also wanted in connection to a video of a woman being robbed and beaten on board a Blue Line train in November 2015. Items were recovered tying the juvenile to several burglaries. He was also questioned and admitted to his involvement in the robbery and assault from November. Charges have been filed against him.
- **01/12/2016** - Two victims were targeted due to being in an inter-racial relationship. Vic 1 was assaulted before escaping to seek assistance. Vic 1 managed to flag down Transit Bureau South deputies that were at the station for an unrelated call. The other party in the relationship (Vic 2) was not allowed off the train by the suspect. Suspect proceeded to take the phone of another victim (Vic 3). Deputies did not make it in time to the train but requested units to respond to the Wardlow Station where the suspect was arrested for assault, mayhem, kidnapping, and robbery. No victim was injured.
- **01/26/2016** - Undercover TPD Central Ops detectives detained a suspect matching the description of a thief that had robbed a Metro Red Line patron at gunpoint. Through further investigation, the identity of the second suspect was attained. Investigation is ongoing as one

or more suspects may also be responsible for other crimes on the Metro system.

Fare Enforcement:

- In January 2016, law enforcement performed 722,596 fare checks on the rails and Orange Line. In comparison, law enforcement performed 574,239 fare checks on the rails and Orange Line in January 2015. Based on the monthly targets, in January 2016 law enforcement had a 9% saturation rate.

JANUARY	2015			2016			MONTHLY TARGET
	FARES CHECKED	TARGET ATTAINED	RIDERSHIP	FARES CHECKED	TARGET ATTAINED	RIDERSHIP	
Red/Purple	192,933	88%	4,009,324	214,884	98%	3,770,009	220,000
Blue	87,553	41%	2,202,538	147,150	69%	1,981,639	212,000
Green	92,747	68%	1,025,405	114,445	84%	950,362	136,000
Gold	94,840	82%	1,132,481	125,439	108%	1,237,009	116,000
Expo	55,152	61%	825,771	51,403	57%	808,764	90,000
Orange	49,950	54%	787,727	67,349	73%	594,042	92,000
Bus	1,064		-	1,926		-	
Total	574,239			722,596			
SATURATION RATE	7%			9%			

Response Time:

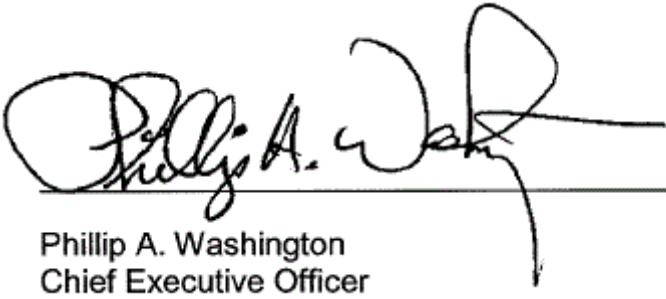
- In January 2016, the average response time for “Calls for Service” (Emergency, Priority and Routine) for all rail lines and buses was 16.9 minutes.
- LASD currently complies with Metro’s Performance Metrics requirement of average of 30 minutes for calls for service. The response time for emergency calls was 7.2 minutes for January 2016.

ATTACHMENTS

- Attachment A - Transit Policing Division Report January 2016
- Attachment B - Matrix of Bus Operator Assault Suspects
- Attachment C - Security Mobile Applications

Prepared by: Alex Wiggins, EO System Security and Law Enforcement, (213) 922-4433

Reviewed by:
Stephanie Wiggins, Deputy Chief Executive Officer, (213) 922-1023



Phillip A. Washington
Chief Executive Officer

*LOS ANGELES COUNTY SHERIFF'S DEPARTMENT
TRANSIT POLICING DIVISION
RONENE M. ANDA, CHIEF*



MTA
MONTHLY REPORT
January 2016

Prepared by the Crime Analysis Unit



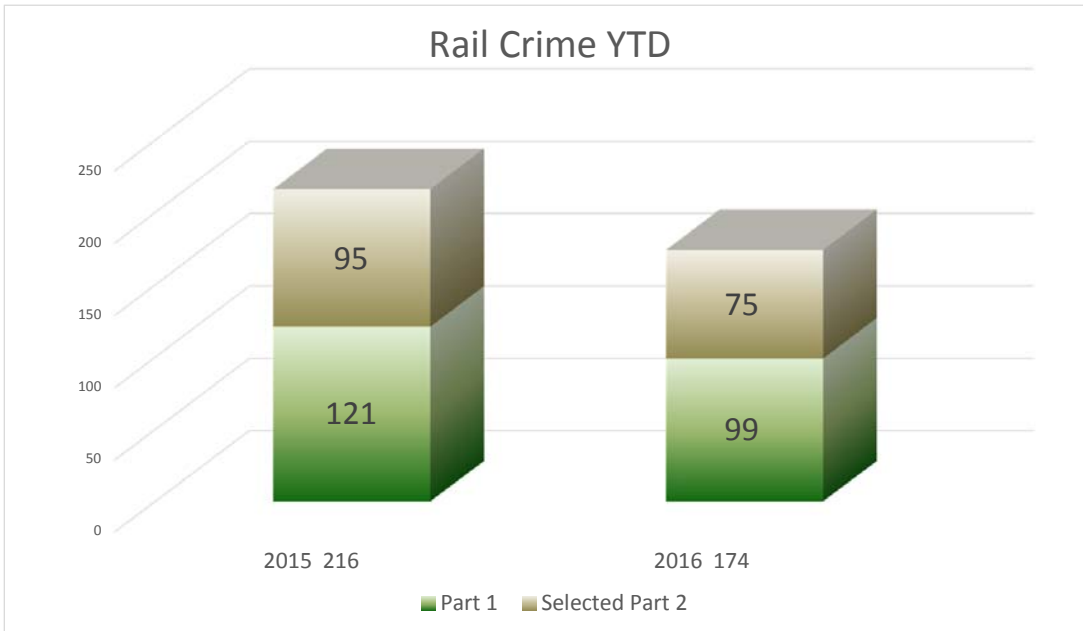
LOS ANGELES COUNTY SHERIFF'S DEPARTMENT
TRANSIT POLICING DIVISION
RONENE M. ANDA, CHIEF

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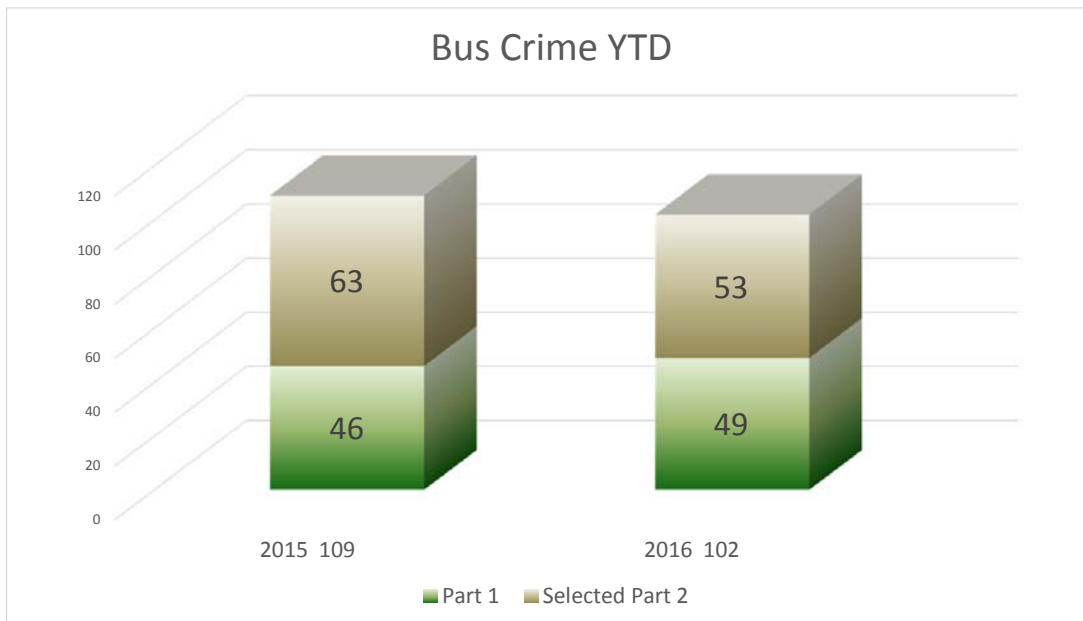
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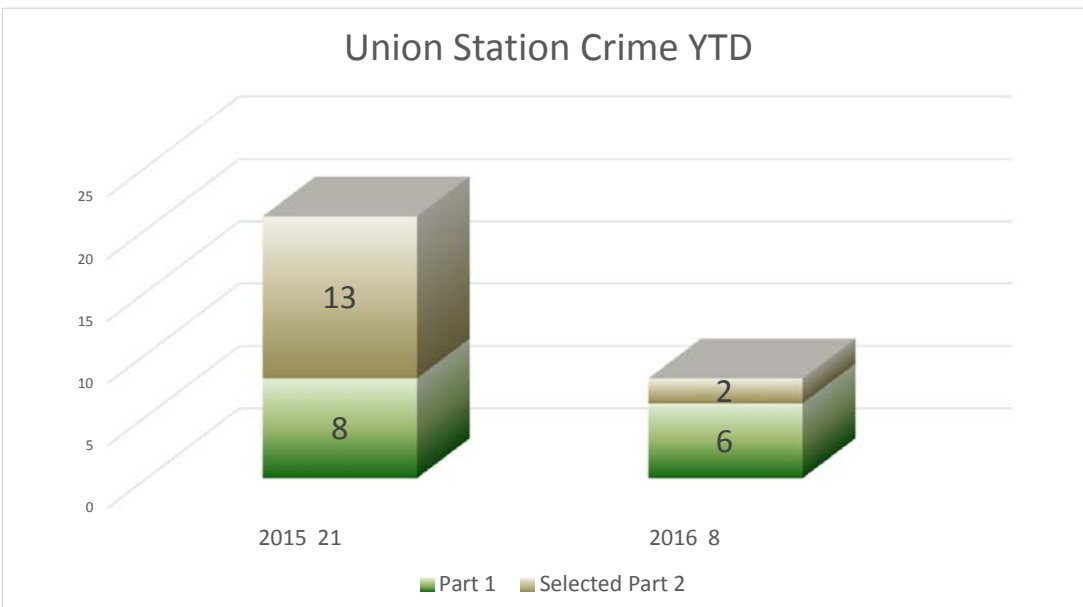
TRANSIT POLICING DIVISION - 2016



Rail Part 1 Crime
DOWN -18.2%
 from last year
Rail Part 2 Crime
DOWN -21.1%
 from last year
Total Rail Crime
DOWN -19.4%
 from last year



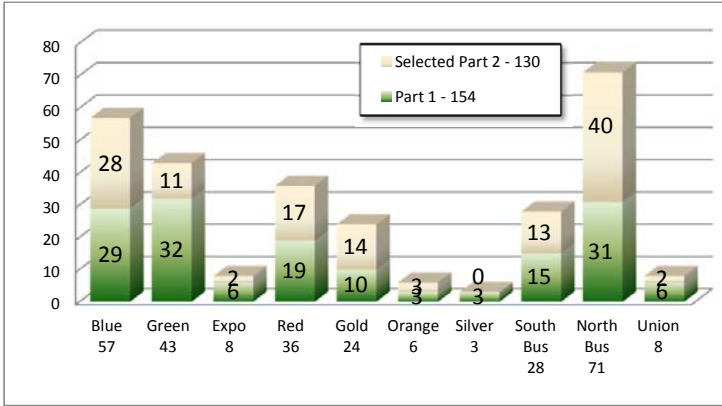
Bus Part 1 Crime
UP 6.5%
 from last year
Bus Part 2 Crime
DOWN -15.9%
 from last year
Total Bus Crime
DOWN -6.4%
 from last year



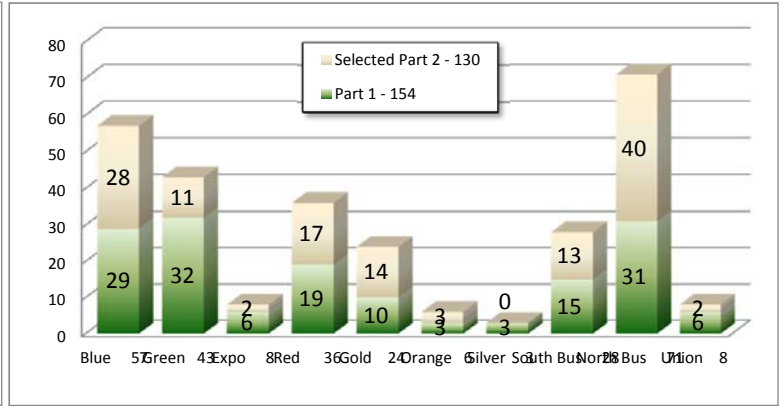
Union Station Part 1 Crime
DOWN -25.0%
 from last year
Union Station Part 2 Crime
DOWN -84.6%
 from last year
Total Union Station Crime
DOWN -61.9%
 from last year

TRANSIT POLICING DIVISION - 2016

Jan Crimes - 284



YTD Crimes - 284

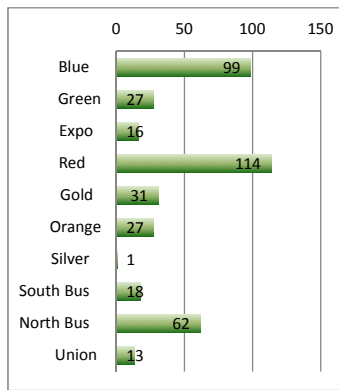


Part 1 Crimes per 1,000,000 Riders

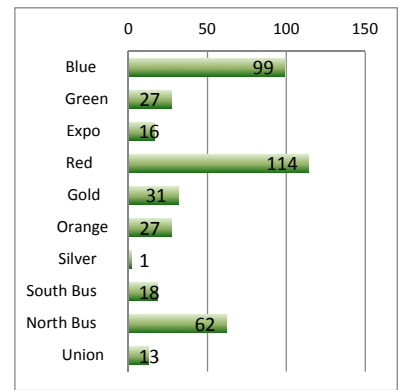
	2016 Jan	2015 Jan	2014 Jan	2013 Jan
Blue	14.6 ↓	18.6	16.0	16.3
Green	33.7 ↑	27.1	29.9	31.6
Expo	7.4 ↓	13.3	15.6	0.0
Red	5.0 ↑	4.2	5.1	4.5
Gold	8.1 ↓	15.9	7.7	10.0
Orange	5.1 ↓	5.9	6.0	2.8
Silver	7.9 ↑	0.0	0.0	3.2
Bus	1.9 ↑	1.7	1.8	1.4

Arrow indicates an increase or decrease from last year.

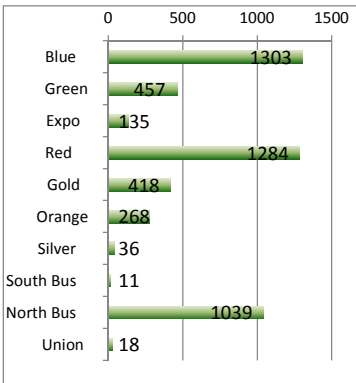
Jan Arrests - 408



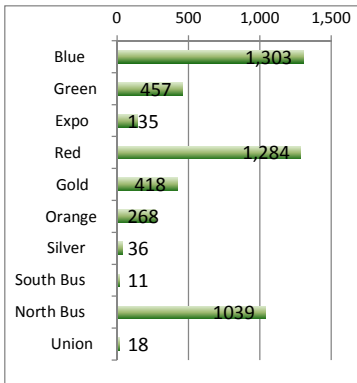
YTD Arrests - 408



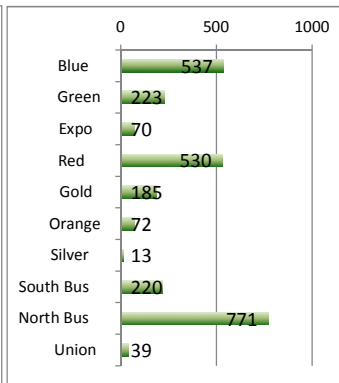
Jan Citations - 4969



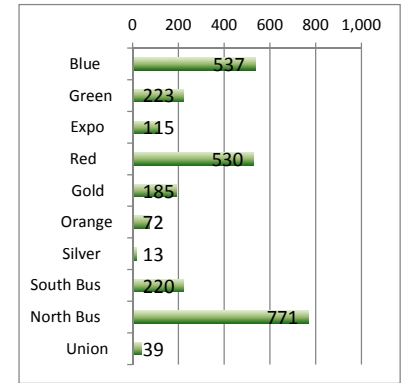
YTD Citations - 4969



Jan Calls For Service - 2660



YTD Calls For Service - 2705



SATURATION RATE

January	BLUE	GREEN	EXPO	RED	GOLD	ORG	TOTAL
Ridership	1,981,639	950,362	808,764	3,770,009	1,237,009	594,042	9,341,825
Contacts	147,150	114,445	51,403	214,884	125,439	67,349	720,670
%Passengers Inspected	7.43%	12.04%	6.36%	5.70%	10.14%	11.34%	7.71%
Boardings	0	0	0	0	0	0	0
Rides	0	0	0	0	0	0	0
Fare Warnings	0	0	0	0	0	0	0

YTD	BLUE	GREEN	EXPO	RED	GOLD	ORG	TOTAL
YTD Ridership	1,981,639	950,362	808,764	3,770,009	1,237,009	594,042	9,341,825
YTD Contacts*	147,150	114,445	51,403	214,884	125,439	67,349	720,670
%Passengers Inspected	7.43%	12.04%	6.36%	5.70%	10.14%	11.34%	7.71%
Boardings	0	0	0	0	0	0	0
Rides	0	0	0	0	0	0	0
Fare Warnings	0	0	0	0	0	0	0

* Contacts are calculated by adding MPV checks and citations.

System-Wide Highlights

Part 1 Crimes have decreased by 12% from Jan 2016 compared to Jan 2015.

The Blue, Expo, Gold, and Orange Lines had a decrease in part 1 crimes per 1,000,000 riders, while the Green, Red, and Silver Lines had an increase.

Overall, buses had an increase in part 1 crimes per 1,000,000 riders from the same period last year.

*Part 1 Crimes by Month - Rail

Blue Line	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Homicide	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0
Robbery	13	0	0	0	0	0	0	0	0	0	0	0	13
Agg Assault	2	0	0	0	0	0	0	0	0	0	0	0	2
Agg Assault on Op	0	0	0	0	0	0	0	0	0	0	0	0	0
Burglary	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Theft	7	0	0	0	0	0	0	0	0	0	0	0	7
Petty Theft	3	0	0	0	0	0	0	0	0	0	0	0	3
GTA	1	0	0	0	0	0	0	0	0	0	0	0	1
BTFV	3	0	0	0	0	0	0	0	0	0	0	0	3
Arson	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	29	0	0	0	0	0	0	0	0	0	0	0	29

Green Line	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Homicide	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	1	0	0	0	0	0	0	0	0	0	0	0	1
Robbery	8	0	0	0	0	0	0	0	0	0	0	0	8
Agg Assault	6	0	0	0	0	0	0	0	0	0	0	0	6
Agg Assault on Op	0	0	0	0	0	0	0	0	0	0	0	0	0
Burglary	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Theft	9	0	0	0	0	0	0	0	0	0	0	0	9
Petty Theft	1	0	0	0	0	0	0	0	0	0	0	0	1
GTA	4	0	0	0	0	0	0	0	0	0	0	0	4
BTFV	2	0	0	0	0	0	0	0	0	0	0	0	2
Arson	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	32	0	0	0	0	0	0	0	0	0	0	0	32

Expo Line	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Homicide	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0
Robbery	0	0	0	0	0	0	0	0	0	0	0	0	0
Agg Assault	0	0	0	0	0	0	0	0	0	0	0	0	0
Agg Assault on Op	0	0	0	0	0	0	0	0	0	0	0	0	0
Burglary	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Theft	4	0	0	0	0	0	0	0	0	0	0	0	4
Petty Theft	2	0	0	0	0	0	0	0	0	0	0	0	2
GTA	0	0	0	0	0	0	0	0	0	0	0	0	0
BTFV	0	0	0	0	0	0	0	0	0	0	0	0	0
Arson	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	6	0	0	0	0	0	0	0	0	0	0	0	6

Red Line	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Homicide	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	1	0	0	0	0	0	0	0	0	0	0	0	1
Robbery	6	0	0	0	0	0	0	0	0	0	0	0	6
Agg Assault	4	0	0	0	0	0	0	0	0	0	0	0	4
Agg Assault on Op	0	0	0	0	0	0	0	0	0	0	0	0	0
Burglary	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Theft	2	0	0	0	0	0	0	0	0	0	0	0	2
Petty Theft	5	0	0	0	0	0	0	0	0	0	0	0	5
GTA	1	0	0	0	0	0	0	0	0	0	0	0	1
BTFV	0	0	0	0	0	0	0	0	0	0	0	0	0
Arson	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	19	0	0	0	0	0	0	0	0	0	0	0	19

Gold Line	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Homicide	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0
Robbery	1	0	0	0	0	0	0	0	0	0	0	0	1
Agg Assault	2	0	0	0	0	0	0	0	0	0	0	0	2
Agg Assault on Op	0	0	0	0	0	0	0	0	0	0	0	0	0
Burglary	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Theft	1	0	0	0	0	0	0	0	0	0	0	0	1
Petty Theft	1	0	0	0	0	0	0	0	0	0	0	0	1
GTA	0	0	0	0	0	0	0	0	0	0	0	0	0
BTFV	5	0	0	0	0	0	0	0	0	0	0	0	5
Arson	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10	0	0	0	0	0	0	0	0	0	0	0	10

* Part 1 Crimes are calculated in accordance with the FBI Uniform Crime Report standards.
 Homicides, Rapes, and Aggravated Assaults are counted by the number of victims.

Part 1 Crimes by Month - Bus

Orange Line	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Homicide	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0
Robbery	1	0	0	0	0	0	0	0	0	0	0	0	1
Agg Assault	0	0	0	0	0	0	0	0	0	0	0	0	0
Agg Assault on Op	0	0	0	0	0	0	0	0	0	0	0	0	0
Burglary	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Theft	1	0	0	0	0	0	0	0	0	0	0	0	1
Petty Theft	1	0	0	0	0	0	0	0	0	0	0	0	1
GTA	0	0	0	0	0	0	0	0	0	0	0	0	0
BTFV	0	0	0	0	0	0	0	0	0	0	0	0	0
Arson	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	0	0	0	0	0	0	0	0	0	0	0	3

Silver Line	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Homicide	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0
Robbery	1	0	0	0	0	0	0	0	0	0	0	0	1
Agg Assault	1	0	0	0	0	0	0	0	0	0	0	0	1
Agg Assault on Op	0	0	0	0	0	0	0	0	0	0	0	0	0
Burglary	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Theft	1	0	0	0	0	0	0	0	0	0	0	0	1
Petty Theft	0	0	0	0	0	0	0	0	0	0	0	0	0
GTA	0	0	0	0	0	0	0	0	0	0	0	0	0
BTFV	0	0	0	0	0	0	0	0	0	0	0	0	0
Arson	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	0	0	0	0	0	0	0	0	0	0	0	3

South Bus	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Homicide	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0
Robbery	3	0	0	0	0	0	0	0	0	0	0	0	3
Agg Assault	2	0	0	0	0	0	0	0	0	0	0	0	2
Agg Assault on Op	0	0	0	0	0	0	0	0	0	0	0	0	0
Burglary	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Theft	1	0	0	0	0	0	0	0	0	0	0	0	1
Petty Theft	6	0	0	0	0	0	0	0	0	0	0	0	6
GTA	2	0	0	0	0	0	0	0	0	0	0	0	2
BTFV	1	0	0	0	0	0	0	0	0	0	0	0	1
Arson	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	15	0	0	0	0	0	0	0	0	0	0	0	15

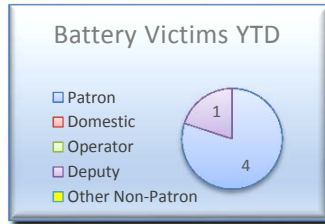
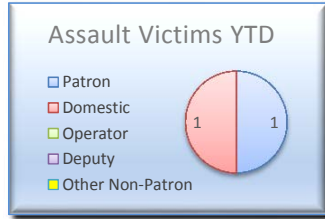
North Bus	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Homicide	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0
Robbery	6	0	0	0	0	0	0	0	0	0	0	0	6
Agg Assault	6	0	0	0	0	0	0	0	0	0	0	0	6
Agg Assault on Op	0	0	0	0	0	0	0	0	0	0	0	0	0
Burglary	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Theft	14	0	0	0	0	0	0	0	0	0	0	0	14
Petty Theft	5	0	0	0	0	0	0	0	0	0	0	0	5
GTA	0	0	0	0	0	0	0	0	0	0	0	0	0
BTFV	0	0	0	0	0	0	0	0	0	0	0	0	0
Arson	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	31	0	0	0	0	0	0	0	0	0	0	0	31

Union Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Homicide	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0
Robbery	0	0	0	0	0	0	0	0	0	0	0	0	0
Agg Assault	1	0	0	0	0	0	0	0	0	0	0	0	1
Agg Assault on Op	0	0	0	0	0	0	0	0	0	0	0	0	0
Burglary	2	0	0	0	0	0	0	0	0	0	0	0	2
Grand Theft	0	0	0	0	0	0	0	0	0	0	0	0	0
Petty Theft	3	0	0	0	0	0	0	0	0	0	0	0	3
GTA	0	0	0	0	0	0	0	0	0	0	0	0	0
BTFV	0	0	0	0	0	0	0	0	0	0	0	0	0
Arson	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	6	0	0	0	0	0	0	0	0	0	0	0	6

Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Homicide	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	2	0	0	0	0	0	0	0	0	0	0	0	2
Robbery	39	0	0	0	0	0	0	0	0	0	0	0	39
Agg Assault	24	0	0	0	0	0	0	0	0	0	0	0	24
Agg Assault on Op	0	0	0	0	0	0	0	0	0	0	0	0	0
Burglary	2	0	0	0	0	0	0	0	0	0	0	0	2
Grand Theft	40	0	0	0	0	0	0	0	0	0	0	0	40
Petty Theft	27	0	0	0	0	0	0	0	0	0	0	0	27
GTA	8	0	0	0	0	0	0	0	0	0	0	0	8
BTFV	11	0	0	0	0	0	0	0	0	0	0	0	11
Arson	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	154	0	0	0	0	0	0	0	0	0	0	0	154

BLUE LINE

REPORTED CRIME		
PART 1 CRIMES	Jan	YTD
Homicide	0	0
Rape	0	0
Robbery	13	13
Agg Assault	2	2
Agg Assault on Op	0	0
Burglary	0	0
Grand Theft	7	7
Petty Theft	3	3
Motor Vehicle Theft	1	1
Burg/Theft From Vehicle	3	3
Arson	0	0
SUB-TOTAL	29	29
Selected Part 2 Crimes		
Battery	5	5
Battery Rail Operator	0	0
Sex Offenses	2	2
Weapons	2	2
Narcotics	6	6
Trespassing	8	8
Vandalism	5	5
SUB-TOTAL	28	28
TOTAL	57	57



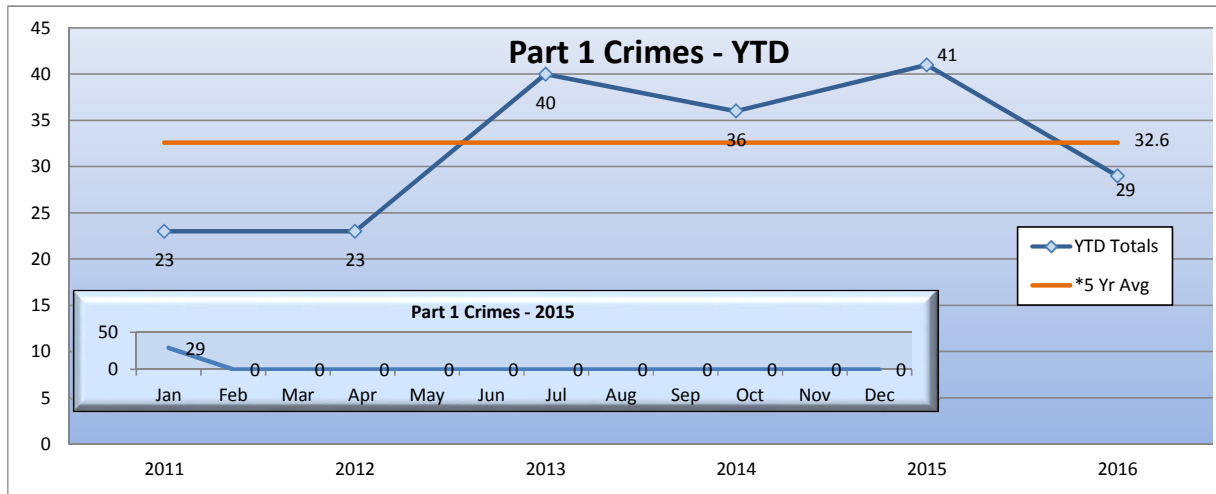
Part 1 Crimes per Station		
Station	Jan	YTD
7th/Metro	1	1
Pico	0	0
Grand	0	0
San Pedro	0	0
Washington	0	0
Vernon	1	1
Slauson	1	1
Florence	2	2
Firestone	2	2
103rd St	3	3
Willowbrook	0	0
Compton	4	4
Artesia	1	1
Del Amo	5	5
Wardlow	2	2
Willow	3	3
PCH	2	2
Anaheim	1	1
5th St	0	0
1st St	0	0
Transit Mall	0	0
Pacific	1	1
Rail Yard	0	0
Total	29	29

ARRESTS		
Type	Jan	YTD
Felony	27	27
Misdemeanor	72	72
TOTAL	99	99

CITATIONS		
Type	Jan	YTD
Fare Evasion Citations	931	931
Other Citations	198	198
Vehicle Code Citations	174	174
TOTAL	1,303	1,303

CALLS FOR SERVICE				
TYPE	Jan		YTD	
	Total	Avg	Total	Avg
Emergency	34	6.2	34	6.2
Priority	280	13.8	280	13.8
Routine	223	21.9	223	21.9
Total	537	16.7	537	16.7

FARE ENFORCEMENT		
	Jan	YTD
Ridership	1,981,639	1,981,639
Contacts	147,150	147,150
% of Patrons Inspected	7.43	7.43
Boardings	0	0
Ride	0	0
Fare Warning	0	0



Blue Line Highlights

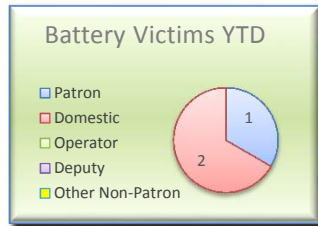
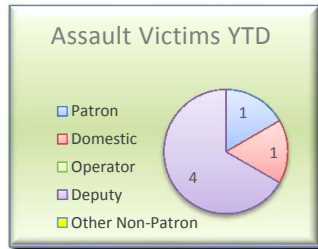
The Blue Line had 12 less part 1 crimes, which is a 29% decrease from the same period last year.

Part 1 crimes per 1,000,000 riders were down from the same period last year.

*5 yr average is based on the average of part 1 crimes from 2011 - 2015.

GREEN LINE

REPORTED CRIME		
PART 1 CRIMES	Jan	YTD
Homicide	0	0
Rape	1	1
Robbery	8	8
Agg Assault	6	6
Agg Assault on Op	0	0
Burglary	0	0
Grand Theft	9	9
Petty Theft	1	1
Motor Vehicle Theft	4	4
Burg/Theft From Vehicle	2	2
Arson	1	1
SUB-TOTAL	32	32
Selected Part 2 Crimes		
Battery	3	3
Battery Rail Operator	0	0
Sex Offenses	0	0
Weapons	1	1
Narcotics	2	2
Trespassing	0	0
Vandalism	5	5
SUB-TOTAL	11	11
TOTAL	43	43



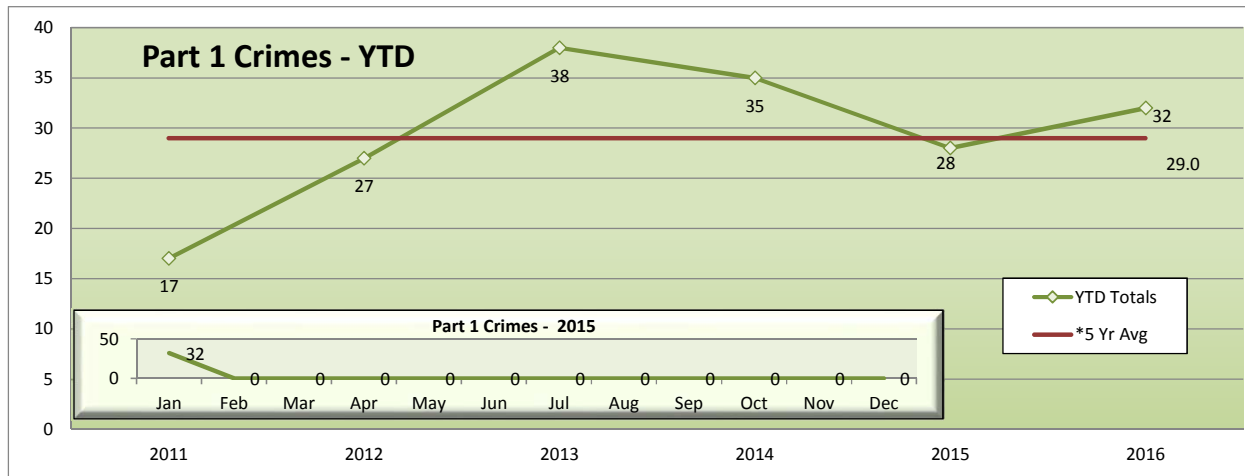
Part 1 Crimes per Station		
Station	Jan	YTD
Redondo Beach	0	0
Douglas	0	0
El Segundo	0	0
Mariposa	0	0
Aviation	0	0
Hawthorne	1	1
Crenshaw	4	4
Vermont	7	7
Harbor	5	5
Avalon	1	1
Willowbrook	1	1
Long Beach	6	6
Lakewood	3	3
Norwalk	4	4
Total	32	32

ARRESTS		
Type	Jan	YTD
Felony	14	14
Misdemeanor	13	13
TOTAL	27	27

CITATIONS		
Type	Jan	YTD
Fare Evasion Citations	276	276
Other Citations	43	43
Vehicle Code Citations	138	138
TOTAL	457	457

CALLS FOR SERVICE				
TYPE	Jan		YTD	
	Total	Avg	Total	Avg
Emergency	15	6.7	15	6.7
Priority	98	12.0	98	12.0
Routine	110	21.3	110	21.3
Total	223	16.3	223	16.3

FARE ENFORCEMENT		
	Jan	YTD
Ridership	950,362	950,362
Contacts	114,445	114,445
% of Patrons Inspected	12.04	12.04
Boardings	0	0
Ride	0	0
Fare Warning	0	0



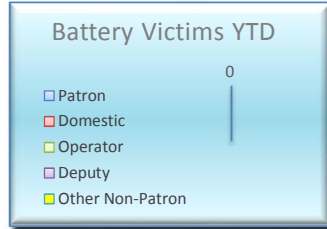
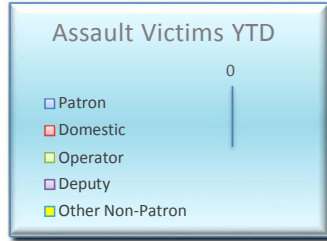
*5 yr average is based on the average of part 1 crimes from 2011 - 2015.

Green Line Highlights
The Green Line had 4 more part 1 crimes, which is a 14% increase from the same period last year.
Part 1 crimes per 1,000,000 riders were up from the same period last year.

EXPO LINE

REPORTED CRIME

PART 1 CRIMES	Jan	YTD
Homicide	0	0
Rape	0	0
Robbery	0	0
Agg Assault	0	0
Agg Assault on Op	0	0
Burglary	0	0
Grand Theft	4	4
Petty Theft	2	2
Motor Vehicle Theft	0	0
Burg/Theft From Vehicle	0	0
Arson	0	0
SUB-TOTAL	6	6
Selected Part 2 Crimes		
Battery	0	0
Battery Rail Operator	0	0
Sex Offenses	0	0
Weapons	0	0
Narcotics	0	0
Trespassing	0	0
Vandalism	2	2
SUB-TOTAL	2	2
TOTAL	8	8



Part 1 Crimes per Station

Station	Jan	YTD
7th/Metro	0	0
Pico	0	0
23rd St	1	1
Jefferson/USC	1	1
Expo/USC	0	0
Expo/Vermont	1	1
Expo/Western	0	0
Expo/Crenshaw	0	0
Farmdale	0	0
La Brea	0	0
La Cienega	0	0
Culver City	3	3
Total	6	6

ARRESTS

Type	Jan	YTD
Felony	4	4
Misdemeanor	12	12
TOTAL	16	16

CITATIONS

Type	Jan	YTD
Fare Evasion Citations	80	80
Other Citations	7	7
Vehicle Code Citations	48	48
TOTAL	135	135

CALLS FOR SERVICE

TYPE	Jan		YTD	
	Total	Avg	Total	Avg
Emergency	6	5.2	6	5.2
Priority	16	56.2	61	14.7
Routine	48	26.6	48	26.6
Total	70	31.5	115	39.1

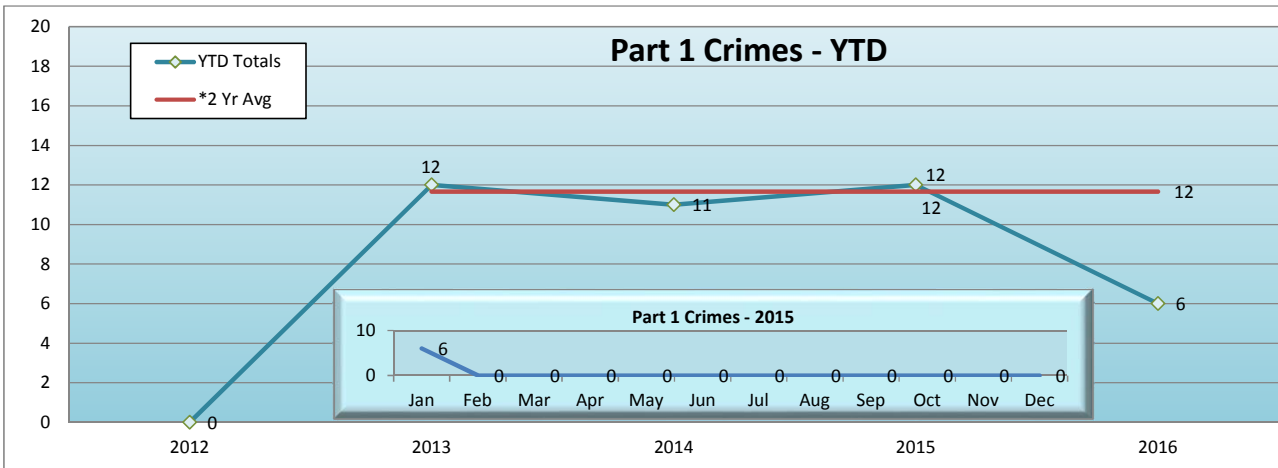
FARE ENFORCEMENT

	Jan	YTD
Ridership	808,764	808,764
Contacts	51,403	51,403
% of Patrons Inspected	6.36	6.36
Boardings	0	0
Ride	0	0
Fare Warning	0	0

Expo Line Highlights

The Expo Line had 6 less part 1 crime, which is a 50% decrease from the same period last year.

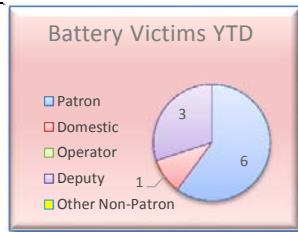
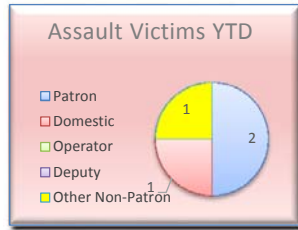
Part 1 crimes per 1,000,000 riders were down from the same period last year.



*Expo line opened in April 2012, so a 3 yr average from 2013 - 2015 is calculated.

RED LINE

REPORTED CRIME		
PART 1 CRIMES	Jan	YTD
Homicide	0	0
Rape	1	1
Robbery	6	6
Agg Assault	4	4
Agg Assault on Op	0	0
Burglary	0	0
Grand Theft	2	2
Petty Theft	5	5
Motor Vehicle Theft	1	1
Burg/Theft From Vehicle	0	0
Arson	0	0
SUB-TOTAL	19	19
Selected Part 2 Crimes		
Battery	10	10
Battery Rail Operator	0	0
Sex Offenses	1	1
Weapons	0	0
Narcotics	4	4
Trespassing	0	0
Vandalism	2	2
SUB-TOTAL	17	17
TOTAL	36	36



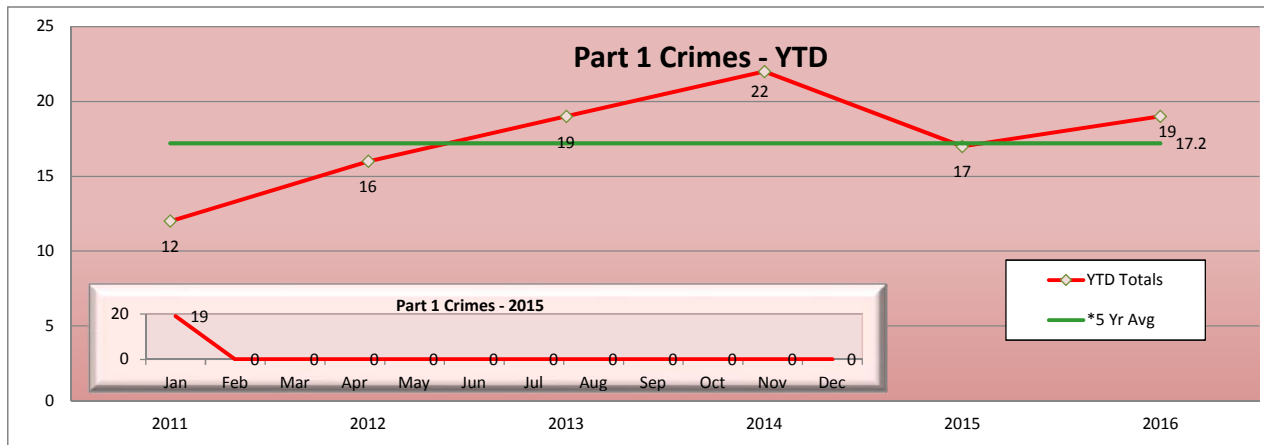
Part 1 Crimes per Station		
Station	Jan	YTD
Union Station	2	2
Civic Center	1	1
Pershing Square	1	1
7th/Metro	0	0
Westlake	1	1
Wilshire/Vermont	1	1
Wilshire/Normandie	0	0
Vermont/Beverly	1	1
Wilshire/Western	0	0
Vermont/Santa Monica	1	1
Vermont/Sunset	0	0
Hollywood/Western	0	0
Hollywood/Vine	2	2
Hollywood/Highland	5	5
Universal	0	0
North Hollywood	4	4
Red Line Rail Yard	0	0
Total	19	19

ARRESTS		
Type	Jan	YTD
Felony	27	27
Misdemeanor	87	87
TOTAL	114	114

CITATIONS		
Type	Jan	YTD
Fare Evasion Citations	929	929
Other Citations	125	125
Vehicle Code Citations	230	230
TOTAL	1,284	1,284

CALLS FOR SERVICE				
TYPE	Jan		YTD	
	Total	Avg	Total	Avg
Emergency	26	5.6	26	5.6
Priority	283	13.4	283	13.4
Routine	221	21.8	221	21.8
Total	530	16.5	530	16.5

FARE ENFORCEMENT		
	Jan	YTD
Ridership	3,770,009	3,770,009
Contacts	214,884	214,884
% of Patrons Inspected	5.70	5.70
Boardings	0	0
Ride	0	0
Fare Warning	0	0

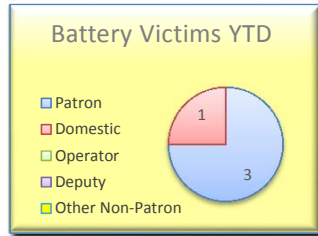
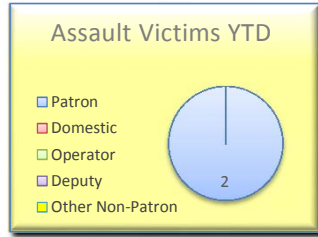


RED Line Highlights
The Red Line had 2 more part 1 crimes which is a 12% increase from the same period last year.
Part 1 crimes per 1,000,000 riders were up from the same period last year.

*5 yr average is based on the average of part 1 crimes from 2011 - 2015.

GOLD LINE

REPORTED CRIME		
PART 1 CRIMES	Jan	YTD
Homicide	0	0
Rape	0	0
Robbery	1	1
Agg Assault	2	2
Agg Assault on Op	0	0
Burglary	0	0
Grand Theft	1	1
Petty Theft	1	1
Motor Vehicle Theft	0	0
Burg/Theft From Vehicle	5	5
Arson	0	0
SUB-TOTAL	10	10
Selected Part 2 Crimes		
Battery	4	4
Battery Rail Operator	0	0
Sex Offenses	1	1
Weapons	0	0
Narcotics	0	0
Trespassing	7	7
Vandalism	2	2
SUB-TOTAL	14	14
TOTAL	24	24



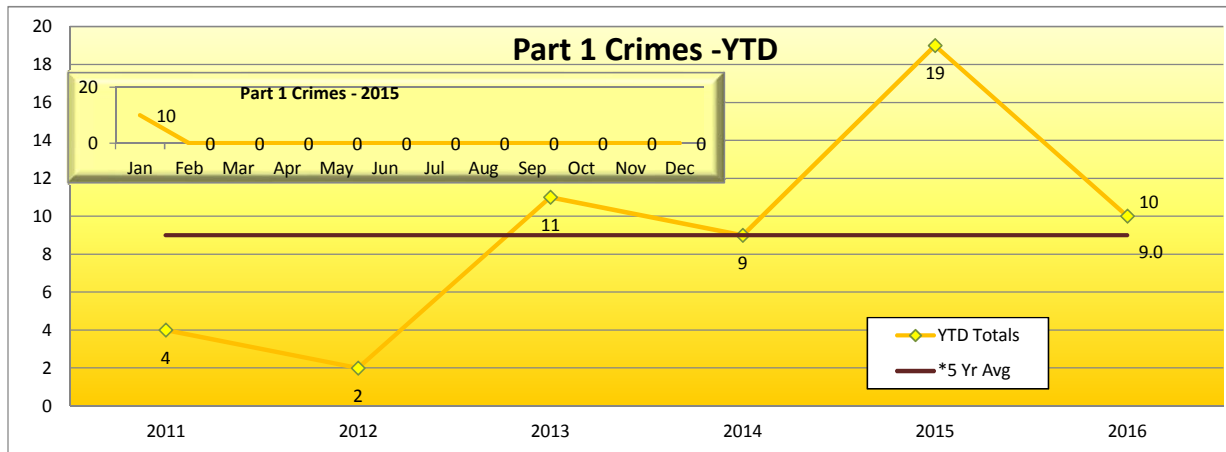
Part 1 Crimes per Station		
Station	Jan	YTD
Sierra Madre	1	1
Allen	2	2
Lake	0	0
Memorial Park	0	0
Del Mar	0	0
Fillmore	0	0
South Pasadena	0	0
Highland Park	0	0
SW Museum	0	0
Heritage Square	0	0
Lincoln Heights	1	1
Chinatown	1	1
Union Station	0	0
Little Tokyo	0	0
Pico	0	0
Mariachi	0	0
Soto	0	0
Indiana	0	0
Maravilla	0	0
East La	0	0
Atlantic	5	5
Total	10	10

ARRESTS		
Type	Jan	YTD
Felony	3	3
Misdemeanor	28	28
TOTAL	31	31

CITATIONS		
Type	Jan	YTD
Fare Evasion Citations	267	267
Other Citations	25	25
Vehicle Code Citations	126	126
TOTAL	418	418

CALLS FOR SERVICE				
TYPE	Jan		YTD	
	Total	Avg	Total	Avg
Emergency	5	10.8	5	10.8
Priority	97	13.2	97	13.2
Routine	83	25.6	83	25.6
Total	185	18.7	185	18.7

FARE ENFORCEMENT		
	Jan	YTD
Ridership	1,237,009	1,237,009
Contacts	125,439	125,439
% of Patrons Inspected	10.14	10.14
Boardings	0	0
Ride	0	0
Fare Warning	0	0



Gold Line Highlights

The Gold Line had 9 less part 1 crimes, which is a 47% decrease of from the same period last year.

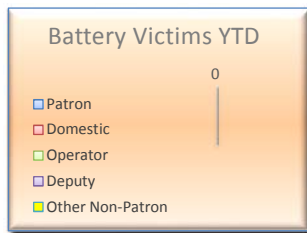
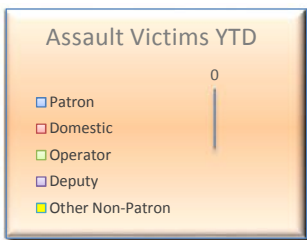
Part 1 crimes per 1,000,000 riders were down from the same period last year.

*5 yr average is based on the average of part 1 crimes from 2011 - 2015.

ORANGE LINE

REPORTED CRIME

PART 1 CRIMES	Jan	YTD
Homicide	0	0
Rape	0	0
Robbery	1	1
Agg Assault	0	0
Agg Assault on Op	0	0
Burglary	0	0
Grand Theft	1	1
Petty Theft	1	1
Motor Vehicle Theft	0	0
Burg/Theft From Vehicle	0	0
Arson	0	0
SUB-TOTAL	3	3
Selected Part 2 Crimes		
Battery	0	0
Battery Bus Operator	0	0
Sex Offenses	0	0
Weapons	0	0
Narcotics	1	1
Trespassing	0	0
Vandalism	2	2
SUB-TOTAL	3	3
TOTAL	6	6



Part 1 Crimes per Station

Station	Jan	YTD
North Hollywood	0	0
Laurel Canyon	0	0
Valley College	0	0
Woodman	0	0
Van Nuys	1	1
Sepulveda	1	1
Woodley	0	0
Balboa	0	0
Reseda	0	0
Tampa	0	0
Pierce College	0	0
De Soto	0	0
Canoga	0	0
Warner Center	0	0
Sherman Way	0	0
Roscoe	0	0
Nordhoff	0	0
Chatsworth	1	1
Total	3	3

ARRESTS

Type	Jan	YTD
Felony	3	3
Misdemeanor	24	24
TOTAL	27	27

CITATIONS

Type	Jan	YTD
Fare Evasion Citations	164	164
Other Citations	10	10
Vehicle Code Citations	94	94
TOTAL	268	268

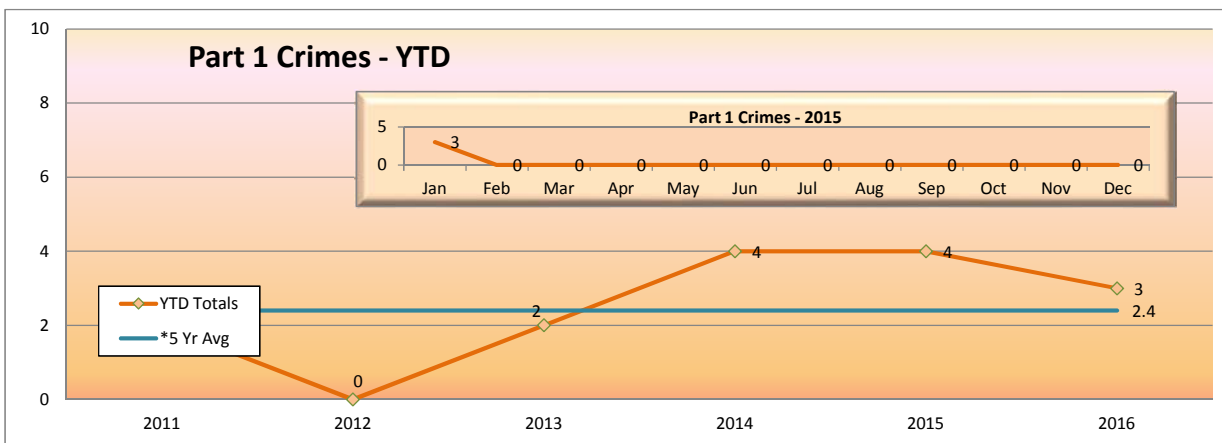
CALLS FOR SERVICE

TYPE	Jan		YTD	
	Total	Avg	Total	Avg
Emergency	2	9.5	2	9.5
Priority	41	12.9	41	12.9
Routine	29	21.6	29	21.6
Total	72	16.3	72	16.3

FARE ENFORCEMENT

	Jan	YTD
Ridership	594,042	594,042
Contacts	67,349	67,349
% of Patrons Inspected	11.34	11.34
Boardings	0	0
Ride	0	0
Fare Warning	0	0

Part 1 Crimes - YTD



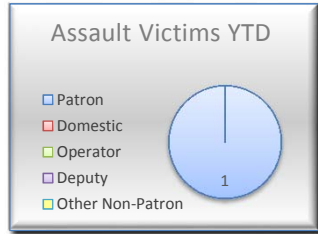
Orange Line Highlights

The Orange Line had 1 less part 1 crimes, which is a 25% decrease from the same period last year.

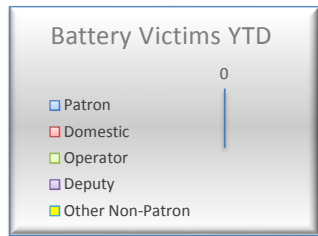
Part 1 crimes per 1,000,000 riders were down from the same period last year.

SILVER LINE

REPORTED CRIME		
PART 1 CRIMES	Jan	YTD
Homicide	0	0
Rape	0	0
Robbery	1	1
Agg Assault	1	1
Agg Assault on Op	0	0
Burglary	0	0
Grand Theft	1	1
Petty Theft	0	0
Motor Vehicle Theft	0	0
Burg/Theft From Vehicle	0	0
Arson	0	0
SUB-TOTAL	3	3
Selected Part 2 Crimes		
Battery	0	0
Battery Bus Operator	0	0
Sex Offenses	0	0
Weapons	0	0
Narcotics	0	0
Trespassing	0	0
Vandalism	0	0
SUB-TOTAL	0	0
TOTAL	3	3



Part 1 Crimes per Station		
Station	Jan	YTD
El Monte	0	0
Cal State LA	0	0
LAC/USC	0	0
Alameda	0	0
Downtown	1	1
37th St/USC	0	0
Slauson	0	0
Manchester	0	0
Harbor Fwy	2	2
Rosecrans	0	0
Harbor/Gateway	0	0
Total	3	3

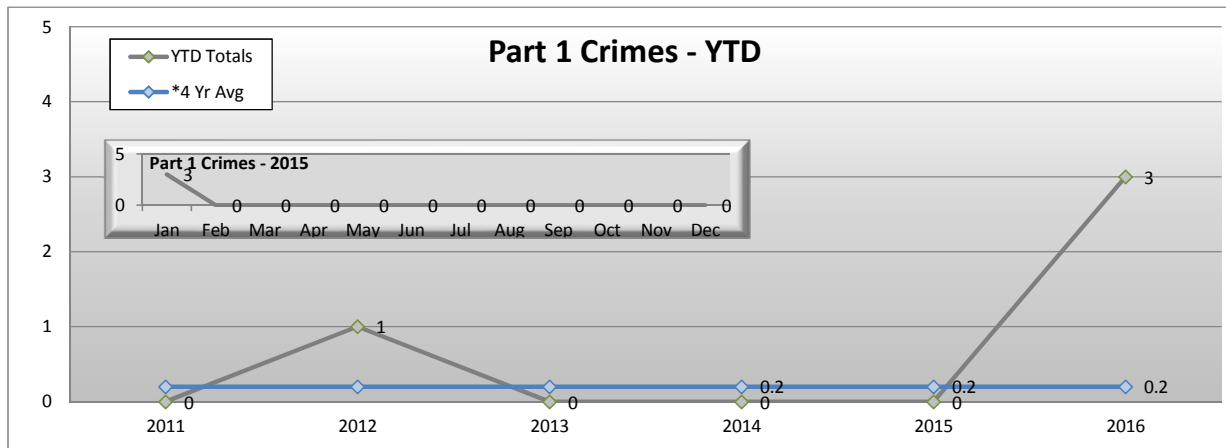


ARRESTS		
Type	Jan	YTD
Felony	0	0
Misdemeanor	1	1
TOTAL	1	1

CITATIONS		
Type	Jan	YTD
Fare Evasion Citations	2	2
Other Citations	9	9
Vehicle Code Citations	25	25
TOTAL	36	36

CALLS FOR SERVICE				
TYPE	Jan		YTD	
	Total	Avg	Total	Avg
Emergency	1	8.0	1	8.0
Priority	6	10.0	6	10.0
Routine	6	15.7	6	15.7
Total	13	12.5	13	12.5

FARE ENFORCEMENT		
	Jan	YTD
Ridership	379,984	379,984
Contacts	1,249	1,249
% of Patrons Inspected	0.33	0.33
Boardings	0	0
Ride	0	0
Fare Warning	2	2



Silver Line Highlights

The Silver Line had 3 more part 1 crimes from the same period last year.

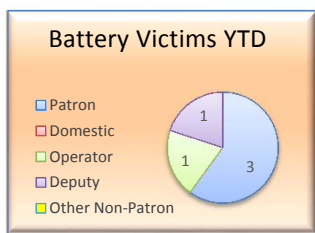
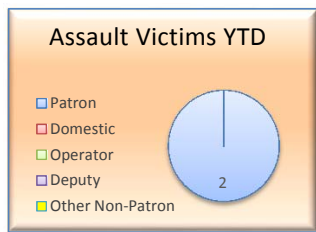
Part 1 crimes per 1,000,000 riders were up from the same period last year.

*5 yr average is based on the average of part 1 crimes from 2011 - 2015.

South Bus Patrol

REPORTED CRIME		
PART 1 CRIMES	Jan	YTD
Homicide	0	0
Rape	0	0
Robbery	3	3
Agg Assault	2	2
Agg Assault on Op	0	0
Burglary	0	0
Grand Theft	1	1
Petty Theft	6	6
Motor Vehicle Theft	2	2
Burg/Theft From Vehicle	1	1
Arson	0	0
SUB-TOTAL	15	15
Selected Part 2 Crimes		
Battery	4	4
Battery Bus Operator	1	1
Sex Offenses	1	1
Weapons	2	2
Narcotics	2	2
Trespassing	0	0
Vandalism	3	3
SUB-TOTAL	13	13
TOTAL	28	28

Part 1 Crimes per Sector		
Sector	Jan	YTD
Gateway Cities	4	4
South Bay	11	11
Total	15	15



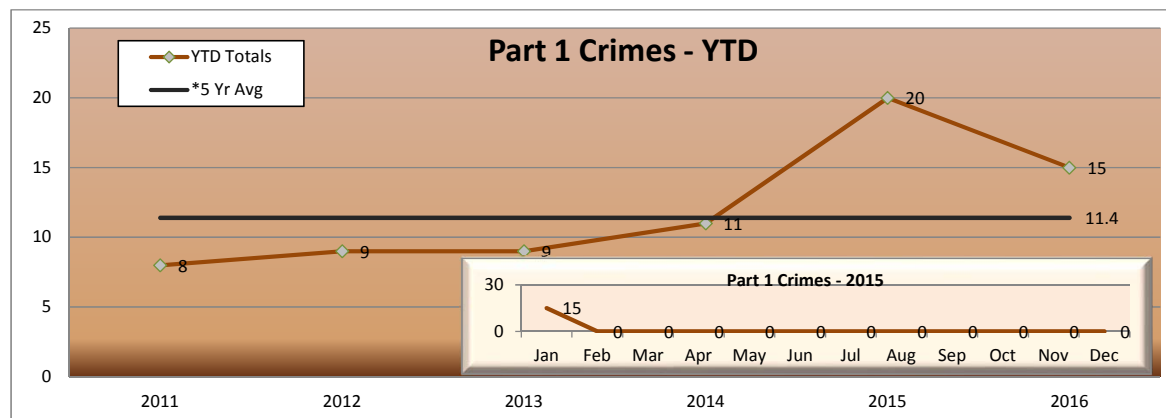
ARRESTS		
Type	Jan	YTD
Felony	9	9
Misdemeanor	9	9
TOTAL	18	18

CITATIONS		
Type	Jan	YTD
Fare Evasion Citations	4	4
Other Citations	2	2
Vehicle Code Citations	5	5
TOTAL	11	11

CALLS FOR SERVICE				
TYPE	Jan		YTD	
	Total	Avg	Total	Avg
Emergency	13	7.5	13	7.5
Priority	133	13.7	133	13.7
Routine	74	28.3	74	28.3
Total	220	18.2	220	18.2

FARE ENFORCEMENT*

*South Bus Fare Enforcement data is combined with North Bus.



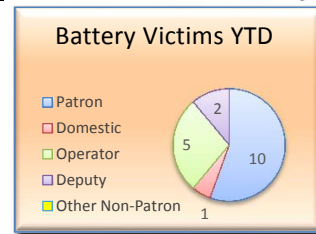
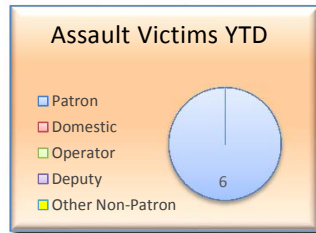
*5 yr average is based on the average of part 1 crimes from 2011 - 2015.

South Bus Highlights

The South bus Lines had 5 less part 1 crimes, which is a 25% decrease from the same period last year.

North Bus Patrol

REPORTED CRIME		
PART 1 CRIMES	Jan	YTD
Homicide	0	0
Rape	0	0
Robbery	6	6
Agg Assault	6	6
Agg Assault on Op	0	0
Burglary	0	0
Grand Theft	14	14
Petty Theft	5	5
Motor Vehicle Theft	0	0
Burg/Theft From Vehicle	0	0
Arson	0	0
SUB-TOTAL	31	31
Selected Part 2 Crimes		
Battery	13	13
Battery Bus Operator	5	5
Sex Offenses	6	6
Weapons	2	2
Narcotics	4	4
Trespassing	0	0
Vandalism	10	10
SUB-TOTAL	40	40
TOTAL	71	71



Part 1 Crimes per Sector		
Sector	Jan	YTD
San Gabriel	1	1
Westside	3	3
San Fernando	3	3
Central	24	24
Total	31	31

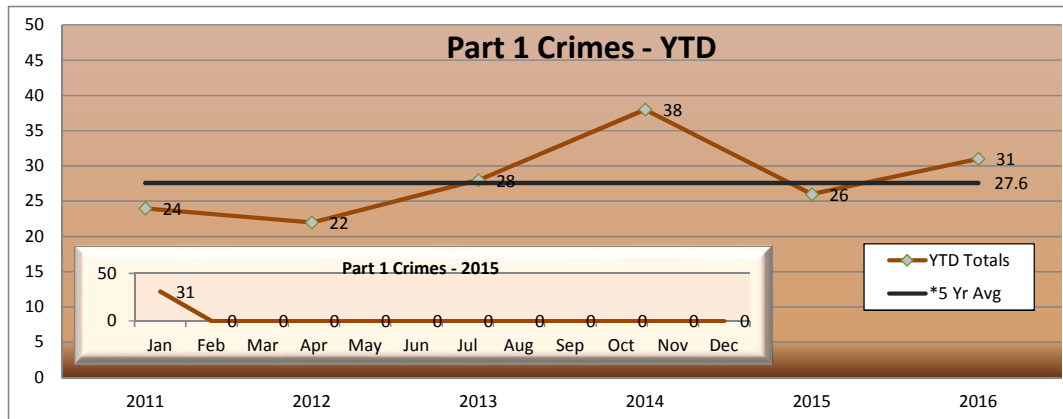


ARRESTS		
Type	Jan	YTD
Felony	7	7
Misdemeanor	55	55
TOTAL	62	62

CITATIONS		
Type	Jan	YTD
Fare Evasion Citations	29	29
Other Citations	13	13
Vehicle Code Citations	997	997
TOTAL	1,039	1,039

CALLS FOR SERVICE				
TYPE	Jan		YTD	
	Total	Avg	Total	Avg
Emergency	22	13.3	22	13.3
Priority	474	3.1	474	15.1
Routine	275	24.7	275	24.7
Total	771	11.1	771	18.5

FARE ENFORCEMENT		
	Jan	YTD
Ridership*	23,690,297	23,690,297
Contacts	1,610	1,610
% of Patrons Inspected	0.01	0.01
Boardings	3,759	3,759
Rides	1,229	1,229
Fare Warning	301	301

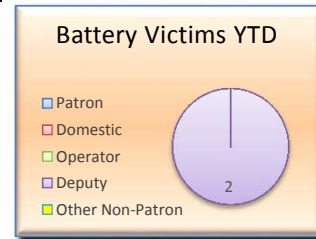
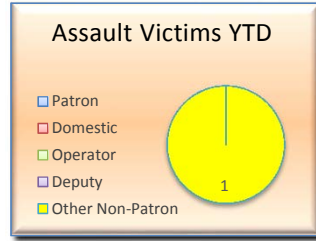


North Bus Highlights
The North Bus Lines had 5 more part 1 crimes, which is a 19% increase from the same period last year.

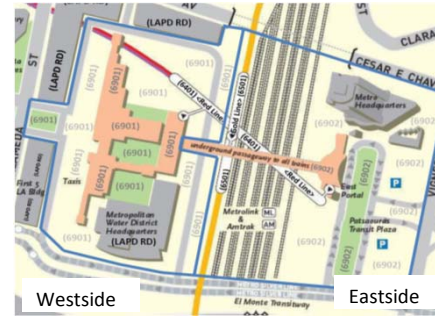
*5 yr average is based on the average of part 1 crimes from 2011 - 2015.

Union Station

REPORTED CRIME		
PART 1 CRIMES	Jan	YTD
Homicide	0	0
Rape	0	0
Robbery	0	0
Agg Assault	1	1
Agg Assault on Op	0	0
Burglary	2	2
Grand Theft	0	0
Petty Theft	3	3
Motor Vehicle Theft	0	0
Burg/Theft From Vehicle	0	0
Arson	0	0
SUB-TOTAL	6	6
Selected Part 2 Crimes		
Battery	2	2
Battery Bus Operator	0	0
Sex Offenses	0	0
Weapons	0	0
Narcotics	0	0
Trespassing	0	0
Vandalism	0	0
SUB-TOTAL	2	2
TOTAL	8	8



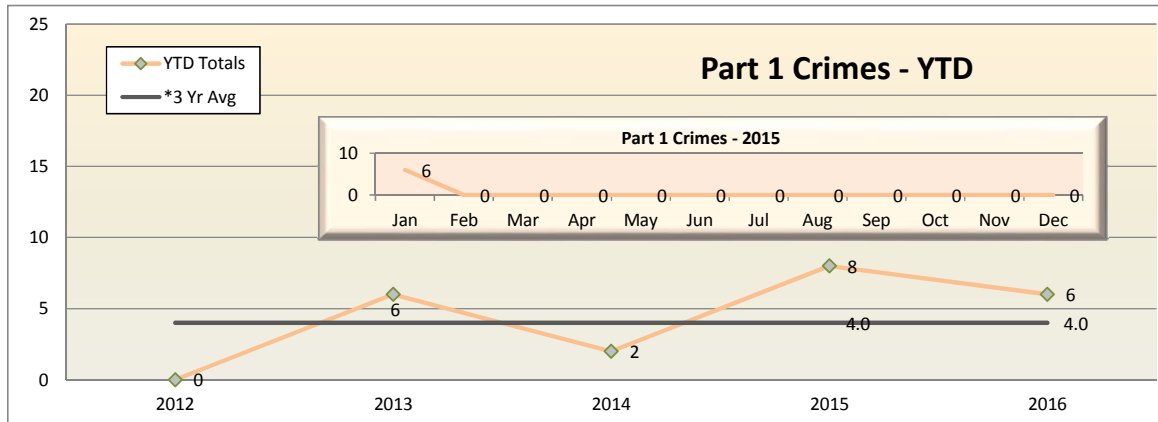
Part 1 Crimes at Union Station		
Side	Jan	YTD
Westside	5	5
Eastside	1	1
Total	6	6



ARRESTS		
Type	Jan	YTD
Felony	2	2
Misdemeanor	11	11
TOTAL	13	13

CITATIONS		
Type	Jan	YTD
Fare Evasion Citations	2	2
Other Citations	12	12
Vehicle Code Citations	4	4
TOTAL	18	18

CALLS FOR SERVICE				
TYPE	Jan		YTD	
	Total	Avg	Total	Avg
Emergency	2	0.0	2	0.0
Priority	19	7.1	19	7.1
Routine	18	15.9	18	15.9
Total	39	10.8	39	10.8



Union Station Highlights

Union Station had 2 less part 1 crime, which is a 25% increase from the same period last year.

*4 yr average is based on the average of part 1 crimes from 2012 - 2015.



LOS ANGELES COUNTY SHERIFF'S DEPARTMENT
 TRANSIT POLICING DIVISION
 RONENE M. ANDA, CHIEF

ALLOCATION OF LAW ENFORCEMENT SERVICES RESERVE COMPANY SERVICES JANUARY

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YTD
TSB San Fernando Valley	12												12
Westside/Central Motors	161												161
SGV Volunteer Company	16												16
Blue/Green Line Sector	16												16
TOTAL	205	0	0	0	0	0	0	0	0	0	0	0	205

*Each month, Reserve totals will display totals from the previous month because totals are not submitted until the end of each month.

The LASD reserve units are attached to regular LASD units of assignments. The reserves are there to perform the same function as any deputy. In that way, the reserves augment the force at no increase in cost. Contract agencies benefit significantly by the presence of reserves since they are directly paying for the LASD contract and do not have to pay for the additional reserve force.

*N/C = Not Complete

www.lasdreserve.org

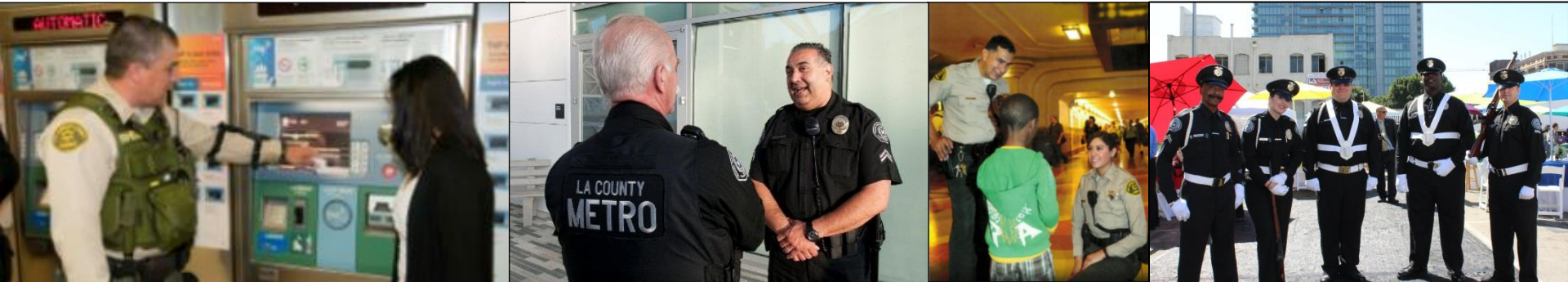
Bus Operator Assault Matrix

Type	Date	Day	Time	Narrative	Flyer	Barrier	Arrest	Charges Requested	Charges Filed	Sentence (Probation/Time/Jail or Prison)
Battery	1/6/2016	Wed	21:00	Sus MB/50/510/180/Blk/Bro spit in the bus op face for passing him up, no barrier	Y					
Battery	1/8/2016	Fri	19:37	Battery sus arrested for bumping bus op outside of bus after she asked for fare, barrier, only half shut						
Battery	1/11/2016	Mon	15:15	Sus MH/35/601/250 spit on the bus op after he was asked for fare	Y					
Battery	1/16/2016	Sat	12:52	Battery sus arrested for spitting on bus op after he wouldn't stop the bus where the sus wanted						
Battery	1/17/2016	Sun	17:19	Battery sus arrested for puchning bus op in the face for missing her stop, no barrier						
Battery	1/21/2016	Thu	17:50	Sus MB/18-20 threw cold liquid on bus op after sus stated his TAP card wasn't working, vic said Whatever, no barrier						

*Highlighted in yellow: have court dates pending or have been referred to the LA County Attorney's Office with no disposition yet.

System Security & Law Enforcement

Mobile Applications & Video Analytic



Metro

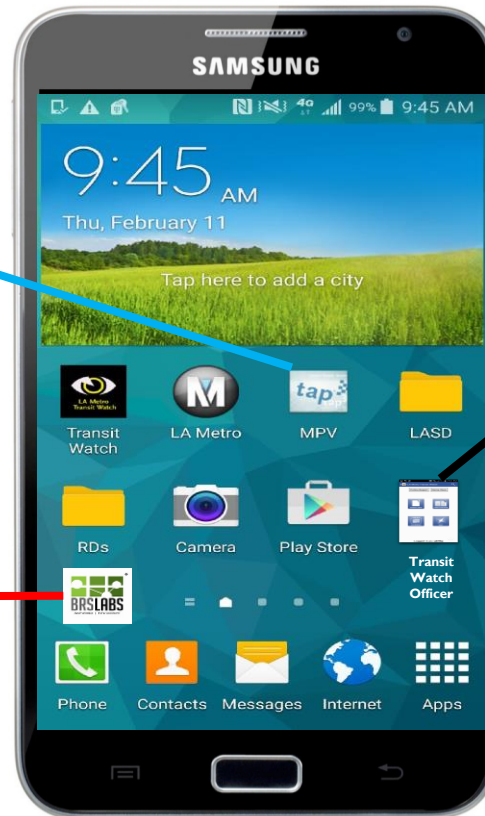
To provide excellence in service and support

“We understand, and always view safety and security as our #1 priority.” - Phillip A. Washington

Mobile Phone Validator
2.0

Transit Watch
Officer Application

Video Analytic



Metro

To provide excellence in service and support

TAP MPV 2.0 – Map Review

New Map Function Opened from main menu

tap³ Reports Manage Admins Welcome, MetroTAP Logout

Device Inventory Search Devices

DEVICE NAME	IMEI	MODEL	GROUP NAME	INSPECTOR NAME	Key Mode	STATUS
Vinay Parsi (Galaxy S5)	352255063242911	SM-G900H	axiom	vinay	Full	Approved
SAMSUNG-SM-C890A	352131070447492	SAMSUNG-SM-C890A	Axiom-Test	SGActive	Limited	Approved
199167-(213) 362-8956	351881068250198	362-8956		MATTHEW COPPES	Limited	Pending Approval
199167 (213) 362 8751	351881068279048	362-8751		ADLY XIE	Limited	Pending Approval
199167-(213) 362-8481	351881068291697	362-8481		TAP LOANER	Limited	Pending Approval
199167-(213) 362-8142	351881068242039	362-8142		JOHN TROJANOWSKI	Limited	Pending Approval
199167-(213) 362-8612	351881068291457	362-8612		CARY STEVENS	Limited	Pending Approval
199778-(213) 948-8780	351881068242211	948-8780		MIZANUI KARR	Limited	Pending Approval
199270 (213) 948 8780	351881068274206	948-8780		FRANK RICHTER	Limited	Pending Approval
199167-(213) 362-8956	351881068282118	362-8956		TPD-NORTH-LOAN1	Limited	Pending Approval

Add New Device Activity Log Map 1 2 3 Next

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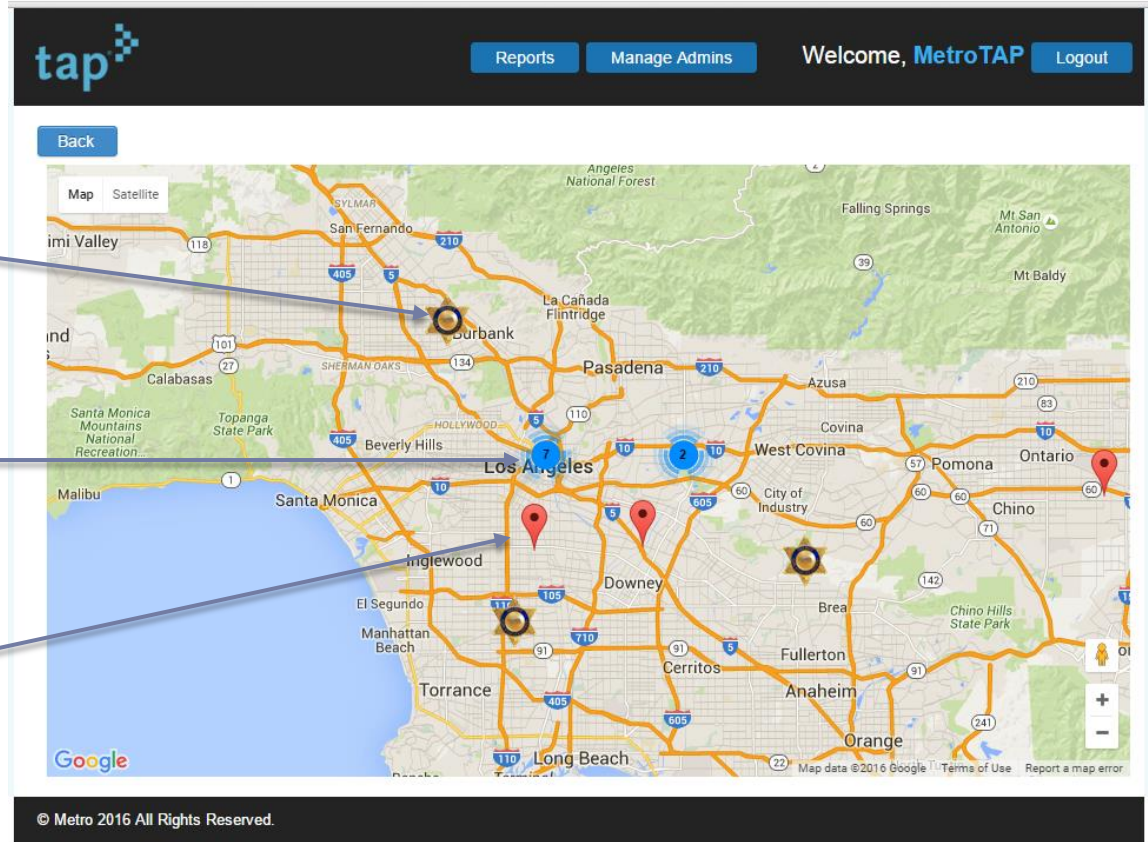


TAP MPV 2.0 – Map Review

Sworn Officers Identified by Badge

Multiple Inspectors Identified by #

Inspectors Identified by Pin



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To provide excellence in service and support

TAP MPV 2.0 – Map Review

Hover mouse cursor over icon to identify officer detail

The screenshot displays the TAP MPV 2.0 interface. At the top, there is a navigation bar with the 'tap' logo, 'Reports', 'Manage Admins', 'Welcome, MetroTAP', and 'Logout' buttons. Below this is a 'Back' button. The main area is a map of Los Angeles with a blue location pin. A pop-up window is open over the pin, displaying the following information:

- Sheriff: **NANCY RAMIREZ**
- Device: **199479-(213) 948-8913**
- IMEI: **351881067958437**
- Battery: **35%**
- Location: **Mid City, Los Angeles, CA, USA**

The map shows various streets and landmarks in Los Angeles, including Dodger Stadium, MacArthur Park, and the Staples Center. The bottom of the screen features a copyright notice: '© Metro 2016 All Rights Reserved.'

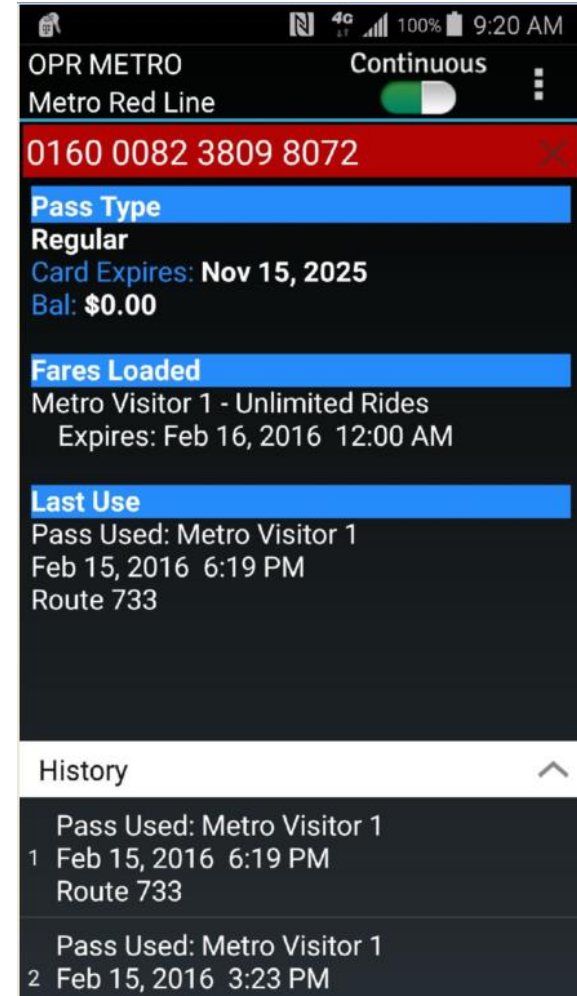


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TAP MPV 2.0 – Fare Evasion

Most common fare evasion scenario is un-activated rolling pass or stored value-did not tap. MPV 2.0 will allow the officer to activate rolling passes and deduct stored value.

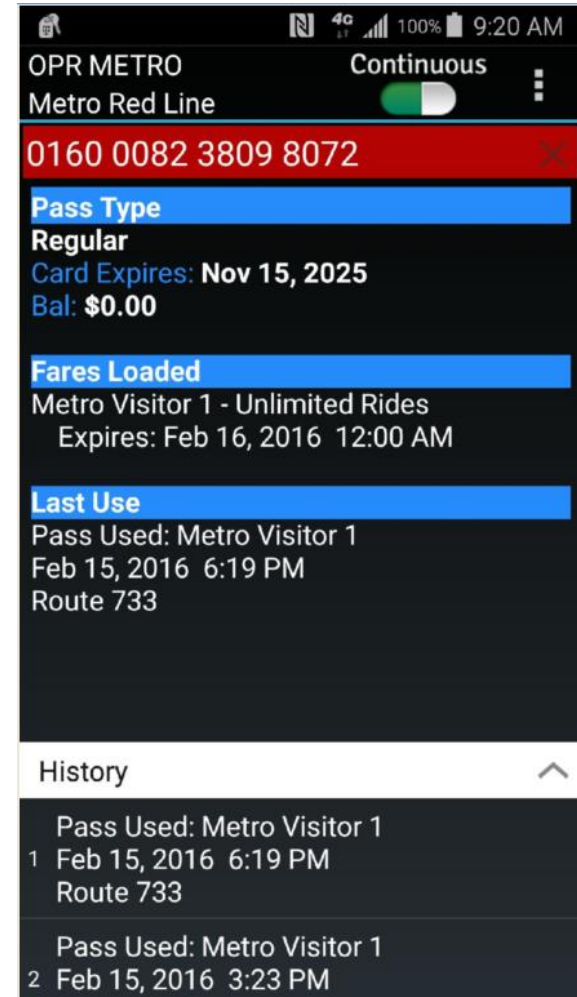


Officer Productivity

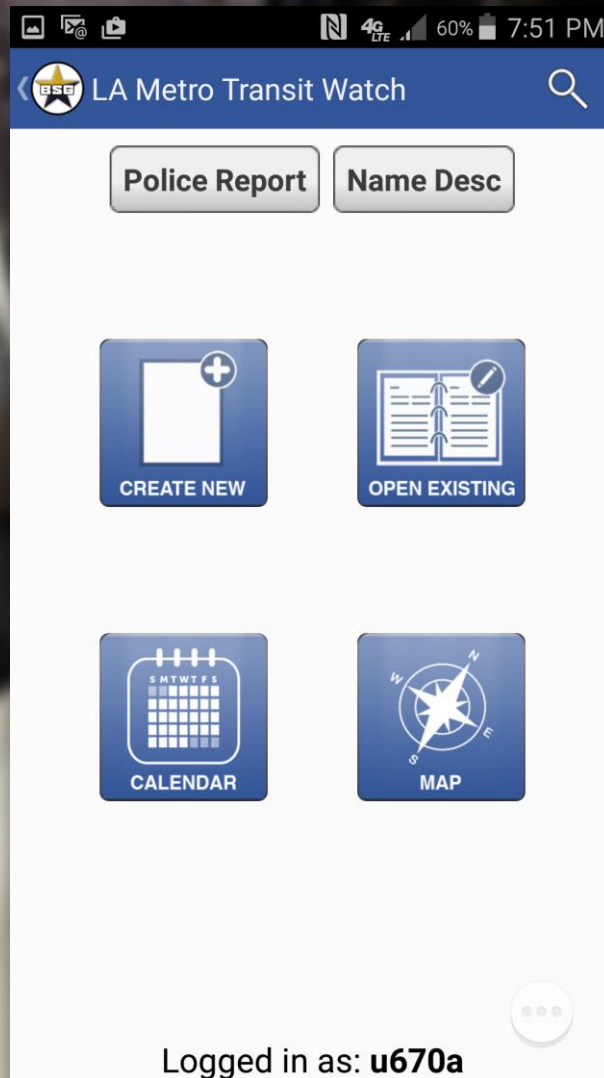
In order to provide uniform presence throughout the system, we are exploring Beacon technology.

- Similar to QR code, but doesn't require inspectors to scan in/out.
- Beacons transmit via Bluetooth Low Energy (BLE) providing specific location of the inspector for the duration they are in range.

Beacon technology will allow us to monitor and deploy resources to perform platform and building inspections. As well as track bus and train rides.



Transit Watch Officer Application



Police Report:

View current reports

Name Desc:

Can sort incidents

Create New:

Incident Reporting

Open Existing:

Can see all incidents assigned to this unit

Map:

GPS Location of field units and incidents reported.

Transit Watch Officer Application

Create Report

View Assigned Calls

Accountability

WHAT

Take Photos 0 photos

Call Type *

Tag # *

Type of Incident

Incident Description

WHEN

Incident Date * 1/5/16 8:00 PM

WHERE

Incident Location

Police Report - 2 of 2 results

Report 16-00035
Radio (open)
20365 V a Medici
1/5/16 09:14 PM

Report 15-00025
App (new)
110 W 1st St
12/22/15 02:14 PM

Add Activity SUBMIT

Activity:

Photos:

- Ack Radio
- 97-On-Scene
- 98-Clear
- Clear
- Acknowledge
- Close
- Reassign
- Refer



Metro

To provide excellence in service and support

Video Analytic

Turnstile Hopping

ADA Gate Intrusion

Unusual Behavior



Meeting The Agency Goals

Improved Response Time:

Real-time mapping of incident location and field unit location allows for “distance to incident” analysis for effective deployment of field units per shift that leads to reduced response times to high volume incident locations.

Advance Safety and Security for our customers, public, and Metro Employees

Increase transit use and ridership

Exercise fiscal discipline to ensure financial stability

Mobile Applications & Video Analytic

Improve the customer experience and expand access to transportation options

Enhanced Security & Law Enforcement Presence

Strategic deployment of law enforcement and security to enhance visibility.

Contract Compliance:

Instant access to real-time in-service unit lists and reporting of individual field units.





Metro

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

Board Report

File #: 2015-1751, **File Type:** Oral Report / Presentation

Agenda Number: 26

**SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE
MARCH 17, 2016**

Operations Employee of the Month.

March Operations Employees of the Month

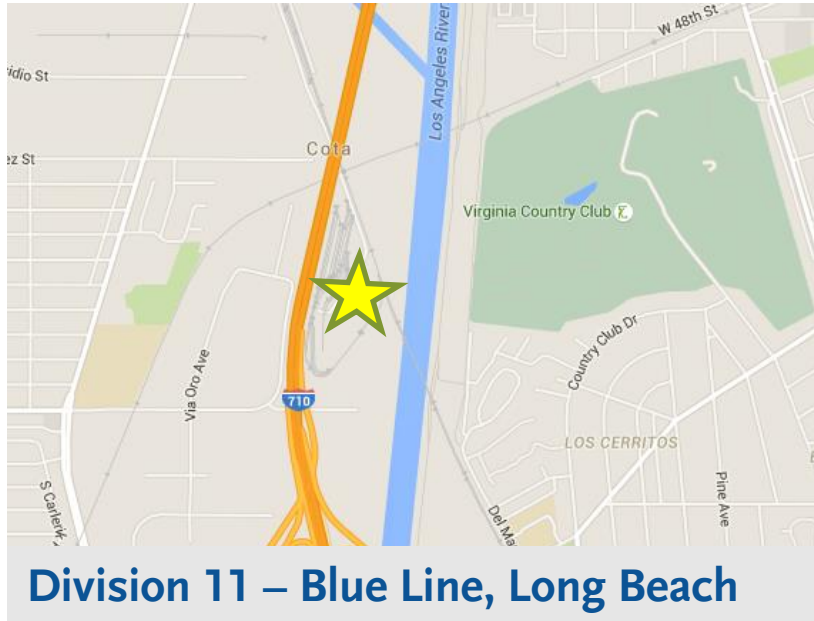


Operations Employees of the Month



Transportation

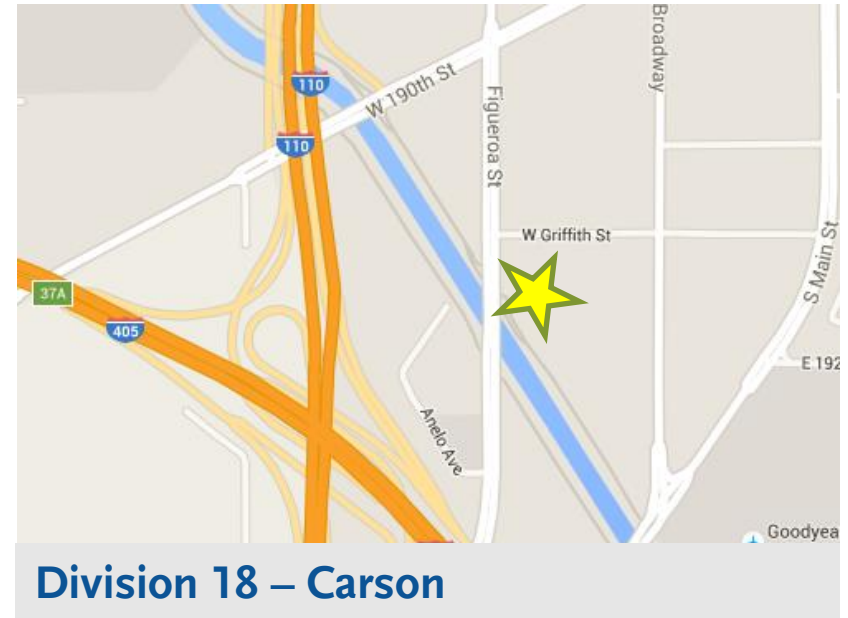
Train Operator
Gladis Reilly



Division 11 – Blue Line, Long Beach

Maintenance

Mechanic B
Glenn Castillo Cruz



Division 18 – Carson



Metro

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

Board Report

File #: 2015-1752, **File Type:** Oral Report / Presentation

Agenda Number: 27

**SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE
MARCH 17, 2016**

RECEIVE oral report on **System Safety, Security and Operations**.

 Expo Line



Expo Line Phase 2 Update

March 17, 2016



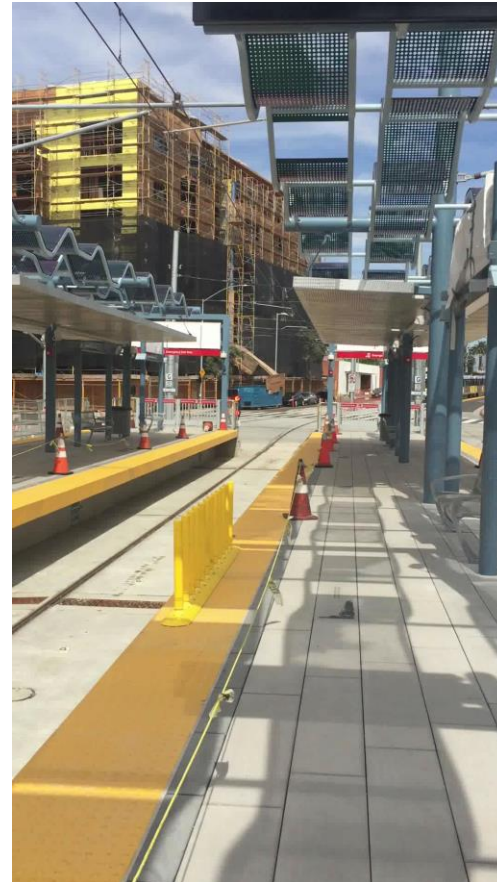
Metro

Train Testing

Westwood/Rancho Park



Downtown Santa Monica



Expo Extension



- 6.6 miles, 7 new stations
- Pre-revenue testing currently taking place
- Opening May 20, 2016
- Division 14 located in Santa Monica

Stations

Palms



Westwood/
Rancho Park



Stations

Exposition/
Sepulveda



Exposition/
Bundy



Stations

26th Street/
Bergamot



17th Street/
SMC



Stations

Downtown Santa Monica



Division 14



Surrounded by Olympic Blvd., Stewart St., and Exposition Blvd.

Approximately 9 acres

Practical capacity for 48 light-rail vehicles

Car wash, cleaning platforms, enable service and inspection functions

Stations with Parking

17th Street/SMC

67 spaces

Exposition/Bundy

207 spaces

Exposition/Sepulveda

261 spaces





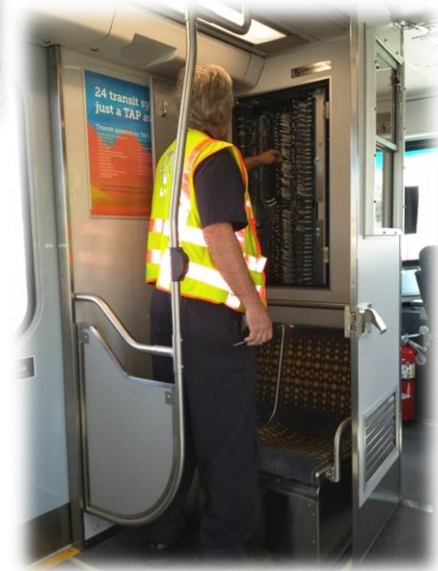
Maintenance Yard



Clearance Train Testing inside the I-10 Box near at the Northvale Trench



The new P3010 car testing



The new P3010 car testing



Board Report

File #: 2016-0035, File Type: Contract

Agenda Number: 28

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE MARCH 17, 2016

SUBJECT: BUS OPERATOR SAFETY BARRIER INSTALLATION KITS

ACTION: AWARD CONTRACT

RECOMMENDATION

AUTHORIZE:

- A. the Chief Executive Officer to award a not-to-exceed contract under Bid Number OP17007 to **NABI Parts Inc., for the purchase of Bus Operator Safety Barrier Installation Kits** for a base amount not to exceed \$5,443,449, inclusive of sales tax; and
- B. the amendment of the **FY16 Adopted Budget to add 4 represented full time equivalents** (FTE's).

ISSUE

In July 2015, in response to increased operator assaults on Metro's bus fleet, Metro's CEO directed staff to retrofit all of Metro's existing bus fleet with protective Bus Operator Safety Barriers in order to provide operators additional protection against bus operator assaults. The initial response was in September 2015, when Metro authorized contract modifications with New Flyer of America to retrofit all 900 New Flyer buses delivered under Contract OP33202869 with operator safety barriers. There are 1,300 buses remaining in Metro's fleet that are in need of retrofitting with barriers.

DISCUSSION

Metro is dedicated to increasing the safety of our Operators and customers. No matter how minor, assaults on Operators cause worker absence, productivity losses and increased levels of stress for the victim and their coworkers. Therefore, it is important that Metro continue its preventative measures to address the issue of Operator assaults.

This procurement provides for the purchase and delivery of Bus Operator Safety Barrier "Installation Kits" that will be used to retrofit all remaining buses in Metro's active bus fleet. Staff will install the operator barriers on up to 1,300 buses over the next two years.

Installation includes mounting of brackets to support the barriers, grab rails to secure the barriers in

the closed position and the barriers themselves. The installation process requires 10 hours of work for each bus. Additional work is essential prior to and after the installation of the barrier kits to prepare the buses. The fareboxes need to be removed and reinstalled in order to install the barriers.

Metro will retrofit barriers according to fleet age beginning with the newest series. As buses are retired over the next two years, the number of barriers purchased and installed will correspondingly be reduced until the fleet is fully retrofitted or equipped from the manufacturer.

Metro is recommending that the Board approve 4 additional represented FTE's in the FY16 budget. These additional employees will provide the necessary labor to install the equipment. These additional personnel will be absorbed through attrition following the completion of the program.

DETERMINATION OF SAFETY IMPACT

The installation of protective Bus Operator Safety Barriers is expected to help reduce the rate of operator assaults in Metro's bus fleet.

FINANCIAL IMPACT

Funding of \$500,000 for the components is included in the FY16 budget under multiple bus operating cost centers in project 306002 Operations Maintenance under line 50441, Parts - Revenue Vehicle and in the Central Maintenance Cost Center 3366.

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 funds for this procurement will come from Federal, State and Local funding sources that are eligible for Bus and Rail Operating Projects. These funding sources will maximize the use of funds for these activities.

ALTERNATIVES CONSIDERED

Staff considered having operator safety barriers provided only through new vehicle procurements. This approach is not recommended as it would take several years before all Metro buses would be outfitted.

Staff considered using outside contractors to conduct these operator safety barrier installations, but determined that this approach would violate provisions in Metro's current ATU labor contract.

NEXT STEPS

Metro's requirements for bus operator safety barriers will be fulfilled under the provisions of the contract.

ATTACHMENTS

Attachment A - Procurement Summary

Attachment B - DEOD Summary

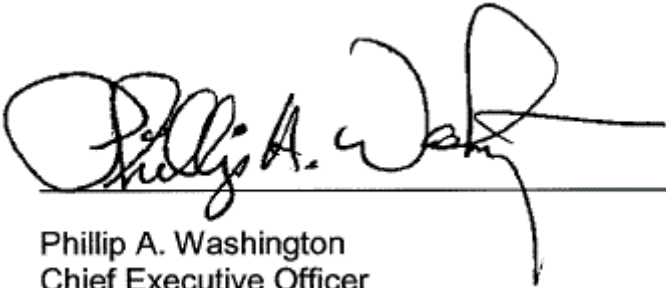
Prepared by: John Drayton, Director of Vehicle Technology, (213) 627-6285

Amy Romero, Director, Regional Rebuild Center (213) 922-5709

Christopher Reyes, Transportation Planning Manager, (213) 922-4808

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

PROCUREMENT SUMMARY

METRO BUS OPERATOR SAFETY BARRIERS/CONTRACT NO. OP17007

1.	Contract Number: RFP No. OP17007	
2.	Recommended Vendor(s): NABI Parts, LLC	
3.	Type of Procurement (check one): <input type="checkbox"/> IFB <input checked="" type="checkbox"/> RFP <input type="checkbox"/> RFP-A&E <input type="checkbox"/> Non-Competitive <input type="checkbox"/> Modification <input type="checkbox"/> Task Order	
4.	Procurement Dates:	
	A. Issued: 8/26/15	
	B. Advertised/Publicized: 8/25/15	
	C. Pre-proposal/Pre-Bid Conference: 9/9/15	
	D. Proposals/Bids Due: 10/26/15	
	E. Pre-Qualification Completed: 11/17/15	
	F. Conflict of Interest Form Submitted to Ethics: 11/30/15	
	G. Protest Period End Date: 2/24/16	
5.	Solicitations Picked up/Downloaded: 10	Bids/Proposals Received: 3
6.	Contract Administrator: Nathan Jones	Telephone Number: 213/922-6101
7.	Project Manager: John Drayton	Telephone Number: 213/617-6285

A. Procurement Background

This Board Action is to approve a contract under RFP No. OP17007 issued in support of the Metro Bus Operator Safety Barriers.

RFP No. OP17007 was issued in accordance with Metro's Acquisition Policy and the contract type is a not-to-exceed, indefinite delivery, indefinite quantity (IDIQ).

Seven amendments were issued during the solicitation phase of this RFP:

- Amendment No. 1, issued on September 17, 2015, released a schedule for potential proposers' bus visits and inspections of the different Metro bus types for barrier fittings; clarified and responded to potential proposers' questions;
- Amendment No. 2, issued on September 23, 2015 revised the proposal due date and the Schedule of Quantities and Prices Form;
- Amendment No. 3, issued on September 25, 2015, issued an update to the Statement of Work;
- Amendment No. 4, issued on September 29, 2015, clarified and responded to potential proposers' questions;
- Amendment No. 5, issued on October 7, 2015, clarified and responded to potential proposers' questions;
- Amendment No. 6, issued on October 14, 2015, revised the Schedule of Quantities and Prices Form;

- Amendment No. 7, issued on October 15, 2015, revised the proposal due date and the Schedule of Quantities and Prices Form.

A total of three proposals were received on October 26, 2015.

B. Evaluation of Proposers

This procurement method was a *Technically Acceptable Lowest Price, which consists of a 2 step process.

The Proposal Evaluation Team (PET) consisting of staff from, Vehicle Technology, Bus Maintenance, and Engineering, was convened and conducted a technical evaluation of the proposals received.

The proposals were evaluated based on the evaluation criteria on a pass or fail basis as defined in the table below.

Being deemed technically acceptable, the proposer was required to pass all 3 evaluation criteria. If the proposer failed any one of the three evaluation criteria below, the proposer was deemed technically unacceptable and was eliminated for consideration of award; their separately submitted price proposal was not open or considered. It was required that there had to be a consensus among the PET members on the final disposition of each proposer against the defined criteria.

Technical / Non-Technical Evaluation Criteria	
The Proposer/Prime Contractor is required to be actively engaged in the business of providing Bus Driver Safety Barrier Partitions for a minimum of one (1) year	
The Proposer/Prime Contractor must have one (1) client that is a bus transportation authority that operates at least 200 or more buses	
The Bus Transportation authority must have been utilizing these barriers (or substantially similar barriers from this manufacturer) for at least six (6) months	

In Step 1, two of the three proposers were deemed technically acceptable. The firms found to be technically acceptable were Arrow Global and NABI Parts, LLC. In Step 2 the price proposals of the technically acceptable proposers were opened with the lowest price received from NABI. NABI's proposal was deemed to be in full compliance with the RFP requirements.

NO.	Proposer Name	Proposed Amount
1.	NABI Parts, LLC	\$5,443,449
2.	Arrow Global	\$6,629,361
3.	Bentech	NA

C. Cost/Price Analysis

The recommended proposed total price has been determined to be fair and reasonable based upon adequate price competition and selection of the lowest priced responsive and responsible proposer.

Proposer Name	Proposal Price	Metro ICE
NABI Parts, LLC	\$5,443,449	\$8,520,500

D. Background on Recommended Contractor

The recommended firm, NABI Parts, LLC, located in Delaware, OH, is a decade long supplier of OEM transit parts to Metro’s fleet on NABI buses and has provided transit buses to Metro for over 25 years. NABI has developed a Driver’s Barrier System for Metro that provides interchangeability with the Bus Driver’s Barriers currently being manufactured and installed on Metro’s New Flyer Xcelsior fleet. NABI’s service center in Ontario, California specializes in, and will provide, the training of installation and operation of the new Operator Safety Barriers. In June 2013, NABI was acquired by New Flyer Industries. Twenty-four out of the 25 largest transit authorities in the United States and Canada operate either New Flyer or NABI buses or both. Metro operates both.

DEOD SUMMARY

METRO BUS OPERATOR SAFETY BARRIERS/RFP No. OP17007

A. Small Business Participation

The Diversity and Economic Opportunity Department (DEOD) did not recommend a Small Business Enterprise (SBE) goal for this solicitation based on the lack of subcontracting opportunities. This procurement is for the purchase and delivery of commercially available off the shelf installation kits. Metro's project manager confirmed that installation will be performed in-house.

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 equipment.

**Board Report**

File #: 2015-1772, **File Type:** Contract**Agenda Number:** 29

**SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE
MARCH 17, 2016****SUBJECT: METRO EXPRESSLANES CONSULTANT SERVICES FOR DEVELOPMENT OF SOLICITATION PACKAGES****ACTION: APPROVE RECOMMENDATION****RECOMMENDATION**

AUTHORIZE the Chief Executive Officer (CEO) to award a 16-month firm fixed price contract, Contract No. PS451860016612, to **Cambria Solutions, Inc. in the amount of \$1,149,538 for Metro ExpressLanes Consultant Services for Development of Solicitation Packages.**

ISSUE

In 2010, Metro entered into Contract No. PS0922102333 (existing contract) with Atkinson Contractors, LP (Atkinson) to design, build, operate and maintain the I-10 and I-110 ExpressLanes. The existing contract is slated to expire on February 22, 2019, if all option years are exercised.

Based on lessons learned, Metro intends to split the services provided under the current contract at the time of expiration into two separate contracts comprised of: (1) Roadside Systems which include dynamic messaging signage, tolling equipment, and vehicle sensors; and (2) Back Office/Customer Service Systems which includes dynamic pricing algorithm, violation processing, and a call center relocation to Los Angeles County.

The complexity of tolling procurements requires expertise in a myriad of areas. In accordance with best practices, Metro staff seeks to retain a professional services contractor to develop the two solicitation packages for these future contracts. The retention of a professional services contractor allows Metro to draw from highly specialized tolling and customer service experts. The professional services contractor would assist with the development of statements of work, system requirements, technical specifications, transition and phasing requirements, system diagrams, plans and cost estimates.

In light of the existing contract's termination date, the two solicitation packages for the future contracts must be finalized over the next 16 months. Staff is requesting award of this contract for professional services to enable Metro to meet this timeline and continue ExpressLanes operations.

DISCUSSION

The existing contract and systems were integrated with the goal of deploying a successful one year demonstration project. After over three years of operation, the ExpressLanes program has outgrown certain aspects of the existing system. For example, the current system does not support the addition of new ExpressLanes corridors without significant software changes and costs.

Additionally, under the existing contract, which expires on February 22, 2019, Atkinson operates and maintains both Roadside Systems and Back Office/Customer Service Systems which are two distinctly different systems. Metro has learned from the existing contract that management of both systems by one contractor hinders optimal levels of performance. By advertising separate contracts, Metro can more efficiently manage and track each system's performance, better prepare for modernization and future expansion and transition one system to a new contractor without initiating a re-procurement of the other system.

Tolling procurements require expertise in a myriad of areas. These areas include dynamic pricing algorithm development, dynamic messaging signage, payment and violation processing, financial reporting, network and communications design, customer service, and toll lane system design, integration and operation. Although Metro staff possesses expertise in many areas, staff availability is limited and it does not have the complete set of required expertise to draft solicitation packages for the procurement of the two systems. Metro staff availability is also limited. Under these circumstances, Metro seeks the services of a contractor with multi-disciplinary tolling expertise to develop the solicitation packages.

The result of this process will be two complete solicitation packages that Metro can advertise and award. Services under this contract will conclude upon award of the two new tolling contracts.

DETERMINATION OF SAFETY IMPACT

The Board action will not have an impact on safety of Metro's patrons or employees.

FINANCIAL IMPACT

Funding for this contract will come from toll revenues. The funds required for FY16 are included in the FY16 budget in Cost Center 2220, Project Numbers 307001 and 307002, Account 50316, Task 02.01.

Since this is a multi-year project, the cost center manager and Executive Officer of Congestion Reduction will be responsible for budgeting the cost in future years.

ALTERNATIVES CONSIDERED

The Board may choose to utilize current Metro staff to perform the work. This alternative is not recommended. Though Metro staff possesses expertise in many areas, staff does not possess the complete set of required expertise necessary for preparing the solicitation packages. Moreover, Metro staff does not have the availability to complete the solicitation packages within the required

timeframe while overseeing the operations and planning of the ExpressLanes.

The Board may choose to hire full-time personnel. This alternative is not recommended as a professional services contract is better suited to meet the range of required expertise and short term staffing needs.

The Board may choose not to award and execute the contract. This alternative is not recommended because solicitation packages need to be finalized over the next 16 months for development, implementation and migration to the new tolling systems. Otherwise, services under the existing contract may lapse and the ExpressLanes program will be adversely affected.

NEXT STEPS

Upon Board approval, staff will award and execute Contract No. PS451860016612 with Cambria Solutions, Inc.

ATTACHMENTS

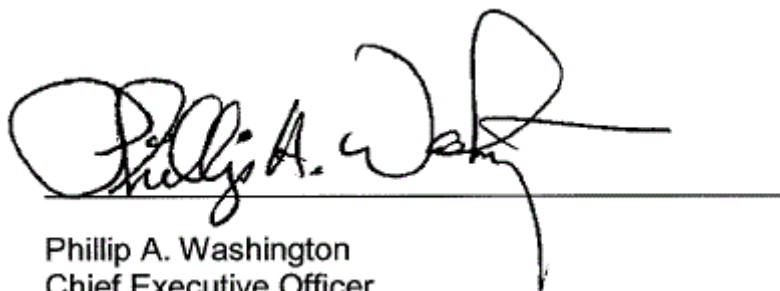
Attachment A - Procurement Summary

Attachment B - DEOD Summary

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Kathy McCune, Deputy Executive Officer, (213) 922-7241
Shahrazad Amiri, Executive Officer, (213) 922-3061

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

Stephanie Wiggins, Deputy Chief Executive Officer



Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY

**METRO EXPRESSLANES: CONSULTANT SERVICES FOR
DEVELOPMENT OF SOLICITATION PACKAGES/
PS451860016612**

1.	Contract Number: PS451860016612	
2.	Recommended Vendor: Cambria Solutions, Inc.	
3.	Type of Procurement (check one): <input type="checkbox"/> IFB <input checked="" type="checkbox"/> RFP <input type="checkbox"/> RFP-A&E <input type="checkbox"/> Non-Competitive <input type="checkbox"/> Modification <input type="checkbox"/> Task Order	
4.	Procurement Dates:	
	A. Issued: August 20, 2015	
	B. Advertised/Publicized: August 20, 2015	
	C. Pre-Proposal/Pre-Bid Conference: August 31, 2015	
	D. Proposals/Bids Due: September 25, 2015	
	E. Pre-Qualification Completed: December 11, 2015	
	F. Conflict of Interest Form Submitted to Ethics: February 11, 2016	
	G. Protest Period End Date: March 22, 2016	
5.	Solicitations Picked up/Downloaded: 62	Bids/Proposals Received: 4
6.	Contract Administrator: David Chia	Telephone Number: (213) 922-1064
7.	Project Manager: Timothy Lew	Telephone Number: (213) 922-1071

A. Procurement Background

This Board Action is to approve Contract No. PS451860016612 for professional services for the development of statements of work, evaluation criteria, and other related services for two future solicitations for ExpressLane corridors on Interstate 10 (I-10) and Intrastate 110 (I-110) as well as new ExpressLane corridors in Los Angeles County.

The Request for Proposal (RFP) was issued in accordance with Metro's Acquisition Policy and Procedure Manual and the contract type is firm fixed price. The RFP was issued under the Small Business Enterprise Set-Aside Program and open to Metro-certified Small Business Enterprises only.

Three amendments were issued during the solicitation phase of the RFP:

- Amendment No. 1, issued on September 3, 2015, provided the pre-proposal conference agenda, PowerPoint presentation slides, sign-in sheets, the planholders' list, responses to the first set of proposer questions, and updated the evaluation criteria to include oral presentations.
- Amendment No. 2, issued on September 10, 2015, provided responses to additional questions and revised submittal requirements that detailed the type of sample RFPs required, clarified page limits, and revised the number of project examples that may be identified to demonstrate experience.

- Amendment No. 3, issued on September 15, 2015, increased the page limit for proposals and extended the proposal due date.

A pre-proposal conference was held on August 31, 2015, attended by 14 participants representing 12 companies. There were 51 questions asked and responses were released prior to the proposal due date. A total of 62 firms downloaded the RFP and were included in the planholders' list. A total of four proposals were received on September 25, 2015.

B. Evaluation of Proposals/Bids

The Proposal Evaluation Team (PET) consisting of staff from Metro's Congestion Reduction, Highway Operations, and the Riverside County Transportation Commission was convened and conducted a comprehensive technical evaluation of the proposals received.

The proposals were evaluated based on the following evaluation criteria and weights:

- Skills and Experience of Project Manager & Key Personnel 40 percent
- Understanding of the Work and Approach 30 percent
- Relevant Firm Experience 15 percent
- Management Plan and Controls 5 percent
- Price Proposal 10 percent

The evaluation criteria are appropriate and consistent with criteria developed for similar professional services procurements. Several factors were considered when developing these weights, giving the greatest importance to the skills and experience of the project manager and key personnel.

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 four proposals received were deemed eligible Metro SBE certified firms and are listed below in alphabetical order:

1. Addison Burnet Group, Inc.
2. Cambria Solutions, Inc.
3. Fagan Consulting, LLC
4. TransSight LLC

During October 13, 2015 through November 6, 2015, the PET completed its independent evaluation of the proposals.

The PET determined that two firms were outside the competitive range and were not included for further consideration. Addison Burnet Group, Inc. was excluded from the competitive range because its proposal did not demonstrate relevant tolling experience in the areas of toll pricing, transaction processing, and financial reporting. In addition, the proposal did not demonstrate experience in writing technical specifications, scopes of work, and evaluation criteria. The proposal did not present a plan to expedite project delivery.

TransSight LLC was excluded from the competitive range because its proposal did not demonstrate relevant lane systems experience in the areas of lane systems operation and maintenance. Its proposal lacked details demonstrating how the firm would implement its plan, did not propose innovative approaches, and presented undefined strategies to expedite project delivery.

The remaining two firms determined to be within the competitive range are listed below in alphabetical order:

1. Cambria Solutions, Inc.
2. Fagan Consulting, LLC

On December 4, 2015, the PET interviewed the two firms within the competitive range. The project manager and key team members from each firm were invited to present their firm's respective qualifications and respond to the PET's questions. Generally, both firms elaborated on their scope of work assumptions and detailed their experience with toll pricing.

In addition, the project manager and key personnel from each firm responded to the PET's inquiries regarding the approach to develop two separate solicitations concurrently, key personnel roles and responsibilities to complete tasks, the methodology for determining price, stakeholder coordination, and key performance indicators.

Qualifications Summary of Firms Within the Competitive Range

Cambria Solutions, Inc. (Cambria) is a Metro-certified SBE firm that specializes in information technology, technical consulting, and management consulting. Cambria offers professional services for the development of statements of work, evaluation criteria, and other related services.

Cambria's team has participated in the planning, design, rehabilitation, modernization, and expansion of more than 100 toll revenue-support systems. The team has assisted with customer service center development, electronic tolling work, back-office development, procurement support and RFP development for numerous state and local agencies, including Caltrans, Illinois State Toll Highway Authority, New Jersey Turnpike Authority, San Francisco Bay Area Metropolitan Transportation Commission, and the San Diego Association of Governments. The proposed project

manager served as a technology director for a toll agency and the project manager for the Illinois Tollway Customer Service and Violation Processing procurement. Cambria's proposal and interview demonstrated significant experience in managed lane operations, back-office customer service operations, and procurement support. The proposal and interview demonstrated a comprehensive understanding of the different needs of this project and addressed statewide and industry interoperability, violation enforcement, occupancy detection, and express-lane implementation, operation and management. The interview addressed pricing methods, analytics and dynamic pricing algorithms, performance monitoring and metrics, and back-office customer service management.

The management plan presented innovative approaches to reduce risk, which included the use of customer service performance measures, re-compete contract clause modifications, and mobile and website maintenance methods. The plan provided practical solutions to expedite project delivery, which included the use of workshop reviews and a proposal review matrix to expedite project delivery. Overall, the proposal and interview presented a cohesive team with substantial experience in toll industry technology, managed lanes operations, and overall express-lane design, operation and maintenance.

Fagan Consulting, LLC (Fagan) is a Metro-certified SBE firm that specializes in toll operations management and toll systems consulting. Fagan has provided toll systems services with numerous public agencies, including the Georgia State Road and Tollway Authority, Washington Department of Transportation, and Texas Department of Transportation. Fagan offers professional services for the development of statements of work, evaluation criteria, and other related services.

Fagan's proposal demonstrated good tolling experience and identified multiple tolling clients. The proposed project manager showed significant experience in tolling projects. However, Fagan's proposal and interview did not elaborate on several subjects relevant to the project. The proposal and interview did not expound upon the relationship between dynamic pricing algorithms and toll pricing. The interview did not adequately address the development of multiple segment trip construction.

Fagan's proposal and interview did not identify team members who have actual experience with writing statements of work, evaluation criteria, and other RFP components. Though Fagan's proposal identified several approaches for expediting project delivery (such as implementing a quality assurance/quality control plan, developing comprehensive specifications, and requiring definitive scoring), the proposal did not detail how these approaches would be implemented.

The final scoring determined that Cambria Solutions, Inc. is the top ranked firm. A summary of the PET's scores is provided as follows:

	Firm	Average Score	Factor Weight	Weighted Average Score	Rank
1	Cambria Solutions, Inc.				
2	Skills and Experience of Project Manager & Key Personnel	80.00	40.00%	32.00	
3	Understanding of the Work and Approach	84.00	30.00%	25.20	
4	Relevant Firm Experience	81.11	15.00%	12.17	
5	Management Plan and Controls	72.67	5.00%	3.63	
6	Price Proposal	60.00	10.00%	6.00	
7	Total		100.00%	79.00	1
8	Fagan Consulting, LLC				
9	Skills and Experience of Project Manager & Key Personnel	69.33	40.00%	27.73	
10	Understanding of the Work and Approach	74.67	30.00%	22.40	
11	Relevant Firm Experience	73.33	15.00%	11.00	
12	Management Plan and Controls	67.33	5.00%	3.37	
13	Price Proposal	45.00	10.00%	4.50	
14	Total		100.00%	69.00	2

C. Cost Analysis

The recommended price has been determined to be fair and reasonable based upon Metro's Management and Audit Services Department (MASD) audit findings, an independent cost estimate (ICE), cost analysis, technical evaluation, fact finding, and negotiations.

The negotiated amount includes clarifications to the RFP documents review and required deliverables. It also includes two additional RFP drafts and corresponding reviews, which were not reflected in the ICE. Metro staff successfully negotiated a cost savings of \$83,007 from the firm's proposed price.

	Proposer Name	Proposal Amount	Metro ICE	Negotiated Amount
1.	Cambria Solutions, Inc.	\$1,232,545	\$1,115,340	\$1,149,538
2.	Fagan Consulting, LLC	\$1,642,946	\$1,115,340	N/A

D. Background on Recommended Contractor

The recommended firm, Cambria, located in Los Angeles, California, has been in business for ten years in information technology and management consulting. The proposed team is comprised of staff from Cambria and one non-SBE subcontractor. Cambria's team has substantial experience with managed lanes and tollway projects.

The proposed project manager has 27 years of experience in tolling and information technology, software development and development oversight, and toll policy requirements and business rule development. In addition, key staff has more than 17 years of experience in pricing development and revenue analysis, with extensive experience in dynamic pricing algorithms. Overall, key personnel have well over 100 combined years of experience in lane systems and customer service centers for managed lane and tollway projects.

With its extensive knowledge and experience, the Cambria team demonstrates a thorough understanding of the lane systems component and customer service systems component necessary to develop the required documents for future ExpressLanes solicitations.

DEOD SUMMARY

**METRO EXPRESSLANES: CONSULTANT SERVICES FOR
DEVELOPMENT OF SOLICITATION PACKAGES/
PS451860016612**

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**.

Cambria Solutions, Inc., an SBE Prime, is performing 34.29% of the work with its own workforce. The prime listed one (1) major firm, HNTB, as a subcontractor on this project.

SMALL BUSINESS SET-ASIDE

	SBE Prime Contractor	SBE % Committed
1.	Cambria Solutions, Inc.	34.29%
	Total Commitment	34.29%

B. Living Wage and Service Contract Worker Retention Policy Applicability

Prevailing wage is not applicable to this contract.

C. Prevailing Wage

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.



Board Report

File #: 2016-0149, File Type: Budget

Agenda Number:

SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE MARCH 17, 2016

**SUBJECT: METRO EMERGENCY SECURITY OPERATIONS CENTER (ESOC)
ARCHITECTURAL AND ENGINEERING DESIGN SERVICES**

ACTION: APPROVE RECOMMENDATIONS

RECOMMENDATIONS

AUTHORIZE the Chief Executive Officer (CEO) to:

- A. ESTABLISH the life of project (LOP) budget in the amount of \$112.7 million for the **Emergency Security Operations Center (ESOC) Phase One**, CP No. 212121; and
- B. AWARD a 36-month firm fixed price Contract No. AE451150019779 to **HDR Engineering, Inc.**, in the amount of **\$5,936,638** for **Metro's ESOC Architectural and Engineering design services**.

ISSUE

The existing Emergency Operations Center (EOC) is currently located at Metro's Union Station Gateway (USG) Headquarters, part of the USG Complex that serves as a major terminus hub for rail and bus transportation. Because this location is in close proximity to high traffic public areas, a Metro Threat and Vulnerability Assessment (TVA) identified a series of vulnerabilities that require mitigation. In an effort to mitigate the concerns identified in the TVA, Metro applied for and received State of California grant funds to build a new facility off-site. Phase One of the new Emergency and Security Operations Center (ESOC) will serve as the primary and central location to support day-to-day emergency, security and law enforcement operations. The facility may also be expanded during Phase Two to accommodate Metro rail and bus operations (ROC) and (BOC) - providing needed redundancy.

To proceed with Metro's new ESOC Phase One, staff requires award of this contract which includes:

- Performing final programming and conceptual design;
- Surveying and testing;
- Preparation of preliminary design and engineering documents up to 30 percent;
- Preliminary engineering and 60 percent advanced preliminary engineering for systems;
- Sustainability design;
- Bid solicitation support;

- Construction support services.

DISCUSSION

The proposed ESOC consists of approximately 100,000 square feet and up to a four story hardened structure with at-grade parking. The ESOC will be at a minimum a Leadership in Energy and Environmental Design Silver (LEED) certified hardened building and built in phases with the first phase consisting of the core and shell for the four story structure with at-grade parking including the tenant improvements for the EOC, Security Operation Center (SOC) and law enforcement dispatch to be located on the 3rd and 4th floors. Phase Two will consist of the tenant improvements for the ROC and BOC on the remaining 1st and 2nd floors to be built when funding becomes available. The total project preliminary cost for the ESOC Phase One is approximately \$112.7 million including escalation and the construction unit cost is approximately \$395 per square foot which falls within the market range for similar projects.

In November 2011, the Board approved the preliminary LOP budget for the combined Metro Emergency Operations Center/Bus Operations Center/Rail Operations Center (renamed as the ESOC) in the amount of \$16,103,043. With this Board action, the LOP budget for ESOC Phase One will be \$112.7 million for the preliminary architectural and engineering studies, design and construction of the ESOC Phase One with funds provided by the California State Office of Emergency Services (Cal OES), Proposition 1B California Transit Security Grant Program (CTSGB). Refer to Attachment C Sources and Uses. In March 2011, the Cal OES allocated CTSGB funds in the amount of \$112.7 million to Metro to construct an off-site EOC (from the USG complex) for the Los Angeles County's Metro Rail and Bus System. The CTSGB funds are specifically earmarked for the construction of an off-site EOC and may not be used for any other security programs. In November 2011, the Board approved the environmental studies and acquisition of property for the ESOC. Since the property is an industrial site and based on preliminary environmental studies, extensive soil remediation and additional utilities to accommodate the ESOC will need to be addressed during design and construction.

Between August 2013 to December 2015, staff assessed the project impacts to human health and environment using CEQA and NEPA protocols. An Initial Study/Mitigated Negative Declaration (IS/MND) document was prepared for the ESOC outlining mitigation measures that will be implemented to reduce significant environmental impacts. After publicly circulating the document from October 15, 2015, to November 13, 2015, all comments were addressed by November 16, 2015; and a Notice of Determination (NOD) was prepared on December 18, 2015. Upon the execution by the Metro Board of the actions associated with this Board Report, the NOD will be filed with the California Office of Planning and Research concluding the environmental clearance process.

DETERMINATION OF SAFETY IMPACT

This Board action will enhance the established safety standards by improving Metro's disaster and terrorism response capabilities.

FINANCIAL IMPACT

In March 2011, the Cal OES allocated CTSGB funds in the amount of \$112.7 million to Metro to construct an off-site EOC. To date, Metro has been awarded approximately \$80.5 million for FY10, FY11, FY12, FY13 and FY14 (\$16.1 million each FY). Metro is anticipating being awarded the grant for FY 15 in March 2016 and is in the process of applying for the FY16 grant fund in the amount of \$16.1 million with the intention of securing the final grant fund in FY17.

Funding is included in the FY16 annual budget in cost center 2610, Security Dept., Account 50316, Professional and Technical Services, project 212121, Metro ESOC. Since this is a multi-year project, the cost center manager, and the Executive Officer for Program Management will be accountable for budgeting in future years.

Impact to Budget

The source of funds for this project is Proposition 1B. No other sources of funds were considered as these funds are for security and safety eligible capital projects only and cannot be used for operating expenses per the grant guidelines.

ALTERNATIVES CONSIDERED

The Board may decline to approve the recommended actions. This is not recommended. The LOP budget is based on the total CSGB award of \$112.7 million. If the grant funds are not expended within the specified timeframe, Metro will forfeit the grant award.

If the actions are not approved, the alternatives would be to consider award to the next technically qualified proposer and/or defer construction of the ESOC facility that may be detrimental to Metro security and transportation service goals for the long term with its rapidly growing transportation network.

NEXT STEPS

Upon Board approval, staff will execute Contract No. AE451150019779 with HDR Engineering, Inc. The NOD will be filed with the California Office of Planning and Research concluding the environmental clearance process. Staff will return to the Board in FY17 for design-build authority.

ATTACHMENTS

Attachment A - Procurement Summary
Attachment B - DEOD Summary
Attachment C - Sources and Uses

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Richard Clarke, Executive Director, Program Management,
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Phillip A. Washington
Chief Executive Officer

PROCUREMENT SUMMARY

**METRO EMERGENCY SECURITY OPERATIONS CENTER
ARCHITECTURAL AND ENGINEERING DESIGN SERVICES /
AE451150019779**

1.	Contract Number: AE451150019779	
2.	Recommended Vendor: HDR Engineering, Inc.	
3.	Type of Procurement (check one): <input type="checkbox"/> IFB <input type="checkbox"/> RFP <input checked="" type="checkbox"/> RFP-A&E <input type="checkbox"/> Non-Competitive <input type="checkbox"/> Modification <input type="checkbox"/> Task Order	
4.	Procurement Dates:	
	A. Issued: September 28, 2015	
	B. Advertised/Publicized: September 28, 2015	
	C. Pre-Proposal/Pre-Bid Conference: October 13, 2015	
	D. Proposals/Bids Due: December 14, 2015	
	E. Pre-Qualification Completed: March 1, 2016	
	F. Conflict of Interest Form Submitted to Ethics: January 21, 2016	
	G. Protest Period End Date: March 22, 2016	
5.	Solicitations Picked up/Downloaded: 54	Proposals Received: 3
6.	Contract Administrator: Erika Estrada	Telephone Number: (213) 922-1102
7.	Project Manager: Jeanet Owens	Telephone Number: (213) 922-6877

A. Procurement Background

This Board Action is to approve Contract No. AE451150019779 for Architectural and Engineering (A&E) design services for Metro's new Emergency Security Operations Center (ESOC). The intent of this contract is to establish a central location to house emergency, security, rail and bus operations centers to allow centralized communications, coordination, and to improve business continuity in day-to-day operations as well as enhancing Metro's disaster and terrorism response capabilities.

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 a firm fixed price. This solicitation includes an SBE/DVBE goal of 20% (SBE 17% and DVBE 3%).

Eight amendments were issued during the solicitation phase of this RFP:

- Amendment No. 1, issued on October 15, 2015, provided responses to questions received, updated the Good Faith Efforts (GFE) provisions and required forms by eliminating GFE in the solicitation, and provided documents related to the Pre-Proposal Conference held on October 13, 2015;
- Amendment No. 2, issued on October 22, 2015, extended the RFP due date to November 2, 2015;

- Amendment No. 3, issued on October 23, 2015, updated the letter of invitation supplement to include the 20% goal of the total contract price (SBE goal of 17% and DVBE goal of 3%), incorporated the Metro Threat and Risk Assessment Operation Control Center report into the Statement of Work, and provided responses to questions received;
- Amendment No. 4, issued on October 30, 2015, extended the RFP due date to November 16, 2015;
- Amendment No. 5, issued on November 12, 2015, extended the RFP due date to November 30, 2015;
- Amendment No. 6, issued on November 24, 2015, extended the RFP due date to December 14, 2015;
- Amendment No. 7, issued on November 30, 2015, deleted and replaced in its entirety the Statement of Work to include 30 percent Preliminary Engineering (PE) Design and 60 percent Advanced PE Systems Design; and
- Amendment No. 8, issued on December 4, 2015, provided responses to questions received, and revised the advanced preliminary engineering design plans subtask outlined in the Statement of Work, Task 4 Design Development Documents.

Two non-mandatory site visits and the pre-proposal conference were all held on October 13, 2015. The non-mandatory site visits were conducted at the Metro Rail Operations Center, Metro Bus Operations Center, Emergency Operations Center and Security Dispatch Center, and attended by 23 participants representing 19 firms. The pre-proposal conference was attended by 23 participants representing 18 firms. There were 28 questions asked and responses were released prior to the proposal due date.

A total of 54 firms downloaded the RFP and were included in the planholders' list. A total of three proposals were received on December 14, 2015.

B. Evaluation of Proposals/Bids

A Proposal Evaluation Team (PET) consisting of staff from Metro's Program Management, Rail Operations, Project Control and Administration, and Systems 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:

- | | |
|--|-----|
| • Degree of Skills and Experience of Team | 25% |
| • Experience and Capabilities of Personnel on the Contractor's Team | 20% |
| • Effectiveness of Team Management Plan | 20% |
| • Understanding of Work and Appropriateness of approach for implementation | 35% |

The evaluation criteria are appropriate and consistent with criteria developed for other, similar A&E design procurements. Several factors were considered when developing these weights, giving the greatest importance to the understanding of the work and project approach. The PET evaluated the proposals according to the pre-established evaluation criteria.

This is an A&E qualifications based procurement. Price cannot be used as an evaluation factor pursuant to state and federal law.

During December 16 through December 23, 2015, the PET completed its independent evaluation of the three proposals received. All three proposals were determined to be within the competitive range and are listed below in alphabetical order:

1. Anil Verma Associates, Inc.
2. HDR Engineering, Inc.
3. STV Incorporated

During the interviews, the firms' project managers and key team members had an opportunity to present each team's qualifications and respond to the PET's questions. In general, each team addressed the team's experience with at least one Emergency Operations Center (EOC), Rail Operations Center (ROC), Bus Operations Center (BOC), and/or Security Operations Center (SOC) in an urban setting particularly focused on the U.S. transportation agencies, and experience in designing transit facilities, particularly focused on transit operational characteristics. Each team was asked to explain their understanding of concept of operations of EOC, ROC, BOC and/or SOC in design and engineering of similar projects and the approach to designing the ESOC within timeframe identified in the Statement of Work.

The final scoring, after interviews, determined HDR to be the most technically qualified firm.

Qualifications Summary of Recommended Firm:

HDR Engineering, Inc. (HDR) offers architecture, interiors, structural engineering, electrical engineering, systems design, and project management services. The proposed team demonstrated several years of significant experience on similar projects, including Intelligence and Operations Coordination Center for Tucson Border Patrol Sector Headquarters, Command Center for the Pentagon National Military, Norfolk Operations Center Facility design, the City of Los Angeles EOC, LAX Airport Response Coordination Center and Department of Operations Center, and Metro's BOC and ROC assessment.

HDR's proposed approach included a three-core strategy: Programming, Systems and Technology, and A&E design services to meet the design needs for the ESOC. The work plan discussed a responsive design that met the ESOC project schedule,

provided the required stakeholder approval, operations concepts, and a design that was adaptable to Metro's changing needs over time. The proposal provided innovative ESOC facility designs that plan for growth and seamless integration with Metro's current centers and future facility operations.

The following is a summary of the PET scores:

	FIRM	Average Score	Factor Weight	Weighted Average Score	Rank
1	HDR Engineering, Inc.				
2	Degree of Skills and Experience of Team	88.20	25.00%	22.05	
3	Experience and Capabilities of Personnel on the Contractor's Team	90.55	20.00%	18.11	
4	Effectiveness of Team Management Plan	86.75	20.00%	17.35	
5	Understanding of Work and Appropriateness of approach for implementation	86.38	35.00%	30.23	
6	Total		100.00%	87.74	1
7	STV Incorporated				
8	Degree of Skills and Experience of Team	85.76	25.00%	21.44	
9	Experience and Capabilities of Personnel on the Contractor's Team	85.30	20.00%	17.06	
10	Effectiveness of Team Management Plan	83.55	20.00%	16.71	
11	Understanding of Work and Appropriateness of approach for implementation	81.96	35.00%	28.69	
12	Total		100.00%	83.90	2
13	Anil Verma Associates, Inc.				
14	Degree of Skills and Experience of Team	79.36	25.00%	19.84	
15	Experience and Capabilities of Personnel on the Contractor's Team	79.30	20.00%	15.86	
16	Effectiveness of Team Management Plan	80.90	20.00%	16.18	
17	Understanding of Work and Appropriateness of approach for implementation	69.99	35.00%	24.50	
18	Total		100.00%	76.38	3

C. Cost Analysis

The recommended price of \$5,936,638 has been determined to be 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, clarifications to interagency coordination, site visits, request for information responses, preliminary engineering plans and advanced preliminary systems design resulted in additional hours applied to the project that were not originally included in the independent cost estimate. Metro staff successfully negotiated a cost savings of \$62,826 from the firm's proposed price.

Proposer Name	Proposal Amount	Metro ICE	Negotiated Amount
HDR Engineering, Inc.	\$5,999,464	\$5,492,000	\$5,936,638

D. Background on Recommended Contractor

The recommended firm, HDR, founded in 1917 and located in Los Angeles, California, has been in business in the southern California region for 43 years. HDR is an architecture, engineering, and consulting firm. HDR has the knowledge of operation control centers spanning across transportation, security and energy markets.

The proposed team is comprised of staff from HDR and 18 subcontractors (10 SBE, 2 DVBE and 6 non-SBE firms). The proposed team has significant experience with Emergency Operations, Rail Operations, Bus Operations, and Security Operations Centers design and implementation. The proposed project manager has more than 24 years of experience. The project manager has extensive knowledge and experience in planning, design and construction of complex transportation facility projects. Overall, HDR's proposal strongly demonstrated project understanding, the required coordination and presented a complete, technically qualified team that would be able to successfully deliver the design documents.

DEOD SUMMARY

**METRO EMERGENCY SECURITY OPERATIONS CENTER
ARCHITECTURAL AND ENGINEERING DESIGN SERVICES /
AE451150019779**

A. Small Business Participation

The Diversity and Economic Opportunity Department (DEOD) established a 20% goal inclusive of a 17% Small Business Enterprise (SBE) and 3% Disabled Veteran Business Enterprise (DVBE) goal for this solicitation. HDR Engineering exceeded the goal by making a 33.29% small business commitment, inclusive of a 30.25% SBE and 3.04% DVBE commitment.

Small Business Goal	17% SBE 3% DVBE	Small Business Commitment	30.25% SBE 3.04% DVBE
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	SBE Subcontractors	% Commitment
1.	Intueor Consulting	1.78%
2.	Jacobus & Yuang	2.69%
3.	MBI Media	1.94%
4.	Pacific Coast Locaters	0.20%
5.	Premier Management Corporation	1.29%
6.	Quinn Williams	1.01%
7.	SAA Associates	0.34%
8.	S&K Engineers	10.10%
9.	Spectrum Video	7.33%
10.	W2 Design	3.57%
	Total SBE Commitment	30.25%

	DVBE Subcontractors	% Commitment
1.	Calvada Surveying	0.42%
2.	Schwab Engineering	2.62%
	Total DVBE Commitment	3.04%

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

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

**Attachment E- Emergency Security Operations Center
Sources and Uses (in the millions)**

USES	BUDGET TOTAL	Up to FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20
Real Estate Purchase	\$7.645	\$ 7.645				
Environmental Studies	\$0.500	\$ 0.500				
Preliminary A/E Design	\$5.900	\$ 1.100	\$ 4.3	\$ 0.20	\$ 0.20	\$ 0.10
Soft Costs	\$15.000	\$ 2.000	\$ 2.0	\$ 2.00	\$ 5.00	\$ 4.00
Contingency	\$26.000		\$ 3.0	\$ 8.00	\$ 9.00	\$ 6.00
Utilities/Site work	\$10.000			\$ 1.00	\$ 7.00	\$ 2.00
Core and Shell construction	\$33.655			\$ 5.60	\$ 15.06	\$ 13.00
Tenant Improvements	\$5.000			\$ 1.00	\$ 3.00	\$ 1.00
Security, Systems, Equipment	\$9.000			\$ 2.00	\$ 5.00	\$ 2.00
GRAND TOTAL	\$ 112.700	\$ 11.245	\$ 9.300	\$ 19.800	\$ 44.255	\$ 28.10

SOURCES	BUDGET TOTAL	Up to FY 14-15	FY 16-17	FY 17-18	FY 18-19	FY 19-20
Prop 1B California Transit Security Grant Program	\$ 112.700	\$ 11.245	\$ 9.300	\$ 19.800	\$ 44.255	\$ 28.100

**Board Report**

File #: 2015-1714, **File Type:** Program**Agenda Number:** 31.

**SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE
MARCH 17, 2016****SUBJECT: ALL DOOR BOARDING PILOT EVALUATION****ACTION: REPORT ON THE RESULTS OF THE ALL DOOR BOARDING PILOT TEST ON LINE 720, AND APPROVE EXPANSION OF THE PILOT TO THE SILVER LINE.****RECOMMENDATION**

CONSIDER:

- A. RECEIVING AND FILING report on the **evaluation results of the All Door Boarding pilot test on the Wilshire BRT** (Line 720); and
- B. APPROVING expanding the pilot program to the Silver Line (Line 910) starting Summer 2016.

ISSUE

On April 15, 2015, the Board of Directors adopted a Motion amending Item #24 of the Planning and Programming Committee. The motion directed staff to study the feasibility of All-Door Boarding (ADB) and Off Board Fare Payment on the Wilshire Boulevard BRT, as well as other applicable corridors, as part of Metro's continuing efforts to improve and enhance the transit experience and support Metro's Countywide BRT expansion. It further directed staff to assess the practical challenges and opportunities of All-Door Boarding and/or Off-Board Fare Payment. This report provides the evaluation results from a pilot test of ADB conducted on the Wilshire BRT (Line 720) between May 18, 2015 and July 10, 2015.

DISCUSSION**Background**

In keeping with elements critical to the success of BRT, reducing customers' transit travel time requires improvements to three parts of their trip: wait time, in service running time and stop dwell time. The Wilshire BRT addresses wait times through high frequencies, in service running time through signal priorities and bus only lanes, but has not employed elements to address stop dwell time. The ADB pilot program tests the effectiveness of faster boarding through more efficient fare collection. The pilot intends to reduce bus stop dwell times and variability, by allowing customers with

valid TAP cards to enter at all doors.

Pilot Logistics

The ADB pilot test was conducted along Line 720 (Wilshire BRT), at the Wilshire/Vermont stop westbound during the AM peak (6:00 am-11:00 am) and the Wilshire/Westwood stop eastbound during the PM peak (2:00 pm - 7:00 pm), from May 18, 2015 to July 10, 2015, on weekdays only. Metro customer service representatives were on site to provide information on the pilot project and reminded passengers with valid TAP cards that they could board through any door. Vehicle Operations Supervisors were also present to monitor on-street operations. Prior to commencing the pilot, a comprehensive marketing and outreach effort was conducted. Staff was also available at each stop one week prior to implementation to distribute information on the pilot project and answer questions.

Scope of Evaluation

While ADB can result in true dollar cost savings and revenue impacts, the perceived benefits and drawbacks of the program should be considered equally important in the evaluation, given its influence on service quality and ridership. Therefore, the scope of evaluation of the ADB pilot consists of:

- Calculated dwell time savings and its impact on resource requirement and service reliability;
- Estimated impact to fare evasion;
- Customer perceptions of the benefits and drawbacks of implementing ADB;
- Other challenges and opportunities identified through peer agency review and observations from the ADB pilot program.

Peer agency reviews were also conducted for comparison and guidance on lessons learned. The agencies contacted were MTA in New York, MUNI in San Francisco, King County Metro in Seattle, Washington, and Translink in Vancouver, Canada. Each of these systems implemented ADB in different ways based on the needs of their system and other considerations.

Findings

Attachment B provides a detailed evaluation report. Overall, the ADB pilot demonstrated that there can be resource savings from a reduction in dwell time. In addition, reducing the range (or variability) in dwell time helps to improve the line's overall reliability and headway regularity.

Based on data collected, overall dwell time decreased because boarding is distributed among three doors instead of being limited to the front door only, reducing the overall per person time for boarding. Dwell time per passenger dropped from 4.35 seconds to 2.96 seconds, a decrease of 1.39 seconds

per passenger, or 32.0%. Dwell times can be further reduced by an additional 1.41 seconds, to 1.55 seconds, by restricting boardings to "TAP only". In this scenario, cash payments would not be allowed on board the bus.

In addition, access to all doors means there may be a more even distribution of the passenger load, and less time would be spent boarding and sitting down on buses. As such, there can be less boarding-related safety hazards, fewer opportunities for customer injuries, and less delay before the operator departs from the stop.

The more significant benefit of ADB is the perception of better service, which heavily influences a passenger's decision to use transit. Based on the customer survey conducted as part of the pilot, only 7% of the passengers were not in favor of the program; the overwhelming majority (82%) look forward to its implementation.

Operator and Supervisor feedback also indicates that they believe the ADB project is good for the system and they would support its implementation. Comments from the pilot test debrief sessions included:

- A noticeably shorter dwell time when there are more than ten people boarding;
- The customers being better able to see the available seating on the bus; and
- A reduction in confrontations with passengers regarding fares, which would help avoid disputes and operator assaults.

While ADB can result in real and perceived benefits, the greatest challenge to implementing ADB is the impact to fare evasion. With ADB, passengers are able to bypass the operator by boarding at the un-manned middle and rear doors. Concerns that this policy would induce more fare evasion were voiced by all peer agencies interviewed as well as Metro employees and customers prior to and during the pilot test. Unfortunately, the data collected from the fareboxes and SAVs during the pilot test were inconclusive regarding the impact of ADB on fare evasion. Regardless, public perception is that ADB will induce more customers to evade paying their fare. Metro employees stationed at the pilot locations along with operators of Line 720 also perceived fare evasion as a result of ADB, and all peer agencies interviewed agree, and have implemented a fare enforcement program as part of their ADB project.

Silver Line Pilot

Given the success of the Line 720 ADB pilot conducted from May - June 2015, staff recommends extending the pilot to the Silver Line for a period of 6 months starting in Summer 2016. The Silver Line is an ideal candidate given that dwell time benefits of ADB are much greater for lines that have high levels of boardings per stop compared to those with fewer boardings. In addition, cost efficiencies from reduced running times are much greater for lines with higher frequencies than those

with fewer trips per hour. Finally, lines with more transit priorities to help increase running time speed and reliability would benefit more from ADB as the dwell times are a greater percentage of running time compared to lines that have slower in service speeds. The Silver Line exemplifies all of these characteristics.

The pilot test conducted on Line 720 from May to July 2015 was limited to two stops, during certain time periods only. The Silver Line pilot would be expanded to include all stops all of the time by installing mobile validators (MV) at all doors of the bus allowing passengers to TAP as they enter any door on the bus. As with the Line 720 pilot, the greatest concern is fare evasion. Currently it is difficult to check the fares of all passengers on the bus because not all passengers are provided a proof of payment (e.g. cash and token passengers). Therefore, the Silver Line pilot would require that all passengers pay their fare with a valid TAP card so fare enforcement officers can “sweep” the buses and check for valid TAP cards. A Title VI/Environmental Justice fare equity analysis of this fare change is included in Attachment B.

To address the issue of Cash and Token passengers not being able to board, Ticket Vending Machines (TVM) are being installed at key stations such as Harbor/Gateway. Fareboxes will also be programmed with “Top Off” capabilities, to allow passengers to add stored value to cards on board at stops that are not near TMVs or TAP vendor outlets. In addition, passengers loading their cards remotely through the taptogo.net website or by phone will benefit by being able to use their fare within an hour of load by tapping on a mobile validator, compared to 24-48 hours at the farebox. Finally, as TAP cards replace tokens as a means of providing transportation benefits to social service program clients (who are the primary recipient of tokens) which is currently being pursued, these passengers will benefit from ADB.

DETERMINATION OF SAFETY IMPACT

Approval to expand the ADB pilot to the Silver Line will not have a safety impact to customers or employees. Indirectly, based on Operator feedback on the Line 720 ADB pilot, may reduce assaults on operators as fare enforcement, one of the major causes of conflict between passengers and Operators, would be largely transferred to law enforcement.

FINANCIAL IMPACT

The ADB pilot on the Silver Line will utilize TAP equipment currently being installed for the Silver Line. Therefore, no additional funding in the FY16 budget will be required to procure equipment for this program. In fact, the ADB pilot on the Silver Line is anticipated to save 1,500 in annual revenue service hours (RSH), or 750 RSH during the 6 month pilot period. Based on a marginal operating rate of \$100 per RSH, the pilot savings results in a reduction of \$75,000 in operating cost for FY17.

ALTERNATIVES CONSIDERED

The alternative to staff recommendation is to not extend the ADB pilot to the Silver Line. However, this is not recommended as passengers will not benefit from shorter dwell times, and Metro will not be able to reduce the FY17 operating budget by \$75,000 while maintaining the same level of service.

NEXT STEPS

Should the Board approve the ADB pilot on the Silver Line, staff will initiate an implementation plan that will include installation of equipment, a revised Silver Line schedule reflecting the shorter dwell times, fare enforcement deployment plan, Operator and passenger outreach.

Prior to the conclusion of the pilot period, staff will provide the Board with a recommendation to terminate the program, continue it on the Silver Line only, or implement ADB on other Metro Lines. This recommendation will be based on an evaluation of actual dwell time savings, ridership impacts, fare evasion rates, and passenger and Operator feedback.

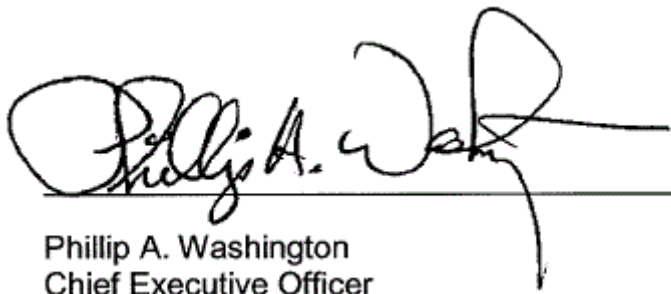
ATTACHMENTS

Attachment A - Line 720 All Door Boarding Pilot Project Evaluation

Attachment B - All Door Boarding Fare Equity Analysis - Feb 2016

Prepared by: Conan Cheung, Executive Officer, Finance, (213) 922-6949
Anika-Aduesa Smart, Budget Management Analyst IV, (213) 922-6964

Reviewed by: Nalini Ahuja, Executive Director, Finance and Budget, (213) 922-3088



Phillip A. Washington
Chief Executive Officer

Line 720 All Door Boarding Pilot Project Evaluation

Project Summary Report

Objective

On April 15, 2015, the Board of Directors adopted a Motion amending Item #24 of the Planning and Programming Committee (see Attachment 1). The motion directed staff to study the feasibility of All-Door Boarding (ADB) and Off Board Fare Payment (OBFP) on the Wilshire Boulevard BRT, as well as other applicable corridors, as part of Metro's continuing efforts to improve and enhance the transit experience and support Metro's Countywide BRT expansion. It further directed staff to assess the practical challenges and opportunities of All-Door Boarding and/or Off-Board Fare Payment.

Optimization of the Customer Transit Experience

The Federal Transit Administration (FTA) identifies a number of major elements critical to the success of BRT, such as type of running way, branding, stations, and Intelligent Transportation Systems (ITS). The incorporation of these elements achieves several key BRT objectives, including travel time savings, improved reliability, branding to attract new markets, enhanced safety and security, enhanced capacity, and accessibility.

The Rapid Line 720, Metro's busiest bus line, has an average of 39,000 boardings per weekday. The line is challenged with poor on time performance and bus bunching, as a result of heavy corridor traffic which negatively impacts bus running times. High passenger boarding activity also results in lengthy dwell times, further impacting travel time and reliability.

Initial efforts to implement BRT elements did not include dedicated bus lanes and/or right-of-way or expedited fare payment strategies. However the subsequent addition of a total of 7.7 miles of dedicated peak period bus lanes for the route, completed in August 2015, rounded out six (6) attributes of BRT elements applied to the line, as shown in Table 1.

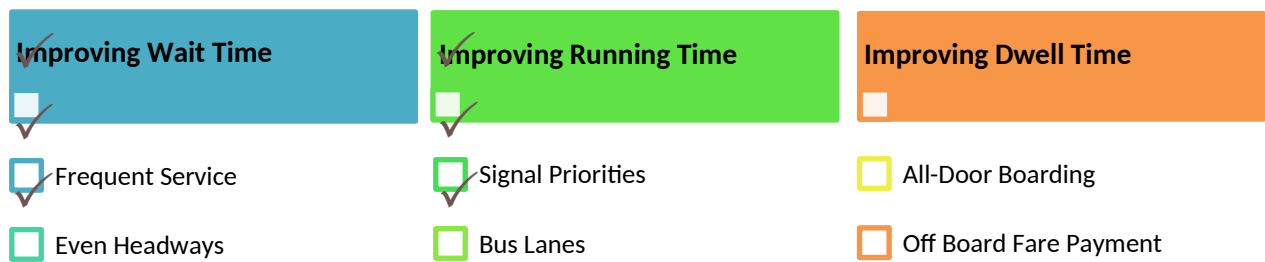
Table 1
Attributes of BRT

Element	Line 720
Running Ways	<ul style="list-style-type: none"> Peak hour bus lanes along 7.7 miles of Wilshire Blvd.
Stations	<ul style="list-style-type: none"> Rapid designed shelters with customer amenities
Vehicles	<ul style="list-style-type: none"> Low floor articulated buses
ITS	<ul style="list-style-type: none"> Bus signal priority and NextBus technology
Service and Operations Plan	<ul style="list-style-type: none"> Frequent service with longer stop spacing
Branding Elements	<ul style="list-style-type: none"> Branded bus color and station design
Fare Collection	N/A

While the new lanes allow buses to operate at higher speeds through the congested corridor, dwell times still continue to increase because of high levels of boarding activity at key stops; as such additional measures need to be taken to reduce transit travel times on this route.

Reducing customers' transit travel time requires improvements to three parts of their trip: wait time, in service running time and stop dwell time. Figure 1 below summarizes the aspects of travel time and the optimizing strategies used to address them.

Figure 1
Travel Time Strategies



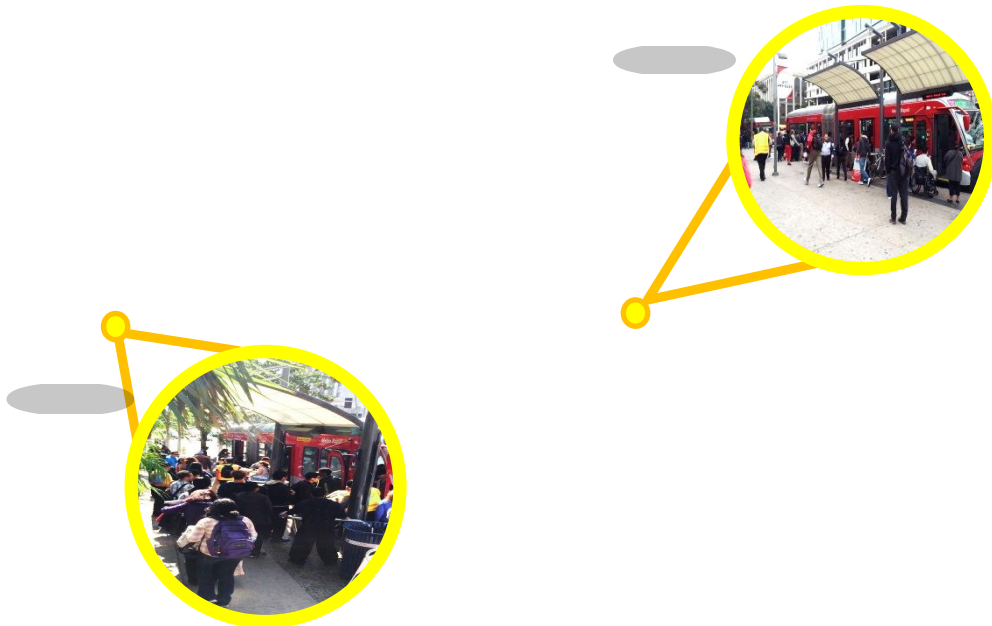
As other efforts are underway to reduce wait time and increase operations speeds as indicated above, the ADB pilot program tests the effectiveness of the remaining element of BRT, faster boarding through more efficient fare collection. It is aimed at reducing bus stop dwell times and variability, by allowing customers with valid TAP cards to enter from the middle and rear doors. Cash and transfer customers were still required to enter from the front door.

Pilot Logistics

The ADB pilot test was conducted along Line 720 (Wilshire BRT), at the Wilshire/Vermont stop westbound during the AM (6:00 am-11:00 am) and the Wilshire/Westwood stop eastbound during the PM (2:00 pm – 7:00 pm) (see Figure 2). The test was conducted from May 18, 2015 to July 10, 2015, on weekdays only.

Stand Alone TAP Validators (SAV) were placed on the sidewalk at the locations of the rear, middle, and front left doors to allow customers to “TAP and Board Any Door”. Customers paying with cash, transfer, token, or needing assistance continued to enter through the front door. Metro customer service representatives were on site to provide information on the pilot project and reminded passengers with valid TAP cards that they could board through any door. Vehicle Operations Supervisors were also present to monitor on-street operations.

Figure 2: Wilshire BRT All Door Boarding Pilot Locations



Communications and Customer Engagement

An important part of the process was engaging customers, to share project objectives and solicit their opinions on the value and viability of the project. Prior to commencing the pilot, a comprehensive marketing and outreach effort was conducted, including the distribution of a number of marketing materials in various languages, and social and electronic media. Staff was also available at each stop one week prior to implementation to distribute information on the pilot project and answer questions. The pre-pilot comprehensive marketing and outreach effort included the following:

- Pull-up banners at Wilshire/Vermont
- A-frames at Wilshire/Westwood
- Take-ones
- Flyers
- Poster Boards for divisions
- Post information on metro.net
- Eblasts
- The Source/El Pasajero
- Metro Facebook
- Metro Twitter
- Metro Daily Brief

Staff also visited affected Operating Divisions to solicit input from the Bus Operators.

Scope of Evaluation/Evaluation Program/Evaluation Plan

While ADB can result in true dollar cost savings and revenue impacts, the perceived benefits and drawbacks of the program should be considered equally important in the evaluation, given its influence on service quality and ridership. Therefore, the scope of evaluation of the ADB pilot consists of:

- Calculated dwell time savings and its impact on resource requirement and service reliability;
- Estimated impact to fare evasion;
- Customer perceptions of the benefits and drawbacks of implementing ADB;
- Other challenges and opportunities identified through peer agency review and observations from the ADB pilot program.

To support the evaluation plan, quantitative data was collected during the test period, as well as qualitative assessments through surveys, focus groups and peer agency reviews, as follows:

- Automatic Passenger Counter (APC) boarding data;
- Farebox and Stand Alone Validator (SAV) fare unit counts;
- Manual passenger counts and dwell time checks conducted by OMB staff;
- Data from the Transit Court department regarding fare evasion;
- Customer surveys conducted by OMB and TAP staff; and
- Vehicle Operations Supervisors (VOS), TAP “Blue Shirt” ambassadors and Operator debriefs.

Peer agency reviews were also conducted for comparison and guidance on lessons learned (Attachment 2). The agencies contacted were MTA in New York, MUNI in San Francisco, King County Metro in Seattle, Washington, and Translink in Vancouver, Canada. Each of these systems implemented ADB in different ways based on the needs of their system and other considerations.

Findings

The ADB pilot demonstrated that there can be resource savings from a reduction in dwell time. In addition, reducing the range (or variability) in dwell time helps to improve the line's overall reliability and headway regularity. Attachment 3 presents detailed dwell time and resource savings by line for Rapids and Silver Line.

Based on data collected, overall dwell time decreased because boarding is distributed among three doors instead of being limited to the front door only, reducing the overall per person time for boarding. Dwell time per passenger dropped from 4.35 seconds to 2.96 seconds, a decrease of 1.39 seconds per passenger, or 32%. The results also showed buses spent 6.2% less time picking up and dropping off passengers at stops (i.e. dwell time), as a percentage of their overall time in service. Prior to the pilot, dwell time represented 29% of the trip time of the segment, compared to 27% during the pilot. In addition, dwell times can be further reduced by an additional 1.41 seconds, to 1.55 seconds, by restricting boardings to "TAP only". In this scenario, cash payments would not be allowed on board the bus.

Access to all doors means there may be a more even distribution of the passenger load, and less time would be spent boarding and sitting down on buses. As such, there can be less boarding-related safety hazards, fewer opportunities for customer injuries, and less delay before the operator departs from the stop.

The more significant benefit of ADB is the perception of better service, which heavily influences a passenger's decision to use transit. Based on the customer survey conducted as part of the pilot, 89% of passengers thought that it took less time for them to board, with 66% responding with "much faster" and 23% with "somewhat faster". In addition, 75% of survey respondents thought it was easier to board the bus with only 5% thinking it was harder. Only 7% of the passengers were not in favor of the program; the overwhelming majority (82%) look forward to its implementation. Full comments and customer feedback is provided in Attachment 4.

These results support the fact that ADB can produce significant perceived time savings, especially at stops with high boarding volumes, high numbers of cash-paying passengers and on lines with significant wheelchair boardings. For example, at a stop with five boardings, the difference in dwell time between a bus using ADB and one without ADB is roughly seven seconds. However, at a stop with thirty boardings, the dwell time difference increases to 42 seconds; hence the greater time savings at the busier stop results in a greater real and perceived benefit of ADB. Focusing on the Rapids and Silver Line, the project will likely have greatest impact on six lines—704 (Santa Monica Blvd), 720 (Wilshire Blvd), 733 (Venice Blvd), 744 (Van Nuys and Reseda Blvds), 754 (Vermont Ave) and 910 (Silver Line). These lines had a combined weekday average ridership of 107,063, and record nearly 700,000 passengers weekly. There may also be improvements seen on the 757 (Western Ave), whose average weekday ridership is over 13,000.

The real and perceived benefits of ADB are expected to result in ridership increases. Attachment 5 provides detailed estimations of ridership increases for all Rapids and Silver Line. The analysis shows a modest weekday increase of 0.17% as a result of ADB. If boardings were restricted to “TAP Only”, weekday ridership increase is projected to be 0.34%.

Operator and Supervisor feedback (summarized in Attachment 6) also indicates that they believe the ADB project is good for the system and they would support its implementation. Comments included:

- A noticeably shorter dwell time when there are more than ten people boarding;
- The customers being better able to see the available seating on the bus; and
- A reduction in confrontations with passengers regarding fares, which would help avoid disputes and operator assaults.

Fare Evasion

While ADB can result in resource savings and more significant perceived service quality benefits, the greatest challenge to implementing ADB is the impact to fare evasion. Traditionally, front door only boarding allows the operator to serve as a "gate-keeper", quoting the fare to each customer that boards and reminding them to pay. With ADB, passengers are able to bypass the operator by boarding at the un-manned middle and rear doors. Concerns that this policy would induce more fare evasion were voiced by all peer agencies interviewed as well as Metro employees and customers prior to and during the pilot test.

Unfortunately, the data collected from the fareboxes and SAVs during the pilot test were inconclusive regarding the impact of ADB on fare evasion. When comparing fare evasion on the Orange Line, which employs ADB and Off Board Fare Payment, and the overall bus system, the results are equally unclear.

Regardless, public perception is that ADB will induce more customers to evade paying their fare. In the customer survey conducted as part of the ADB pilot test, 52% of respondents stated that they have witnessed fare evasion at the middle and rear doors. However, 82% of these respondents still support ADB. Comments submitted indicated that some customers were frustrated at the amount of fare evasion they perceive. Others were irritated that people who may not be paying are able to board in the rear of the bus and find a vacant seat, while those paying cash at the front were not. "How do they know if I tapped?" and "What about those people who didn't TAP?" were constant questions asked by customers, primarily at Westwood where there is a greater percentage of cash paying customers.

Metro employees stationed at the pilot locations along with operators of Line 720 also perceived fare evasion as a result of ADB. Employees indicated that people are more likely to evade if they are not watched by the operator at the front door or TAP "Blue Shirt" Ambassadors at the middle and rear doors. Employees and customers both reiterated the need for a fare enforcement campaign to complement ADB, to at a minimum, dissuade current and any additional induced fare evasion. All peer agencies interviewed had similar concerns, and have implemented a fare enforcement program as part of their ADB project.

The experience of the rate and pervasiveness of fare evasion varies widely from agency to agency, however all agencies agree that there is a strong correlation between fare enforcement and the amount of fares lost. Based on the experience of King County Metro, New York MTA, and San Francisco MUNI, fare evasion was reduced by as little as 6% to as high as 50% after implementation.

Considerations for Implementation

ADB and Off Board Fare Payment are typically service characteristics found on many rail and BRT systems. At Metro, ADB and Off Board Fare Payment have been employed on the rail and Orange Line BRT only. Expanding ADB to the Silver or Rapid Lines requires consideration of the following:

- TAP Only Boardings - To achieve the maximum benefits of ADB and minimize fare evasion, boardings on ADB lines should be limited to TAP only. Not only with this policy improve dwell time savings, it would allow fare enforcement officers to check all passengers for valid TAP payment. Currently it is difficult to check all passengers on the bus because not all passengers are provided a proof of payment (e.g. cash and token passengers). However, implementing a TAP only policy would require a Title VI and Environmental Justice analysis on minority and low income riders.

- Priority Lines - The analysis indicates that the dwell time benefits of ADB are much greater for lines that have high levels of boardings per stop compared to those with fewer boardings. In addition, cost efficiencies from reduced running times are much greater for lines with higher frequencies than those with fewer trips per hour. Finally, lines with more transit priorities to help increase running time speed and reliability would benefit more from ADB as the dwell times are a greater percentage of running time compared to lines that have slower in service speeds.

Attachment 1
Motion Amending Item #24

Motion by Directors Bonin, Garcetti and Kuehl
Amending Item # 24 Countywide Bus Rapid Transit
Planning & Programming Committee
April 15, 2015 - REVISED

Metro recently completed a Countywide BRT and Street Design Improvement study and is now embarking on the expansion of its BRT system to address regional mobility goals. BRT systems have proven highly advantageous to passengers, providing frequent, fast, reliable, high capacity service.

Metro has already implemented a range of BRT type improvements in the County from the Rapid system to Dedicated Bus Lane projects to the Orange Line. Travel time and service reliability could be improved through the proper application of off board fare payment and/or all door boarding.

The time needed to load all passengers through the front door and require on board fare payment can significantly slow bus operations, increasing dwell time at stops and potentially impacting schedule reliability.

Moving fare payment off the bus and/or using all doors for boarding offers the potential to reduce dwell time.

Off-board fare payment can present challenges in terms of technology, enforcement and the constrained right of way common in an urban environment. Nevertheless, if Metro is to pursue a world-class system of BRT, the advantages of off-board fare payment and/or all door boarding should not be ignored and should be studied concurrently with Metro BRT studies currently underway.

I THEREFORE MOVE that the Board direct the CEO to report back at the Planning and Programming meeting with a preliminary analysis of the opportunities and challenges of implementing an off-board fare payment program and/or all door boarding to support our Countywide BRT expansion, using industry best practices in technology, station design and enforcement as a guide.

I FURTHER MOVE that the Board direct the CEO to undertake an applied study using the Wilshire Boulevard BRT corridor or other appropriate corridors as an opportunity to fully assess the practical challenges and opportunities. The study should include, but not be limited to:

- A. The impact of off board fare payment and all door boarding policy on bus dwell time, passenger convenience, and fare evasion
- B. Guidelines and criteria for off board fare payment and all door boarding, including options for payment systems, requirements for right of way and utilities for each option, capital cost and ongoing support for each (i.e. maintenance, revenue collection, fare enforcement, etc.)

Off-Board Fare Payment and All-Door Boarding for Bus Service: Peer Survey Results

Peer research was conducted during June and July of 2015 via phone and email correspondence and site visits. Overall, and was assembled from interviews with the peer agencies and in the case of San Francisco, review of a published report on ADB.

Summary of Peer Survey Research

Basic Characteristics

Extent of All-Door Boarding	All-door boarding is typically allowed throughout the same class of service. In the case of San Francisco, all-door boarding is permitted throughout the entire Muni system.
Extent of Off-Board Fare Payment	While NYC MTA provides fare collection machines at all Select Bus Service stops ¹ (in part because of the MetroCard fare media) and KC Metro provides off-board smart card validators at select stops, Translink and SF Muni provide no off-board fare payment options.
Off-Board Fare Payment and All-Door Boarding Program	In San Francisco and Vancouver, mobile validators installed on board the vehicle allow passengers with smart cards to board and pay at any door. In Seattle, smart card holding passengers may board through the rear doors only at stops where off-board validators are present.
On-Board Fare Payment	In these three cities, cash paying customers continue to pay on board at the front door, whereas in New York City, all fare payment takes place off board. ² Only San Francisco and Vancouver's systems allow customers with electronic smart cards to board through the rear doors and pay on-board.

Proof-of-Payment System and Fare Enforcement

Proof-of-Payment System and Receipts/Transfers	All peer agencies require proof-of-payment while on-board a vehicle with all-door boarding, and provide some form of proof-of-payment to all customers.
Fare Enforcement Regime	At all peer agencies, fare inspectors enforce the proof-of-payment system.
Estimated Fare Evasion	Estimates of fare evasion on these lines ranged from 1% to 8%. Several systems reported declines in fare evasion following all-door boarding and the introduction of fare enforcement. In the case of New York City and Seattle, the decline was almost 50%, while in San Francisco the decline was a fraction of a percent.

¹ Excluding the Staten Island S79 SBS

² With the exception of some transfers purchased with cash.

Technology and Costs

Fleet	Because all-door boarding is deployed on a particular class of service (with the exception of San Francisco), vehicles with all-door boarding have a distinctive bus wrap.
Technology Used	San Francisco, Seattle and Vancouver use small electronic fare card validators for off-board and on-board fare payment, whereas New York City uses ticket vending machines (TVMs) (originally retrofitted subway TVMs and parking meter coin machines).
Capital costs	Costs of the fare collection machines were not readily available from all agencies, but costs range from \$7,000 to \$27,000 per device.
Maintenance Costs	Agencies reported minimal maintenance costs. TCRP Synthesis 96 <i>Off-Board Fare Payment Using Proof-of-Payment Verification</i> states that these costs are not yet recorded in detail throughout the American transit industry.
Enforcement Costs	Estimates varied, with agencies reporting costs either by line, system-wide or per fare inspector.

Outreach, Operations and Outcomes

Outreach & Implementation Process	Agencies typically used a combination of marketing to customers, decals on buses, press events, and customer service employees at stations.
All-Door Boarding Hours	In most cases, all-door boarding is allowed throughout scheduled service, but Seattle limits all-door boarding to daytime hours.
Operator Training	In New York City and King County operators receive special training, while in San Francisco, operators were provided a bulletin explaining the agency's all-door boarding policy.
Outcomes	Because all-door boarding and off-board fare payment were often deployed alongside other improvements, such as transit-only lanes, agencies were unable to ascribe specific gains in ridership or speed to these policies. However, NYC MTA estimates that these two features were responsible for a 10 to 15 percent improvement in travel time. San Francisco observed shorter dwell times per passenger (3.9s to 2.5s on average) and a higher bus system speed (8.48mph to 8.56 mph).

Data Sources

Except where otherwise specified, information comes from the following sources:

- King County Metro: Interview with Karen Rosenzweig, 6/12/2015
- Translink: Interview with Marisa Espinosa, 6/30/2015
- NYCTA: Interview with Robert Thompson, 7/2/2015
- SFMTA: All-Door Boarding Evaluation Final Report, December 2014

Off-Board Fare Payment and All-Door Boarding for Bus Service: Peer Survey Results

Table 1. Basic Characteristics

	Extent of All-Door Boarding	Extent of Off-Board Fare Payment	Off-Board Fare Payment and All-Door Boarding Program	On-Board Fare Payment
King County Metro (Seattle, WA Area)	RapidRide lines, which include a variety of BRT-like treatments.	Stops on RapidRide lines with more than 150 boardings per day.	Stand-alone fare transaction processors (smart card validators) are present at high ridership bus 'stations', and allow smart card holders to validate and board through rear doors. At RapidRide stops without validators, only customers with paper transfers may board through rear doors.	Customers paying cash and smart card users at non-station stops continue to pay on-board at the front door.
Translink - Coast Mountain Bus Company (Vancouver, BC Area)	<p>99 B-Line and 145 Line.</p> <p>Translink has previously deployed ADB on other routes, and is evaluating ADB for all routes with articulated buses.</p> <p>Note that Translink officially uses the term "Three Door Boarding" (3DB).</p>	<p>Not present.</p> <p>Translink is considering off-board validation at select stops and a ticket vending machine for the 620 line, which is heavily used by tourists.</p>	All-door boarding is permitted at all stops of the 99-B Line and select 145 Line stops, due to the large proportion of university students on these lines who possess electronic fare cards. Customers tap at mobile validators as they board and as they exit.	<p>Customers with electronic fare cards may pay at mobile validators at each door.</p> <p>Customers paying cash continue to pay on-board at the front door.</p>
New York City MTA (New York City, NY area)	Select Bus Service lines (with the exception of the S79 SBS Line)	Select Bus Service lines (with the exception of the S79 SBS Line)	Customers pay their fare at off-board ticket vending machines at SBS stops, which provide a receipt that constitutes proof-of-payment. Off-board fare payment is required. All-door boarding is permitted at SBS stops.	No on-board fare payment, with the exception of cash-paying customers buying a transfer pass.

	Extent of All-Door Boarding	Extent of Off-Board Fare Payment	Off-Board Fare Payment and All-Door Boarding Program	On-Board Fare Payment
San Francisco Municipal Transportation Agency (San Francisco, CA)	All buses and trains in network (excluding cable car lines)	Not present.	There is no off-board fare payment at Muni bus stops. All passengers with tickets and smart cards may board through the rear door after validating on-board, and customers with transfers may board through the rear doors as well.	Mobile Validators on board vehicles allow smart card holders to board and pay through any door. Customers paying cash continue to board and pay at the front door.

Table 2. Proof-of-Payment System and Fare Enforcement

	Proof-of-Payment System and Receipts/Transfers	Fare Enforcement Regime	Estimated Fare Evasion
King County Metro (Seattle, WA Area)	Customers must have proof-of-payment. Customers paying cash receive a transfer at the front door, and other passengers must have valid fare.	Twelve contracted inspectors patrol the six RapidRide lines in teams of two.	1% to 4%, depending on the RapidRide line. According to a pre-RapidRide survey, fare evasion was at 7% before dropping to 4% on one line.
Translink - Coast Mountain Bus Company (Vancouver, BC Area)	Translink created a “Fare Paid Zone” (FPZ) onboard buses with all-door boarding.	Transit police and unarmed security officers conduct random checks on board using mobile validators, though these inspections primarily happen on the rail network. ³	Approximately 5% on lines with All-Door Boarding.
New York City MTA (New York City, NY area)	Customers must have proof-of-payment. Receipts provided by off-board ticket vending machines constitute proof-of-payment.	Team of fare enforcement officers (known as the “Eagle Team”) patrol SBS lines.	6.1% on the Bx12, a 50% decrease from pre-SBS levels. ⁴ SBS has lower fare evasion rates than local service because of the inspections.
San Francisco Municipal Transportation Agency (San Francisco, CA)	Customers must have proof-of-payment throughout the Muni system. Customers boarding with cash receive a paper transfer at the front door, and other passengers must have valid fare.	Approximately 50 Transit Fare Inspectors (SFMTA staff) inspect both buses and the rail system. ⁵ Thirteen new inspectors were hired for the implementation of all-door boarding system wide.	7.9% ±.2% system wide with ADB, compared to 8.4%±.6% two years before implementation and 9.5%±.3% five years before implementation.

³ Lindblom, Mike. [“Shooting brings attention to light rail’s fare inspection force.”](#) The Seattle Times. July 8, 2014

⁴ TCRP 96

⁵ SFOpenBook Employee Compensation

Table 3. Technology and Costs

	Fleet	Technology Used	Capital costs	Maintenance Costs	Enforcement Costs
King County Metro (Seattle, WA Area)	Three-door, articulated, low-floor buses with distinctive RapidRide bus wrap.	1 smart-card validator placed at selected bus stops.	The 131 electronic fare card readers in the RapidRide system cost KC Metro \$1.05 million, or roughly \$8000 per reader. ⁶	Minimal. The units are cleaned during regular station maintenance, and have so far required only sporadic maintenance.	\$1 million per year for all lines.
Translink - Coast Mountain Bus Company (Vancouver, BC Area)	The 99-B Line uses articulated buses. Chimes at rear doors close have improved safety, but not all buses feature these.	1 mobile validator at the front door, and 2 validators each at middle and rear doors. (Passengers are required to tap off as well as on, so two validators help expedite these processes). Validators have slight delay as a card is read.	Not available.	Not available.	Not available.

⁶ RapidRide Performance Evaluation Report

	Fleet	Technology Used	Capital costs	Maintenance Costs	Enforcement Costs
New York City MTA (New York City, NY area)	Buses with distinctive SBS bus wrap. These buses continue to have fareboxes due to the need for some passengers to pay for additional transfers.	Retrofitted subway TVMs and parking meters were installed at all early SBS stops. Since that time, the agency has developed SBS-specific machines to be used for Off-Board Fare Payment.	Each MetroCard Fare Collection machine costs approx. \$27,000 each (usually two are installed at each stop), and each Coin fare collection machine costs approx. \$7000 each. ⁷ The cost of installing and powering these machines can also be considerable.	Not available.	\$700,000 to \$1.5 million per line, per year.
San Francisco Municipal Transportation Agency (San Francisco, CA)	Because All-Door Boarding is present throughout the Muni system, no sub-fleets are used for All-Door Boarding.	1 mobile validator is present at each door of a Muni vehicle.	Not available.	Not available.	The cost of a fare inspector, net of additional fines received, is estimated to be \$47,000. The median compensation of a fare inspector in CY14 was approximately \$97,000. ⁸

⁷ TCRP 96

⁸ SFOpenBook Employee Compensation

Table 4. Outreach, Operations and Outcomes

	Outreach & Implementation Process	All-Door Boarding Hours	Operator Training	Outcomes
King County Metro (Seattle Area)	<p>Outreach began one month in advance.</p> <p>Marketing to customers has focused not on making off-board fare payment “another way to pay,” but rather as an opportunity to “speed up the trip.”</p> <p>Decals indicate that customers pay at front after 7PM</p>	<p>6AM to 7PM.</p> <p>Plans to extend times limited by need for Transit Police support for Fare Inspection.</p>	<p>Operators who pick these lines receive a special training on the characteristics of the RapidRide program.</p>	<p>Generally, RapidRide ridership is higher by 40% compared to previous routes, but attributing the improvement to ADB or OBFP is not possible.</p>
Translink - Coast Mountain Bus Company (Vancouver, BC Area)	<p>Customer service campaign, as well as outreach through signage, decals, signs at stops, and branding.</p> <p>Added signage to route: “3 door boarding location”. Most bus stops have a marked queue location, so it’s clear where ADB is allowed.</p>	<p>Throughout operating hours for lines with all-door boarding.</p>	<p>No special operator training</p>	<p>Most customers see greater advantages than disadvantages with all-door boarding and proof-of-payment, according to a customer survey.</p>

	Outreach & Implementation Process	All-Door Boarding Hours	Operator Training	Outcomes
New York City MTA (New York City, NY area)	<p>Outreach before SBS service began included:</p> <ul style="list-style-type: none"> ● Community Meetings ● Elected Officials Meetings <p>Outreach following SBS implementation included:</p> <ul style="list-style-type: none"> ● Deployment of Customer Ambassadors for 2 week time frame for 13-15 hours per day ● Branding of SBS buses, fare machines (branding of SBS helped cut down on the confusion factor) ● Information decals on all doors 	Throughout Select Bus Service operating hours.	All SBS operators go through special training (e.g., don't need to make people pay). Operators prefer the SBS routes as they can drive faster with little or no time points	<p>By itself, OBFP and ADB resulted in an estimated 10-15 percent improvement in travel time.</p> <p>MTA observed a 10% increase in passengers within the first year of implementing SBS.</p>

	Outreach & Implementation Process	All-Door Boarding Hours	Operator Training	Outcomes
San Francisco Municipal Transportation Agency (San Francisco, CA)	<p>Outreach before all-door boarding implementation included:</p> <ul style="list-style-type: none"> ● Informational panels on the inside of vehicles ● A press event ● Outreach to community groups ● Web videos <p>Outreach during ADB implementation included:</p> <ul style="list-style-type: none"> ● New decals on vehicles <p>Other implementation steps included:</p> <ul style="list-style-type: none"> ● Fare Inspector Staffing Increase ● Transportation Code Amendments ● A Fare Survey 	<p>Throughout service hours, but an operator may choose to limit boarding to the front door only if safety concerns arise.</p>	<p>The agency provided a bulletin to operators explaining the new procedures.</p>	<p>SFMTA observed:</p> <ul style="list-style-type: none"> - shorter dwell times per boarding and alighting (from an avg. of 3.9sto 2.5s) - higher bus system speed (from an avg of 8.48mph in FY12 to 8.56mph in FY14)

Attachment 3
Dwell Time Savings Analyses

The following tables demonstrate where savings can be achieved throughout Metro’s system, based on headway by route, time of day and day of week. Data was collected from the APC (Automatic Passenger Counter) program for the timed door opening and closing of each of the buses on route 720 during the Pre-Test and Test Periods (May 4-15, 2015 and May 18-29/June 8-19, 2015 respectively).

The tables first calculate the dwell time savings (in minutes, per trip, based on the ridership during that time of day:

$$\text{Savings} = (\text{Ridership} \times \text{Seconds Saved per Boarding}/60) / \text{No. of Trips (in minutes)}$$

The number of buses saved is then calculated as

$$\text{No. Buses} = \text{Savings} / \text{Headway Time}$$

The green highlights on both sets of tables indicate the areas where at least 0.5 buses could be saved with ADB. To calculate overall number of buses that could be saved, results of 0.7 buses and above were considered a “full bus” and results of 0.5 and 0.6 buses were considered “half buses”. The values were then tabulated to determine by time of day, and by day of week, how many buses could be saved using ADB.

Dwell Time Savings Analyses – Cash and TAP Boardings

CHANGE IN BUS REQUIREMENT - WEEKDAY

LINE	DIR	EAM	AM	MID	PM	EVE	DIR	EAM	AM	MID	PM	EVE
704	W	0.0	0.2	0.1	0.2	0.0	E	0.0	0.1	0.1	0.2	0.1
705	N	0.0	0.1	0.1	0.1	0.0	S	0.0	0.1	0.1	0.1	0.0
710	N	0.0	0.1	0.1	0.1	0.0	S	0.0	0.1	0.1	0.1	0.0
720	W	0.1	0.9	0.5	0.3	0.1	E	0.0	0.2	0.4	0.7	0.3
728	W	0.0	0.1	0.1	0.1	0.0	E	0.0	0.1	0.1	0.1	0.0
733	W	0.0	0.2	0.2	0.1	0.0	E	0.0	0.1	0.1	0.2	0.1
734	N	0.0	0.1	0.1	0.1	0.0	S	0.0	0.1	0.1	0.0	0.0
740	N	0.0	0.0	0.0	0.0	0.0	S	0.0	0.1	0.0	0.0	0.0
744	W	0.0	0.1	0.1	0.1	0.0	E	0.0	0.1	0.1	0.1	0.1
745	N	0.0	0.1	0.1	0.1	0.0	S	0.0	0.1	0.0	0.1	0.0
750	W	0.0	0.1	0.0	0.0	0.0	E	0.0	0.0	0.0	0.1	0.0
751	N	0.0	0.1	0.1	0.1	0.0	S	0.0	0.1	0.1	0.1	0.0
754	N	0.0	0.3	0.2	0.3	0.0	S	0.0	0.2	0.2	0.4	0.1
757	N	0.0	0.2	0.2	0.2	0.0	S	0.0	0.1	0.2	0.2	0.0
760	N	0.0	0.1	0.1	0.1	0.0	S	0.0	0.1	0.0	0.1	0.0
762	N	0.0	0.1	0.1	0.1	0.0	S	0.0	0.0	0.1	0.1	0.0
770	W	0.0	0.1	0.1	0.1	0.0	E	0.0	0.1	0.1	0.1	0.0
780	W	0.0	0.1	0.1	0.2	0.0	E	0.0	0.2	0.1	0.2	0.0
788	N	0.0	0.0	0.0	0.0	0.0	S	0.0	0.1	0.0	0.0	0.0
794	N	0.0	0.1	0.1	0.1	0.0	S	0.0	0.1	0.1	0.1	0.0
910	N	0.0	0.2	0.1	0.2	0.1	S	0.0	0.3	0.1	0.2	0.0

CHANGE IN BUS REQUIREMENT - SATURDAY

LINE	DIR	EAM	AM	MID	PM	EVE	DIR	EAM	AM	MID	PM	EVE
704	W		0	0	0	0	E	0	0	0	0	0
705	N						S					
710	N		0	0	0	0	S		0	0	0	0
720	W	0	0	0	0	0	E	0	0	0	0	0
728	W						E					
733	W	0	0	0	0	0	E	0	0	0	0	0
734	N						S					
740	N	0	0	0	0	0	S		0	0	0	0
744	W	0	0	0	0	0	E		0	0	0	0
745	N	0	0	0	0	0	S	0	0	0	0	0
750	W						E					
751	N						S					
754	N		0	0	0	0	S		0	0	0	0
757	N						S					
760	N	0	0	0	0	0	S	0	0	0	0	0
762	N						S					
770	W		0	0	0	0	E		0	0	0	
780	W						E					
788	N						S					
794	N						S					
910	N	0	0	0	0	0	S	0	0	0	0	0

CHANGE IN BUS REQUIREMENT - SUNDAY

LINE	DIR	EAM	AM	MID	PM	EVE	DIR	EAM	AM	MID	PM	EVE
704	W		0	0	0	0	E	0	0	0	0	0
705	N						S					
710	N						S					
720	W	0	0	0	0	0	E	0	0	0	0	0
728	W						E					
733	W	0	0	0	0	0	E	0	0	0	0	0
734	N						S					
740	N						S					
744	W	0	0	0	0	0	E		0	0	0	0
745	N		0	0	0	0	S		0	0	0	0
750	W						E					
751	N						S					
754	N		0	0	0	0	S		0	0	0	0
757	N						S					
760	N						S					
762	N						S					
770	W						E					
780	W						E					
788	N						S					
794	N						S					
910	N	0	0	0	0	0	S	0	0	0	0	0

To ensure an “apples to apples” comparison of the dwell time savings before and after the ADB pilot, the data from the Service Planning and Analysis (SPA) Department was used for the first analysis, and the savings per passenger was 1.39 seconds with the standard mix of cash and TAP passengers.

The calculation of the additional “TAP only” boardings savings (in the following tables) was calculated with data collected by OMB staff for the second and third doors only, where TAP only boarding times through the middle and rear doors were recorded and was the only such

data available to draw comparison. In this second analysis, assuming all of the same ridership would be using TAP to pay, the calculations are done with an additional 1.41 sec per passenger time savings (a total of 2.8 seconds per passenger).

Dwell Time Savings Analyses – TAP Only Boardings

CHANGE IN BUS REQUIREMENT - WEEKDAY - TAP ONLY

LINE	DIR	EAM	AM	MID	PM	EVE	DIR	EAM	AM	MID	PM	EVE
704	W	0.0	0.4	0.3	0.3	0.1	E	0.0	0.2	0.2	0.4	0.2
705	N	0.0	0.3	0.1	0.2	0.0	S	0.0	0.2	0.1	0.2	0.0
710	N	0.0	0.2	0.2	0.2	0.0	S	0.0	0.2	0.2	0.2	0.0
720	W	0.2	1.8	0.9	0.7	0.3	E	0.1	0.5	0.7	1.5	0.5
728	W	0.0	0.3	0.1	0.2	0.0	E	0.0	0.1	0.1	0.2	0.0
733	W	0.0	0.5	0.3	0.3	0.1	E	0.0	0.2	0.2	0.4	0.2
734	N	0.0	0.1	0.2	0.2	0.1	S	0.0	0.2	0.1	0.1	0.0
740	N	0.0	0.1	0.1	0.1	0.0	S	0.0	0.1	0.1	0.1	0.0
744	W	0.0	0.2	0.3	0.2	0.0	E	0.0	0.2	0.3	0.3	0.1
745	N	0.0	0.2	0.1	0.2	0.0	S	0.0	0.1	0.1	0.2	0.0
750	W	0.0	0.2	0.1	0.1	0.0	E	0.0	0.1	0.1	0.1	0.0
751	N	0.0	0.1	0.1	0.2	0.0	S	0.0	0.2	0.1	0.1	0.0
754	N	0.0	0.6	0.5	0.5	0.1	S	0.0	0.5	0.4	0.7	0.1
757	N	0.0	0.4	0.4	0.4	0.0	S	0.0	0.3	0.3	0.5	0.0
760	N	0.0	0.2	0.1	0.1	0.0	S	0.0	0.1	0.1	0.2	0.0
762	N	0.0	0.1	0.1	0.1	0.0	S	0.0	0.1	0.1	0.1	0.0
770	W	0.0	0.2	0.2	0.2	0.0	E	0.0	0.2	0.2	0.2	0.0
780	W	0.0	0.3	0.2	0.3	0.0	E	0.0	0.3	0.2	0.3	0.0
788	N	0.0	0.0	0.0	0.1	0.0	S	0.0	0.1	0.0	0.0	0.0
794	N	0.0	0.1	0.1	0.1	0.0	S	0.0	0.2	0.1	0.2	0.0
910	N	0.0	0.5	0.3	0.5	0.1	S	0.1	0.6	0.2	0.4	0.1

CHANGE IN BUS REQUIREMENT - SATURDAY - TAP ONLY

LINE	DIR	EAM	AM	MID	PM	EVE	DIR	EAM	AM	MID	PM	EVE
704	W		0	0	0	0	E	0	0	0	0	0
705	N						S					
710	N		0	0	0	0	S		0	0	0	0
720	W	0	0	0	0	0	E	0	0	0	0	0
728	W						E					
733	W	0	0	0	0	0	E	0	0	0	0	0
734	N						S					
740	N	0	0	0	0	0	S		0	0	0	0
744	W	0	0	0	0	0	E		0	0	0	0
745	N	0	0	0	0	0	S	0	0	0	0	0
750	W						E					
751	N						S					
754	N		0	0	0	0	S		0	0	0	0
757	N						S					
760	N	0	0	0	0	0	S	0	0	0	0	0
762	N						S					
770	W		0	0	0	0	E		0	0	0	
780	W						E					
788	N						S					
794	N						S					
910	N	0	0	0	0	0	S	0	0	0	0	0

CHANGE IN BUS REQUIREMENT - SUNDAY - TAP ONLY

LINE	DIR	EAM	AM	MID	PM	EVE	DIR	EAM	AM	MID	PM	EVE
704	W		0	0	0	0	E	0	0	0	0	0
705	N						S					
710	N						S					
720	W	0	0	0	0	0	E	0	0	0	0	0
728	W						E					
733	W	0	0	0	0	0	E	0	0	0	0	0
734	N						S					
740	N						S					
744	W	0	0	0	0	0	E		0	0	0	0
745	N		0	0	0	0	S		0	0	0	0
750	W						E					
751	N						S					
754	N		0	0	0	0	S		0	0	0	0
757	N						S					
760	N						S					
762	N						S					
770	W						E					
780	W						E					
788	N						S					
794	N						S					
910	N	0	0	0	0	0	S	0	0	0	0	0

It was determined that savings could only be achieved within the weekday headways.

Resource Savings

The following table shows the number of daily buses and revenue service hours (RSH) that can be saved by implementing All Door Boarding on Rapids and Silver Line for both scenarios.

TAP and Cash Boardings

	Time Periods				Total
	AM	MID	PM	EVE	
Buses/Day	1	-	1	-	
RSH/Bus	3	6	4	4	
RSH/Day	3	-	4	-	7
RSH/Year	765	-	1,020	-	1,785
Savings/Year	\$76,500	\$0	\$102,000	\$0	\$178,500

TAP Only Boardings

	Time Periods				Total
	AM	MID	PM	EVE	
Buses/Day	5	3	5	1	
RSH/Bus	3	6	4	4	
RSH/Day	15	18	20	4	57
RSH/Year	3,825	4,590	5,100	1,020	14,535
Savings/Year	\$382,500	\$459,000	\$510,000	\$102,000	\$1,453,500

The calculation for savings is as follows, calculated by time of day:

Annualized savings = No. of Buses x No. of Hours x Marginal Cost x No. of Weekdays,

Where the Marginal Cost = \$100.00 and No. of Weekdays = 255.

Attachment 4 Customer Survey Report Summary

The customer service survey was conducted to assess the qualitative aspects of the project, to examine usage trends and customer reactions to the change, and to gain insight and measure customer perception of the service.

Key Findings:

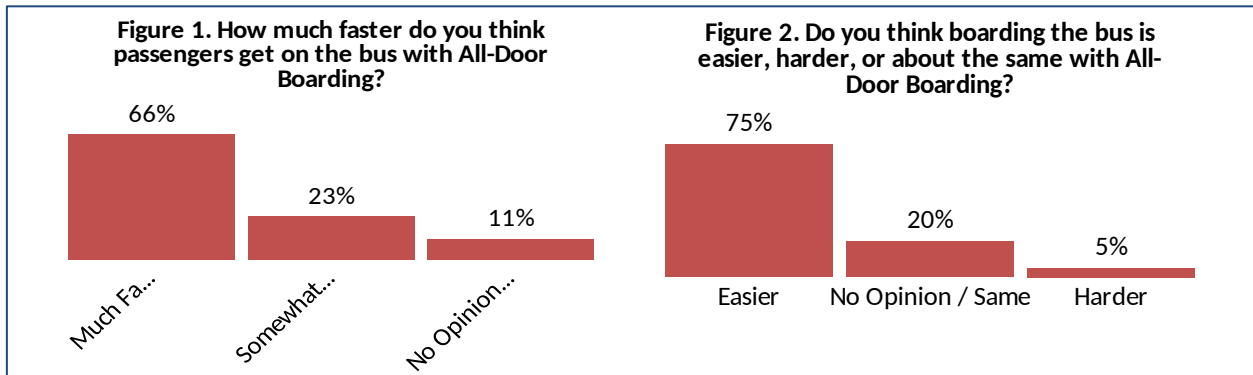
- 82 percent of customers hope to see all-door boarding return, with fewer than 7 percent opposing the continuation of all-door boarding.
- A slight majority of customers stated that they had seen some fare evasion. Those who had seen some individuals boarding without paying were five percentage points less likely to support continuing all-door boarding.
- Customers overwhelmingly thought boarding was easier and faster during the pilot test. However, there was no agreement on whether all-door boarding reduced or worsened crowding.
- Customers who paid with cash at the front door also stated that boarding the bus was easier and faster with all-door boarding. Furthermore, about 60 percent of cash-paying customers indicated that all-door boarding made them want to purchase a TAP card.
- The addition of fare enforcement and ticket vending machines to a full implementation of all-door boarding would allay most customer concerns.

A survey of 1642 customers during four days of the All-Door Boarding (ADB) pilot test shows that the vast majority of customers (82 percent) support continuing all-door boarding. Customers were concerned by a lack of nearby ticket vending machines and fare enforcement, issues which could be addressed in a full implementation of all-door boarding.

Summary of Survey Questions and Responses			
1. How often do you ride the 720 line at this time of day?	5+ days/week: 69%	3-4 days/week: 15%	
	1-2 days/week: 7%	1-3 days/month: 3%	
	Rarely/Never: 6%		
2. Have you tried boarding through the middle or back doors of the 720 line?	Yes: 75%	Unsure: 1%	No: 23%
3. Do you think boarding the bus is easier, harder, or about the same with All-Door Boarding?	Easier: 75%	Harder: 5%	No Opinion / Same: 20%
4. Do you think the bus feels less crowded, more crowded, or about the same with All-Door Boarding?	Less: 24%	More: 28%	No Opinion / Same: 49%
5. Have you seen people boarding without tapping at the middle or back doors?	No: 40%	Yes: 52%	No Opinion: 8%
6. How much faster do you think passengers get on the bus with All-Door Boarding?	Much Faster: 66%	Somewhat Faster: 23%	No Opinion/ No Change: 11%
7. Do you think Metro should continue with All-Door Boarding after the test ends?	Yes: 82%	No: 7%	Neutral / No Opinion: 11%
8. What will you use to pay when you ride the bus today?	TAP or transfer: 85%	Cash or Tokens: 15%	
9. If you paid cash, does All-Door Boarding make you want to purchase a TAP card?	Yes: 59%	No: 24%	Unsure: 17%

Support for All-Door Boarding Stems from Easier, Faster Boarding

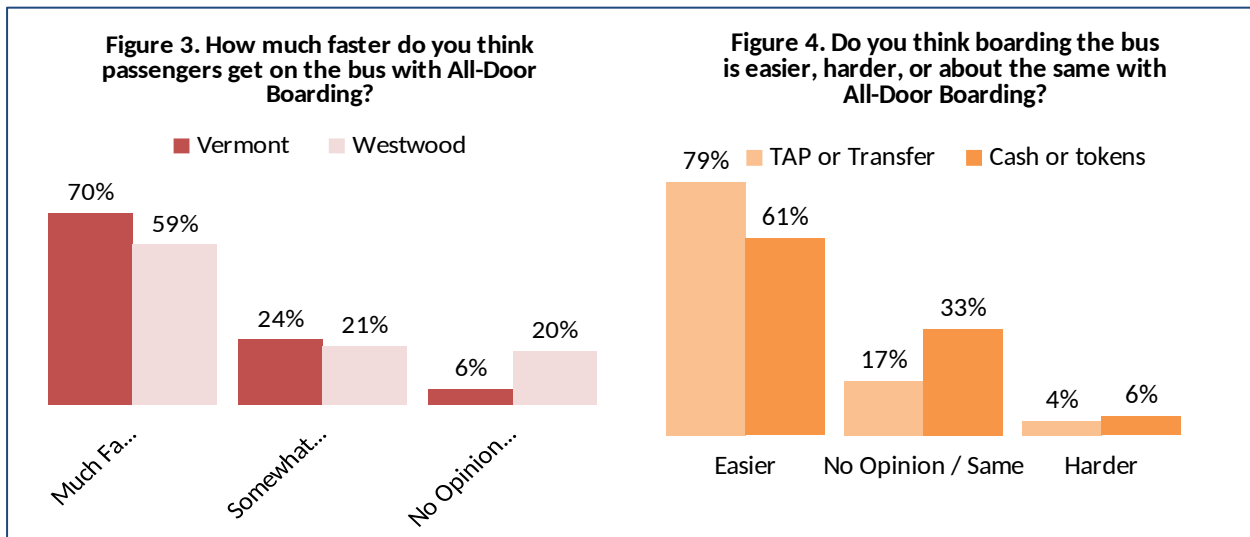
The vast majority of customers found boarding faster and easier with all-door boarding (see figures 1 and 2), but thought that the ADB could be improved with nearby ticket vending machines.



Metro can expect additional support for all-door boarding at Rapid stops where more customers have TAP cards and lines to board are longer. Customers at Wilshire and Vermont, where queues to board the bus are somewhat longer and a larger proportion of customers pay with TAP cards, were more likely to say that all-door boarding made passengers board the bus "much faster" (see Figure 3). Through comments on surveys, customers frequently requested that Metro install ticket vending machines near bus stops so that TAP cards could be purchased or reloaded.

Still, even those customers paying in cash found it easier to board the bus with all-door boarding. Of those paying cash, 61 percent found boarding easier (see Figure 4) and 79 percent found boarding "Much Faster" or "Somewhat Faster". Moreover, of those who did not have a TAP card or transfer, about sixty percent said they would consider purchasing a TAP card for the opportunity to make use of all-door boarding.

Vermont customers who paid cash were more likely than those at Westwood to state that all-door



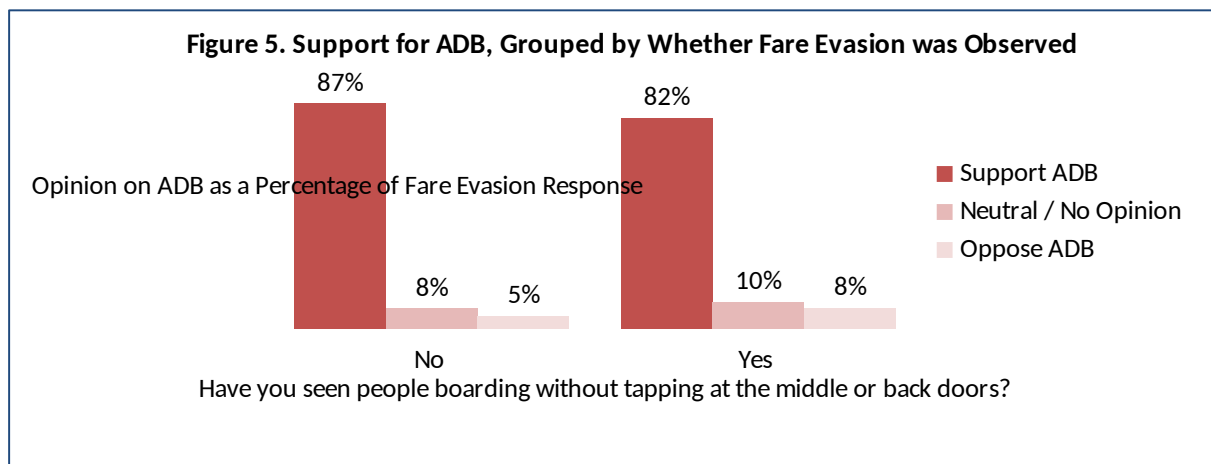
boarding would make them consider buying a TAP card. This may be because of the availability of ticket vending machines nearby at Wilshire & Vermont station.

Most respondents (49 percent) felt that all-door boarding made no discernable impact on crowding, and the remaining responses were split on whether crowding had improved or worsened.

Opposition to All-Door Boarding Rooted in Concerns about Fare Evasion

A slight majority of customers, 52 percent, stated that they had seen others boarding without tapping at the middle or rear doors. This figure does not reflect an estimate of actual fare evasion, but rather the possible extent of fare evasion perceptions. For instance, it may be that several of these respondents witnessed the same individual boarding without paying, or that some individuals witnessed only one individual boarding without paying.

Opposition to all-door boarding appears to be rooted in these concerns about fare evasion, with customers opposed to all-door boarding more likely to say that they had seen some individuals boarding without paying. As a result, those who saw fare evasion were approximately five percentage points less likely to say they supported all-door boarding than those who did not, though most still supported continuing all-door boarding (see Figure 5). In general, those opposing all-door boarding were less likely to have tried boarding through the middle and rear doors and less likely to pay with a TAP card. As a result, some opposition may stem from a sense that customers paying at the front door are being treated unfairly compared to those who are able to board through the rear doors without paying. Because those opposing all-door boarding were less likely to be frequent riders, they may also be less likely to see benefits from boarding through all doors. Comments from customers opposed to all-door boarding—and even those who favor it—frequently echo these frustrations.



Notably, the opposition to all-door boarding was not necessarily based on direct observations of fare evasion: More than 30 percent of those opposed to all-door boarding did not report seeing fare evasion take place. Nor was it a matter of customers disappointed by the outcomes of the pilot project. A plurality of customers who disliked all-door boarding still found boarding to be easier (39% for “Easier” versus 22% for “Harder”). Similarly, a slight majority of those opposed found boarding “Much Faster” or “Somewhat Faster”.

Frequency of Riding and Time-of-Day Affect Perceptions of All-Door Boarding

Customers who frequently ride the 720 Line were more likely to perceive benefits from all-door boarding than infrequent customers, largely because members of the former group are more likely to have a TAP card and to have tried boarding through the middle and rear doors. In this survey, we define 'frequent' customers as those who ride the 720 line at least 3 times per week at the location where they were surveyed.⁹ Although infrequent customers were less likely to have an opinion on all-door boarding, most still supported the idea of continuing all-door boarding after the end of the pilot. Peak hour and non-peak hour riders provided largely similar responses to the survey, though peak hour riders showed slightly more support for all-door boarding.¹⁰

⁹ By this definition, "infrequent" customers may ride lines other than the 720 Line on a regular basis.

¹⁰ Peak hour is 6 AM to 9 AM (exclusive of 9:00:00 AM) and 4 PM to 6 PM (exclusive of 6:00:00 PM). All other times are off-peak.

**Attachment 5
Ridership Growth Assumptions**

TAP and Cash Boardings

WEEKDAY			
LINE	EXISTING	% INC	NEW
704	11,850	0.19%	11,873
705	6,651	0.18%	6,663
710	7,529	0.18%	7,543
720	39,489	0.16%	39,552
728	5,429	0.14%	5,437
733	12,355	0.20%	12,380
734	5,265	0.25%	5,278
740	2,901	0.13%	2,905
744	9,518	0.22%	9,539
745	5,815	0.13%	5,823
750	3,389	0.24%	3,397
751	4,689	0.13%	4,695
754	19,597	0.25%	19,646
757	13,358	0.19%	13,383
760	4,914	0.14%	4,921
762	4,218	0.16%	4,225
770	7,558	0.15%	7,569
780	8,930	0.15%	8,943
788	1,577	0.17%	1,580
794	5,187	0.13%	5,194
910	14,254	0.07%	14,264
	194,473		194,808
		0.17%	

SATURDAY			
LINE	EXISTING	% INC	NEW
704	8,908	0.29%	8,934
705	-	0.00%	-
710	4,600	0.20%	4,609
720	26,838	0.14%	26,876
728	-	0.00%	-
733	9,936	0.18%	9,954
734	-	0.00%	-
740	2,195	0.07%	2,197
744	3,831	0.14%	3,836
745	4,238	0.05%	4,240
750	-	0.00%	-
751	-	0.00%	-
754	14,398	0.36%	14,450
757	-	0.00%	-
760	2,922	0.06%	2,924
762	-	0.00%	-
770	4,123	0.08%	4,126
780	-	0.00%	-
788	-	0.00%	-
794	-	0.00%	-
910	5,891	0.05%	5,894
	87,880		88,039
		0.18%	

SUNDAY			
LINE	EXISTING	% INC	NEW
704	7,489	0.16%	7,501
705	-	0.00%	-
710	-	0.00%	-
720	20,374	0.08%	20,390
728	-	0.00%	-
733	9,097	0.04%	9,101
734	-	0.00%	-
740	-	0.00%	-
744	3,338	0.08%	3,341
745	2,519	0.01%	2,519
750	-	0.00%	-
751	-	0.00%	-
754	9,490	0.24%	9,513
757	-	0.00%	-
760	-	0.00%	-
762	-	0.00%	-
770	-	0.00%	-
780	-	0.00%	-
788	-	0.00%	-
794	-	0.00%	-
910	4,758	0.03%	4,759
	57,065		57,124
		0.10%	

(Growth percentages adapted from the ADB TIGER Grant Proposal)

TAP Only Boardings

WEEKDAY				SATURDAY				SUNDAY				
LINE	EXISTING	% INC	NEW	LINE	EXISTING	% INC	NEW	LINE	EXISTING	% INC	NEW	
704	11,850	0.38%	11,895	704	8,908	0.58%	8,960	704	7,489	0.32%	7,513	
705	6,651	0.36%	6,675	705	-	0.00%	-	705	-	0.00%	-	
710	7,529	0.36%	7,556	710	4,600	0.40%	4,618	710	-	0.00%	-	
720	39,489	0.32%	39,615	720	26,838	0.28%	26,913	720	20,374	0.16%	20,407	
728	5,429	0.28%	5,444	728	-	0.00%	-	728	-	0.00%	-	
733	12,355	0.40%	12,404	733	9,936	0.36%	9,972	733	9,097	0.08%	9,104	
734	5,265	0.50%	5,291	734	-	0.00%	-	734	-	0.00%	-	
740	2,901	0.26%	2,909	740	2,195	0.14%	2,198	740	-	0.00%	-	
744	9,518	0.44%	9,560	744	3,831	0.28%	3,842	744	3,338	0.16%	3,343	
745	5,815	0.26%	5,830	745	4,238	0.10%	4,242	745	2,519	0.02%	2,520	
750	3,389	0.48%	3,405	750	-	0.00%	-	750	-	0.00%	-	
751	4,689	0.26%	4,701	751	-	0.00%	-	751	-	0.00%	-	
754	19,597	0.50%	19,695	754	14,398	0.72%	14,502	754	9,490	0.48%	9,536	
757	13,358	0.38%	13,409	757	-	0.00%	-	757	-	0.00%	-	
760	4,914	0.28%	4,928	760	2,922	0.12%	2,926	760	-	0.00%	-	
762	4,218	0.32%	4,231	762	-	0.00%	-	762	-	0.00%	-	
770	7,558	0.30%	7,581	770	4,123	0.16%	4,130	770	-	0.00%	-	
780	8,930	0.30%	8,957	780	-	0.00%	-	780	-	0.00%	-	
788	1,577	0.34%	1,582	788	-	0.00%	-	788	-	0.00%	-	
794	5,187	0.26%	5,200	794	-	0.00%	-	794	-	0.00%	-	
910	14,254	0.14%	14,274	910	5,891	0.10%	5,897	910	4,758	0.06%	4,761	
			194,473				195,144				57,065	57,183
							0.34%				0.36%	0.21%

Attachment 6
Off-Board Fare Payment and All-Door Boarding: Comparison of Debriefing Results

An important component of the evaluation was to gain valuable feedback from employees supporting the pilot test. TAP “Blue Shirts”, Line 720 Operators, and Vehicle Operations Supervisors were all debriefed following the conclusion of the pilot project. The feedback was provided in the following areas:

- Dwell time savings
- Fare evasion
- Customer experience
- Safety
- Other comments

The tables below summarize the comments received.

Table 1. Dwell Time

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
Did you observe shorter dwell times?	Yes. Customers are boarding faster because of All-Door Boarding.	<ul style="list-style-type: none"> • Yes. Buses move quickly, and patrons board faster. 	<ul style="list-style-type: none"> • Yes. Noticeably shorter, especially when a lot of people are boarding 	<ul style="list-style-type: none"> • Yes. Customers were able to board faster, especially when 10 or more were at a stop. Less than a minute was typically spent boarding. 	<ul style="list-style-type: none"> • 89 Percent found boarding “Much” or “Somewhat” Faster.
What could be done to encourage more customers to board through middle and rear doors?	Most customers will board through rear doors without being told, but additional advertising and announcements would be useful.	<ul style="list-style-type: none"> • Customers used middle and rear doors without needing to be told. 	<ul style="list-style-type: none"> • Operators could make announcements on intercom • Information by middle and rear doors. 	<ul style="list-style-type: none"> • Advertise All-Door Boarding on board the bus. • Signs at bus stops in more languages. 	<ul style="list-style-type: none"> •

<p>For ADB to be beneficial, how many passengers do you think need to be boarding the bus at one time?</p>	<p>All-Door Boarding is most effective when 10 or more passengers are waiting to board. Customers would like ADB in more locations.</p>	<ul style="list-style-type: none"> • Vermont always has customers, so it is good for All-Door Boarding. 	<ul style="list-style-type: none"> • Vermont always has at least 10 passengers waiting, so ADB should be there all day. • At stops with fewer passengers boarding, there's no real benefit. 	<ul style="list-style-type: none"> • All-Door Boarding should be at all stops on 720. 	<ul style="list-style-type: none"> • In comments, customers suggested bringing ADB to other 720 stops along the Purple Line, Universal City, or all Rapid lines.
<p>Other comments on dwell time</p>		<ul style="list-style-type: none"> • Without ADB, multiple waves of customers arrive while a bus is stopped, which slows boarding. 			

Table 2. Fare Evasion Comments

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
<p>How often were passengers boarding through the rear doors without tapping?</p>	<p>Estimates of fare evasion vary widely between Blue Shirts and supervisors, and between the two ADB test locations.</p>	<ul style="list-style-type: none"> • Half of passengers paid, others did not • When Blue Shirts were at the validators, everyone tapped • Some people won't pay even when watched by Blue Shirts. 		<ul style="list-style-type: none"> • Average 10 per week at Vermont test stop • Average 10 per day at Westwood test stop • About 85% of customers were regulars at Westwood, and these people paid. 	<ul style="list-style-type: none"> • Just over 50 percent reported seeing fare evasion.

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
<p>Why do you think these people tapping weren't when boarding through rear doors?</p>	<p>While fare evasion is committed both by passengers in a rush and those who do so deliberately, Blue Shirts and Supervisors seem to agree that most fare evaders do so purposefully.</p>	<ul style="list-style-type: none"> • Patrons will do what is convenient for them and faster — that may mean exiting through the emergency exit at a subway station, boarding through the door closest to them rather than an emptier part of the vehicle, or rushing past the TAP validator to catch the bus. 		<ul style="list-style-type: none"> • Evaders are not primarily the people who are rushing to board. Generally, they are walking onto the bus with others. 	

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
Customer Concerns About Fare Evasion	<p>Customers are concerned about whether the operator knows they tapped. Additionally, customers are concerned about fare evaders benefitting from all-door boarding more than customers who are boarding and paying through the front door. Customers perceive a great deal of fare evasion, even if they do not see it directly.</p>	<ul style="list-style-type: none"> • Customers who paid were concerned that the driver wouldn't know who paid and who didn't. • People who paid their fare in the front were irritated that they didn't find a seat when those who didn't pay and boarded through the middle and rear doors did find a seat. 	<ul style="list-style-type: none"> • Customers don't tell the operators about fare evasion 	<ul style="list-style-type: none"> • Customers complained about fare evasion every day. Primarily at Westwood, less so at Vermont. • Patrons' awareness of fare enforcement will change behaviors • "How do they know if I tapped?" and "What about those people who didn't TAP?" are constant questions from customers 	<ul style="list-style-type: none"> • In comments, customers reported frustration at the amount of fare evasion.
Did concerns about fare evasion change over time?	<p>Blue Shirts and Operators have different opinions on whether perceptions of fare evasion changed over time.</p>	<ul style="list-style-type: none"> • Fare evasion was pretty consistent through the project, except if a Blue Shirt was right next to the validators. 	<ul style="list-style-type: none"> • Concerns seemed to drop off over time. 	<ul style="list-style-type: none"> • 	

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
<p>Did presence of a security guard at Wilshire & Westwood change fare evasion behavior?</p>	<p>Blue Shirts and Operators felt as though the presence of an officer (or Metro personnel generally) changed customer behavior for the better, while Supervisors did not.</p>	<ul style="list-style-type: none"> • Seeing a Metro employee, especially with a vest, reminded some patrons to pay. 	<ul style="list-style-type: none"> • Presence of sheriff's deputy changes patron's behavior. 	<ul style="list-style-type: none"> • There will be no effect of a security guard unless guard notices someone and makes an example out of them as a warning for others. • Wilshire & Vermont needs more security than Westwood. 	<ul style="list-style-type: none"> •
<p>Other comments on fare evasion:</p>		<ul style="list-style-type: none"> • Like Orange Line, ADB makes operations easier. • Paying customers have a harder time finding seats. 	<ul style="list-style-type: none"> • What happens when a 40' local bus needs to be used on a Rapid Line, but the bus isn't outfitted with mobile validators? • VOs have concerns about securing TVMs on the street, especially if the TVMs will have significant amounts of cash. 	<ul style="list-style-type: none"> • 	

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
On fare enforcement:	Each debriefing group provided guidance on how to improve fare enforcement alongside all-door boarding implementation. Customers are eager to see more fare enforcement alongside all-door boarding.	<ul style="list-style-type: none"> • Some patrons pretend to tap at the stand-alone validators (SAVs) but don't actually do so. • Some fare evaders say to fare inspectors they have value but "forgot" to tap. 	<ul style="list-style-type: none"> • ADB licenses riding for free. • Less interaction with customers helps to avoid fare disputes, which can lead to assaults on operators. • Fare gates at stations may be encouraging more fare evaders to use the bus. 	<ul style="list-style-type: none"> • It seems as though there would be plenty of time for Deputy Sheriffs to sweep the bus for fare evaders between stops on Rapid lines. • Fare enforcement officers should have ticket printing machines so they can issue tickets immediately. • Customer skepticism at "honor system" and belief by some that all-door boarding means a free ride. 	<ul style="list-style-type: none"> • Customers are eager to see more fare enforcement alongside all-door boarding.

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
On Proof-of-Payment:	Supervisors and operators are divided over whether TAP cards should be required for Rapid lines for the sake of proof-of-payment.	<ul style="list-style-type: none"> No form of proof of payment with ADB makes fare enforcement difficult. 	<ul style="list-style-type: none"> Support for the idea of ADB on all Rapids for TAP customers only with inspections and off-board payments. 	<ul style="list-style-type: none"> VOs do not appear enamored with the idea of requiring customers on Rapid buses to use TAP cards if TAP cards are not readily available at TVMs or other locations on the West Side. 	<ul style="list-style-type: none"> One customer expressed skepticism that all-door boarding could work without a fare paid zone outside the bus.

Table 3. Customer Experience Comments

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
<p>Were any customers confused about how All-Door Boarding works?</p>	<p>Customers were confused about how, when and where to tap. There were concerns that some customers might try to board the bus through the rear doors at other locations, but only scattered reports of this actually happening.</p>	<ul style="list-style-type: none"> • Confusion on when to tap: some tap when they get on and when they get off as well 		<ul style="list-style-type: none"> • A few customers avoided using the SAVs after the first week after fears of being double charged. Though this issue was fixed and some customers were told of this, many continued to board through the front. • Many people asked how or where to tap • Customers thought the pilot was also on other lines like the 20, and tried to board through the back there as well. 	<ul style="list-style-type: none"> • One customer mentioned that customers tried to board through all-doors at other stops.
<p>Were there any cash-paying customers frustrated that they still had to board through the front door when TAP customers could board through the front, middle and rear?</p>	<p>Cash-paying customers were frustrated that they could not board through the rear doors, and that seats were more likely to be taken by others with all-door boarding.</p>	<ul style="list-style-type: none"> • Yes, cash-paying customers were frustrated. They asked for TVMs in convenient locations so that they could buy a TAP card or ticket and board through the rear. 	<ul style="list-style-type: none"> • Paying customers had a harder time finding seats compared to those who boarded through the rear. 	<ul style="list-style-type: none"> • Surprising to see customers tap and board at and then move to the front to take seats, ones that cash paying customers and seniors could also have a chance to grab sometimes. 	<ul style="list-style-type: none"> • This appeared to be a source of frustration for customers in comments provided on surveys.

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
<p>Did the bus feel more or less crowded? Did customers sense the speed improvement?</p>	<p>Customers did not sense much improvement, if at all, but found it easier to decide whether to board a full bus at the stop or to wait for the next bus.</p>	<ul style="list-style-type: none"> • Customers like ADB, because it seems that buses leave faster. Even if the customer doesn't arrive at their destination any faster, the perception of speed benefits Metro. 		<ul style="list-style-type: none"> • Many customers would TAP and wait for the next bus, hoping it would be less full. • Customers had better visibility of the number of seats available on an arriving bus 	<ul style="list-style-type: none"> • Customers were divided on whether ADB affected crowding, with most saying that it made no difference, and equal numbers saying that it made crowding worse or better.
<p>Other comments on: fare payment</p>	<p>Customers wanted additional TAP purchasing options.</p>	<ul style="list-style-type: none"> • Patron suggested putting validators on the doors • More cash paying customers at Westwood who had to board through front. • Confusion with transfers 		<ul style="list-style-type: none"> • People ask about loading TAP cards at Westwood, where no TVMs are nearby. • VOs note: Customers will tap for a Rapid or Silver Line bus, but then catch a local bus if it arrives first. 	<ul style="list-style-type: none"> • In comments, many customers mentioned wanting additional ticket vending machines near bus stops, and especially those stops with all-door boarding.

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
On pilot as a whole	Customers liked all-door boarding, and were disappointed or confused to see the program end.	<ul style="list-style-type: none"> • Confusion about why the pilot stopped • Wanted the program to continue • Made patrons happy, moved the line along quickly 	<ul style="list-style-type: none"> • People were still trying to come in through the back doors after the pilot ended. 	<ul style="list-style-type: none"> • Customers (including regular ones) would like All-Door Boarding to continue, and were sad the pilot project was ending. • Customer confusion over different vehicles used, especially when local vehicles were used for the Rapid line. 	<ul style="list-style-type: none"> • Customers were glad to see Metro testing new ideas, and generally liked the all-door boarding pilot.
On experiences of seniors and customers with a disability	Blue Shirts and Operators provided mixed feedback on how all-door boarding affecting seniors and passengers with disabilities.	<ul style="list-style-type: none"> • Some seniors seem to like ADB because it's easier to board and get off, and because they previously had trouble finding seats in the back. • Other seniors and persons with disabilities find that seats designated for them are taken by other patrons who won't give up their seat. 	<ul style="list-style-type: none"> • Wheelchair users: People entering from the back are taking up spaces vacated for wheelchair users. Still have cash paying customers too, seniors in the front who need seats. 		<ul style="list-style-type: none"> • The survey did not ask customers about their age, so no conclusions can be drawn about the experience of seniors. • A customer with a disability mentioned optimism that all-door boarding would leave more seats available at the front so that he or she would be able to sit without asking an able-bodied person to move.

Table 4. Safety Comments

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
<p>Did you see any conflicts between passengers because of All-Door Boarding? For example, did you see pushing, shoving, or verbal harassment?</p>	<p>While the flows of customers entering and exiting the bus would often conflict, generally there were few confrontations between passengers.</p>	<ul style="list-style-type: none"> • Conflicts between patrons exiting and entering, so verbal altercations would sometimes occur • It may be that the Blue Shirts absorbed some of the comments about service and fares that would have otherwise been directed at operators. Blue Shirts did hear some disputes between customers and operators. 	<ul style="list-style-type: none"> • Patrons were catching on to ADB with little confrontations being observed • Some confrontations with regular patrons boarding then taking accessible from seniors and people with disabilities • Customers are less likely to force their way onto a bus given the frequency of the 720 Wilshire Rapid 	<ul style="list-style-type: none"> • Conflicts between passengers rushing in and out can arise • Some passengers on the bus would not move out of the way to let passengers exit and enter. • Some people wait in their seats until the bus comes to a full stop before exiting, which makes it difficult to exit bus 	<ul style="list-style-type: none"> • In survey comments, customers mention that there is some pushing from behind as customers board through the rear doors.

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
<p>Did operators seem to close the middle and back doors at the appropriate times?</p>	<p>Operators may need additional assistance when closing doors with all-door boarding, either through better mirrors, cameras, AVA announcements, intercom announcements, door chimes, or staff helping at the stop.</p>	<ul style="list-style-type: none"> • Doors were closed on patrons more so in the beginning of the pilot • Because the operator can't see the back door and patrons can't hear the operator say "Door closing" (if the operator even says this). The VOs had to help coordinate door closing. • Door chimes could help to alert patrons that the door is closing 	<ul style="list-style-type: none"> • Can't see the back doors because it's so packed in the front. Cameras allow operators to see the area inside the doors, but not so well out of the door. • Wants automated voice to tell when the doors are closing or a buzzer sound, like the train • Microphones help the bus operators tell passengers when doors are closing, but these microphones don't always work. 	<ul style="list-style-type: none"> • Rubber strips prevent doors closing on passengers, which reduces potential for injuries • Mirrors can be used by operators to see back doors. Need an additional mirror angled out. • Consider some sidewalk signage and a line on the sidewalk to tell bus driver to close doors when no more passengers are inside the line. • Could program AVA to announce that doors are closing • Operators were told to check outermost mirror before closing, but not all do so. 	<ul style="list-style-type: none"> • In the customer survey, there were no comments about operators closing the middle and back doors at the wrong time. • The survey also did not ask any safety-related questions.

Topic	Summary	Blue Shirts	Operators	Supervisors	Customer Survey
Other safety comments		<ul style="list-style-type: none"> Buses don't always pull up right next to the curb, which is dangerous for people with disabilities and seniors 	<ul style="list-style-type: none"> People already sneak onto the bus through the back doors, so allowing all-door boarding doesn't create any additional security risk for the bus or customers. 	<ul style="list-style-type: none"> There were issues with passengers rushing across the street and up the sidewalk to catch the bus, banging on the door to get on 	<ul style="list-style-type: none"> Some customers found all-door boarding safer because it minimized the chance that passengers would trip while moving to the rear of the bus (because of narrow aisles, other passengers, and bumps while the vehicle is moving).

Table 5. Operations Comments

Topic	Summary	Blue Shirts	Operators	Supervisors
How does the presence of supervisors affect All-Door Boarding operations?	Supervisors were useful for advising operators when it was safe to close the rear doors of the bus, but supervisors will be less necessary when validators are no longer on the curb and buses must berth at specific locations.		<ul style="list-style-type: none"> Helpers, whether they are Blue Shirts or Supervisors, were useful for knowing when it was safe to close the bus doors. The presence of Metro staff also helped to encourage passengers to follow the program. 	<ul style="list-style-type: none"> Because stopping at certain locations won't be necessary when mobile validators are on the vehicle, less supervision will be necessary. Supervisors only managed bunching at the two locations, and the operators tried to be on their best behavior at those locations. As a result, it's hard to judge. Still, some operators (especially those behind schedule) didn't want to wait when asked by supervisors. If one bus was late, usually the rest would be as well, and there was less that a supervisor could do.

Topic	Summary	Blue Shirts	Operators	Supervisors
How quickly did operators adjust to All-Door Boarding?	Generally, operators appreciated the faster loading that came as a result of all-door boarding. Not all operators adjusted, however, with some refusing to open the rear doors, others bunching.	<ul style="list-style-type: none"> Some operators didn't care about ADB and wouldn't open doors, but overall operators were in support of ADB because it's faster and more convenient. 	<ul style="list-style-type: none"> Operators adjusted quickly because it helps to load quickly and go more efficiently. 	<ul style="list-style-type: none"> Some Division 1 and 7 operators wouldn't read running board notes carefully, would start free running time too early, and wouldn't necessarily bring the right vehicles.
Other operations comments		<ul style="list-style-type: none"> Validators should use a color scheme to catch the customer's attention. Currently, they don't stand out. Two validators needed, one for each side of the doors 		<ul style="list-style-type: none"> Having longer zones will allow ADB to happen more effectively. Supervisors recommend doubling or tripling the size of the bus zone to allow two sixty-foot buses to berth at once. Should create an indicator for buses to show them where to berth. Should identify queuing locations for passengers.

**Fare Equity Analysis
Methodology & Results**

**All Door Boarding
Initial Implementation and Proposed Program
January 2016**

Service Planning and Scheduling
Civil Rights Programs Compliance

Contents

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1. PROPOSAL OVERVIEW

Metro is proposing to increase operating speeds and reduce rider travel time through the introduction of all door boarding on the Metro Silver Line and the Metro Rapid bus network. Operator supervision of fare payment is not possible for rear door boarding passengers. Therefore, a proof of payment method must be employed in conjunction with on vehicle fare enforcement by dedicated fare inspection teams.

Three methods for proof of payment have been considered: (1) provision of added equipment at the farebox to vend a receipt to cash paying customers, (2) requiring a TAP card for fare payment, and (3) upgrading TAP software to permit adding value to a TAP card on the bus (referred to as "Topping Off"). The added equipment would add capital acquisition and ongoing maintenance expenses, and require passengers paying with cash to continue boarding through the front door. The added expense would still require fare inspections, and the added front door boardings by passengers paying with cash would reduce the travel time benefits of the program. Requiring a TAP card for fare payment would permit fare inspections without added expense beyond the cost of the inspection teams, and would permit all door boarding by all passengers. The downside of this approach is that a required TAP card would exclude passengers without a TAP card from boarding buses on lines with all door boarding. The third approach permits issuing a TAP card to passengers who would otherwise be paying their fare in cash, but would slightly reduce the benefit of all door boarding because those without TAP cards would have to board through the front door to get one although for subsequent boardings they would have one and only would need to board through the front door if they needed to add value to it.

A limitation of the third method of fare payment is that riders who are paying their fare with tokens would not be able to ride a service that permits all door boarding because the token would not be converted into value on a TAP card. This fare equity evaluation will determine whether customers who would otherwise want to pay their fare with tokens on lines permitting all door boarding are significantly more minority than other bus riders (Disparate Impact), and/or whether token using customers on these lines are significantly more likely to have poverty level household incomes than other bus riders (Disproportionate Burden).

2. METHODOLOGICAL APPROACH

A Title VI Fare Equity Evaluation is presented herein in accordance with the requirements of Federal Transit Administration Circular 4702.1B. The evaluation assesses whether or not there are adverse disparate impacts on minority passengers and/or disproportionate burdens on low income riders arising from the proposed exclusion of cash fare paying riders from lines permitting all door boarding. The analysis compares the minority and poverty characteristics of the group of Silver Line and Rapid line riders with the characteristics of all Metro bus riders.

The primary data source for this analysis was the Spring 2015 Customer Satisfaction Survey. The survey determined minority status and poverty status of participants. This is the first such survey to provide poverty status as prior surveys did not inquire about household size and grouped respondents by income ranges. While line level data varied in significance and was not usable for this evaluation, data for groups of lines was consistently more significant and used for this evaluation.

Step By Step Methodology

Data for number of minority and total riders was derived from the survey for the group of Silver and Rapid lines combined as well as all bus lines combined. Riders paying with tokens were identified and their minority populations and total populations within each group were also identified.

	All Riders		Token Only		All	Token
	Minority	Total	Minority	Total	Minority %	Minority %
Silver + Rapid	2469	3048	51	65	81.0%	78.0%
All Bus	12592	15384	364	421	81.9%	86.4%

Table 1
Minority Ridership Shares for Analysis Groups

Similarly, data for poverty and total riders was obtained from the survey for each of the analysis groups. Riders paying with tokens were also identified and the results are shown in Table 2.

	All Riders		Token Only		All	Token
	Poverty	Total	Poverty	Total	Poverty %	Poverty %
Silver + Rapid	1313	3048	36	65	43.1%	54.8%
All Bus	6948	15384	271	421	45.2%	64.3%

Table 2
Poverty Ridership Shares for Analysis Groups

Finally, the minority and poverty shares of riders for the proposed program were compared with the comparable values for the Metro bus system to determine whether significant impacts would result from either program.

3. RESULTS

The Board of Directors has adopted thresholds for determining when disparate impacts and/or disproportionate burdens result from a proposed action.

A disparate impact occurs when the absolute difference between the minority share of impacted riders and the minority share of similarly situated riders not directly impacted exceeds 5%, and/or the relative difference between the minority share of impacted riders and the minority share of similarly situated riders not directly impacted exceeds 35%.

A disproportionate burden occurs when the absolute difference between the poverty share of impacted riders and the poverty share of similarly situated riders not directly impacted exceeds 5%, and/or the relative difference between the poverty share of impacted riders and the poverty share of similarly situated riders not directly impacted exceeds 35%.

The minority comparisons for the proposed program with the bus system are shown in Table 3.

MINORITY SHARES	Silver & Rapid Lines	Bus System
Token Users	78.0%	
All Riders	81.0%	81.9%
ABSOLUTE DIFFERENCE	Silver & Rapid Lines	
Token Users	-3.8%	
All Riders	-0.8%	
RELATIVE DIFFERENCE	Silver & Rapid Lines	
Token Users	-4.7%	
All Riders	-1.0%	

Table 3
Minority Share Comparison for Analysis Groups

The poverty comparisons for the proposed program with the bus system are shown in Table 4.

POVERTY SHARES	Silver & Rapid Lines	Bus System
Token Users	54.8%	
All Riders	43.1%	45.2%
ABSOLUTE DIFFERENCE	Silver & Rapid Lines	
Token Users	9.7%	
All Riders	-2.1%	
RELATIVE DIFFERENCE	Silver & Rapid Lines	
Token Users	21.4%	
All Riders	-4.6%	

Table 4
Poverty Share Comparison for Analysis Groups

There are no differences exceeding the Board adopted thresholds for the minority shares of either token users or other riders of the services proposed to be included in the all door boarding program and all bus riders. Thus, the all door boarding program, as proposed, will not have a Disparate Impact on minority riders.

The poverty share for token users on the services proposed for inclusion in the all door boarding program differs from the poverty share of all bus riders by an amount exceeding the Board adopted absolute difference threshold. Because this group is adversely affected by the proposed program, and significantly poorer than other bus riders, this constitutes a Disproportionate Burden on poverty riders using tokens on the proposed program services. There are no significant differences between the poverty shares of non-token user riders of the proposed program services and all bus riders so poverty level non-token users are not burdened.

In summary, the proposed initial implementation of the all door boarding program will result in a Disproportionate Burden on token users on the proposed program services because they are adversely impacted (tokens will not be accepted for fare payment on these services), and significantly poorer than other bus riders. This impact will be mitigated at such time as TAP cards replace tokens as a means of providing transportation benefits to social service program clients (who are the primary recipient of tokens) which is already being pursued.