



Board Report

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Agenda Number: 19.

OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE MAY 19, 2022

SUBJECT: MOTION 22.1: NEXTGEN BUS SPEED ENGINEERING WORKING GROUP STATUS UPDATE

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE the NextGen Bus Speed Engineering Working Group Status Update report in response to Motion 22.1.

ISSUE

In July 2019, the Board approved Motion 22.1 entitled NextGen Bus Speed Engineering Working Group as part of the NextGen Service Concept. This motion requests the following:

- A. Develop a list of priority bus supportive infrastructure projects needed to support the NextGen bus service plan, with an emphasis on near-term improvements that can be implemented concurrently with each phase of NextGen;
- B. Form a NextGen Bus Speed Engineering Working Group co-chaired by the Metro CEO and the General Manager (GM) of the Los Angeles Department of Transportation (LADOT), or their designees, and establish a regular meeting schedule, at least monthly;
- C. Assess the need for coordination with additional local jurisdictions and municipal operators where bus delay hotspots exist; and
- D. Report back to the Operations, Safety and Customer Experience Committee on the above in April 2020, and quarterly thereafter.

This update provides details regarding a technical working group appointed by Metro and its efforts to coordinate with a complementary group from the Los Angeles Department of Transportation (LADOT) to develop a work program to improve bus priority and assess the need to coordinate with other jurisdictions and municipal operators.

Since July 2019, 10 lane miles of bus priority lanes have been installed, representing an increase of 53% in bus lane miles within City of Los Angeles and up to 30% in improved travel speeds on specified bus routes has been achieved. This report provides a status update as of FY22 Q3 ending March 31, 2022.

BACKGROUND

In July 2018, the Board adopted Motion 38.1, endorsing travel speed, service frequency, and system reliability as the highest priority service design objectives for the NextGen Bus Study. These objectives were incorporated into the NextGen Regional Service Concept approved by the Board in July 2019, which provides the framework for restructuring Metro's bus routes and schedules.

Concurrent to the approval of the NextGen Regional Service Concept, the Board also approved Motion 22.1: Engineering Working Group (Attachment A), which provides direction to staff to establish a partnership between Metro and LADOT to identify, design, fund and implement transit supportive infrastructure to speed up transit service as part of the NextGen Bus Plan.

Metro appointed a Technical Working Group focused on identifying, planning, designing and implementing bus speed and reliability improvements. Metro Service Planning, in close partnership with LADOT's equivalent technical team, consisting of Traffic Operations, Active Transportation, Vision Zero, and Transportation Planning Groups, has been meeting regularly (every 2-4 weeks) to ensure ongoing coordination and advancement of the program. Additional Metro departments (e.g. Communications, Planning, OMB, OEI, Program Management, Security) and other municipal traffic departments and transit operators are engaged as needed when specific projects have been defined and advanced towards design and implementation.

An External Affairs Working Group was also established as a subcommittee of the Technical Working Group. It is comprised of staff from Metro Community Relations, LADOT External Affairs, StreetsLA, the Los Angeles Mayor's Office, Metro Board Staff and Metro Service Planning. Their work focuses on coordinating to communicate with and prepare communities for coming improvements, including identifying and addressing potential impacts and coordinating outreach and engagement efforts for these projects.

At major milestones and as needed, the Technical Working Group will report on progress to the Metro CEO and LADOT's GM, and/or their designees, to seek direction on goals and objectives of the Technical Working Group, as well as policy guidance on balancing priorities for roadway and curb space.

DISCUSSION

Since the last update provided to the Board in September 2021, the Working Group has met regularly in support of the following initiatives:

Alvarado Street Bus Priority Lanes (Metro Line 2, formerly Line 200)

Following the June 2021 completion of the LADOT segment of the Alvarado St Bus Priority Lanes between 7th Street and US-101 Freeway, Metro anticipates that the remaining northern Bus Priority Lane segment of Alvarado St will be implemented in June 2022. Caltrans, which has authority over this segment, and LADOT, which is the implementing agency, are working together to finalize the implementation schedule. Pending confirmation of these details, Metro will then return to the

community to provide an update on the construction schedule and impacts.

In the project segment that has already been completed, Metro has seen a 13% bus speed improvement in the southbound direction during the morning bus lane hours between 7:00 AM and 10:00 AM. The northbound direction during the evening bus lane hours has struggled with lower-than-expected compliance with parking restriction hours, and Metro is working with LADOT on targeted parking enforcement to address. Staff will be reviewing more closely following the full completion of the project.

Grand Avenue & Olive Street Bus Priority Lanes

Following implementation in November 2021, Metro conducted a post-implementation evaluation with 107 bus riders on Lines 14/37, 70, 76, 78, and the J Line (Silver) in April 2022.

- 94% of riders use these bus lanes everyday or at least 3-4 times per week
- 94% of riders are people of color (POC)
- 93% riders were going to work or school
- 8 in 10 riders stated buses are more on-time with the bus lanes compared with before installation
- Nearly 8 in 10 riders stated buses are faster with the bus lanes compared with before installation
- 3 in 4 riders observed private vehicles in bus only lanes slowing down buses
- 2 in 3 riders completed the survey in Spanish

These customer survey results are consistent with an evaluation of bus speeds before and after bus lane implementation when comparing pre-COVID traffic levels (late January 2020) and recent traffic levels (April 2022). For example, Metro Line 70 bus speeds within the bus priority lane boundaries improved by 18% on Grand Ave and 22% on Olive St during the PM peak period when traffic conditions tend to be busiest and when bus lanes are needed the most.

La Brea Avenue Bus Priority Lanes (Metro Line 212)

Following extensive stakeholder outreach and numerous letters of support and endorsements, including from Metro Board Director Holly Mitchell and the City of West Hollywood, Metro, in partnership with LADOT and Council District 5, is moving forward with the first phase of weekday, peak period bus priority lanes on La Brea Ave between Sunset Blvd and Olympic Blvd, anticipating to implement this key improvement in June 2022.

Metro and LADOT continue to work with stakeholders on completing the next phase on La Brea Ave between Olympic Blvd and Coliseum St, which would expand the reach of travel speed and reliability improvements to more Line 212 customers.

Florence Avenue Bus Priority Lanes (Metro Line 111)

The Technical Working Group identified Florence Ave, from Florence A Line (Blue) Station to West

Blvd, as the next corridor to study for bus priority lanes. This five-mile-long corridor has a high weekday ridership of over 16,500 daily boardings, with resilient ridership levels throughout the COVID-19 pandemic, signaling the importance of this NextGen bus line for essential travel. The existing peak hour, curbside mixed flow lanes would be converted into peak-hour bus priority lanes to improve service on this critical corridor.

Community engagement began in Spring 2022, with a virtual community meeting scheduled for May 11, 2022. A Spanish-language interpreter will be available during the meeting, and all informational materials will be printed in English and Spanish. Computers will also be available for use to access this virtual meeting at the Ascot Branch Library and the Hyde Park Branch Library, both of which are located along the Florence corridor.

- Proposed hours on weekdays between 7:00 AM - 10:00 AM, 3:00 PM - 7:00 PM
- Under NextGen Bus Plan improvements, 8 buses per hour would use Florence Avenue per direction, which equates to one bus every 7 ½ minutes per direction
- Significant equity benefits for Line 111 riders on Florence Avenue* (these results are from the Fall 2019 Customer Survey in which at least 100 survey responses are received per bus line)
 - Over 16,500 boardings per weekday (pre-COVID) on Florence Avenue
 - 9 in 10 bus riders on Florence Avenue do not own or have access to a car and therefore rely on Metro bus service
 - 6 in 10 bus riders on Florence Avenue are below the poverty line
 - 93% of bus riders on Florence Avenue are people of color (POC)
- Benefits to riders accessing jobs, residences, and businesses along the Florence Avenue corridor
 - Nearly 100,000 residents and over 14,500 jobs within a 10-minute walk of proposed bus priority lanes
- Provides direct connections with A Line (Blue) and future Crenshaw/LAX Line

Targeted LADOT Parking Enforcement of Bus Priority Lanes

In partnership with LADOT, targeted enforcement for bus lane compliance began in March 2022 based on bus operator and public feedback, and will continue through June 30, 2022. In addition, to advance notice provided through Metro Community Relations, the first week of targeted enforcement emphasized an educational approach through written warnings only. The goal of this targeted enforcement effort is to ensure bus priority lanes are kept clear for their intended purpose of buses and right turns only.

Each week has seen a decrease in the number of vehicles in non-compliance, which indicates that the targeted enforcement effort is improving the behavior of drivers blocking bus lanes. In the first week of targeted enforcement (March 14-18, 2022), over 800 vehicles were either warned or instructed to clear the bus lane. In the fourth week of enforcement (April 4-8, 2022), around 550 vehicles in bus lanes were either warned, cited or impounded, representing a 33% decrease in observed violations compared to the first week. One month of this targeted enforcement program has resulted in over 270 fewer vehicles illegally parked in bus lanes per week, helping to keep bus lanes clear for people riding transit.

As a result of this targeted approach, Metro has seen up to 15% travel time improvement in the first month of enforcement, or up to 2 minutes saved, on Metro Rapid 720 on Wilshire Blvd and Metro Line 2 on Alvarado St. Furthermore, this travel time saving is maintained further along the route, which results in better service for customers outside of the targeted enforcement zone.

Given this program's successful and equitable outcomes, Metro is working with LADOT on establishing an ongoing targeted enforcement effort for current and future bus priority lanes.

Red Bus Lane Expansion

Metro continues to work with LADOT to expand red bus lane treatment at a number of locations to prioritize bus service and ensure compliance, with the following locations completed in March 2022:

- Aliso St approaching Alameda St
- Northbound Alameda St from Aliso St to I-10 El Monte Busway Entrance
- Eastbound 1st St approaching Spring St
- Southbound Figueroa St approaching 3rd St
- Eastbound Hollywood Blvd approaching Vermont Ave

As detailed in the previous report from January 2022, Metro intends to eventually expand the hybrid red lane treatment to all existing bus priority lanes and to incorporate as a standard design element for future corridors, as this treatment resulted in up to 75% reduction in non-bus vehicles using the bus lane.

Looking Ahead to Fiscal Year 2023 (FY23)

Metro's NextGen Bus Plan approved by the Metro Board in October 2020 included the framework for a bus speed and reliability program of strategic capital investment to support more efficient and effective bus services in LA County. This program was designed to turn around declining bus speeds and convert achieved time savings from a toolkit of speed improvements into more frequent service.

The original \$1B budget estimate for the NextGen Bus Speed and Reliability Program began by applying the speed improvement tools widely based on planning level order of magnitude costs applied over the full extent of the plan's most frequent (Tier 1 and Tier 2) bus lines). This order of magnitude costing included a) bus lanes along every route mile of the entire Tier 1 core network totaling nearly 700 lane miles, b) installing bus stop bulb outs on over 25% of Metro's total bus stop locations, totaling over 3,200 locations, c) installing transit signal priority on over 7,000 intersections, including locations that could conflict with intersecting bus lines and d) 1 in 4 of Metro's bus stop locations being optimally relocated, or nearly 3,000 locations.

More detailed implementation planning has identified a number of key opportunities to improve the cost/benefit of the Bus Speed and Reliability Program. One of these is in ensuring the speed improvement tools such as bus lanes are focused primarily in the locations where they are needed most i.e. in the locations of the slowest bus speeds where technical analysis shows the lanes can be

effective in generating bus speed improvements. This reduces placing communities in a position to consider sensitive tradeoffs like parking impacts or other concerns when Metro does not expect to see meaningful improvements where operating speeds are already reasonable and will not improve with the addition of bus lanes. Such locations can always be revisited if circumstances change in the future. Another significant efficiency for new bus lanes has been achieved through coordinating their installation with other street improvement installations such as new bike lanes or road repaving. This has allowed bus lanes to be installed at a fraction of the cost per lane mile estimated if Metro had to fund the full cost of installation.

Another program efficiency will be achieved with locations selected for bus bulbs. These will focus on the most congested and highest ridership locations where a bulb can be accommodated, on corridors where bus lanes cannot be installed. This will maximize the time savings achieved for such corridors, while improving the customer experience by expanding the bus stop waiting area and creating new opportunities to add amenities such as shade, lighting and customer information. Bus bulbs are more technically complex to implement and require greater interagency coordination and their commitment to resources. Similar to bus lanes, some bus bulbs have been added at no cost to Metro through municipal projects to enhance corridor safety. Bus stop relocations are also moving ahead where they are determined to be implementable.

The use of a cloud-based technology for signal priority, rather than relying on older legacy loop based technology may provide additional efficiencies. Metro has also moved ahead this year to purchase all door boarding validators to service all NextGen tier 1 and 2 lines. The FY23 NextGen Speed and Reliability budget reflects program elements ready for detailed design and implementation, and will be supported with the hiring of five new employees to fulfill the technical and community relations needs to accelerate the pace and scope of this program. These new staffing resources in FY23 will position Metro and supporting partners to deliver an even larger program in subsequent years. Through the aforementioned evaluation and vetting of each component of the Speed & Reliability program, Metro currently estimates that a revised program delivering travel time and reliability improvements could be completed under \$350M. Given the iterative survey and engineering process of this quick-build program, this estimated figure will continue to evolve; therefore, Metro will continue to bring forward an annual program to the Board that reflects more accurate cost figures tailored to the nature of this tactical transit infrastructure program.

EQUITY PLATFORM

The intent of this work is to provide travel time and reliability improvements to Metro riders, systemwide of which 8 in 10 bus riders are BIPOC, nearly 9 in 10 live in households with total annual earnings below \$50,000, and nearly 6 in 10 are below the poverty line. Further, the project areas are operated by Metro lines that serve Metro's Equity Focus Communities and staff will conduct post-implementation surveys with bus riders along project corridors to measure the benefits and impacts to marginalized groups as a result of these projects.

Improving transit service by reallocating priority from single occupant motorists and renewing focus on transit riders increases access to opportunities for groups who may not have those opportunities today. Further, these projects allow Metro to operate more frequent service sustainably by improving speed and reliability.

Each project includes some form of rider outreach. These projects blend a data-driven approach with customer feedback and staff will commit to centering marginalized community feedback to ensure marginalized voices are heard and equitable outcomes are reached. Projects used multilingual rider surveys conducted verbally and in written form onboard buses and at key bus stops along affected corridors, as well as recorded interviews with bus riders in which they shared thoughts and provided feedback on the proposed projects. These survey results and recorded interviews are then incorporated into the presentations used at community meetings to ensure that riders' voices are centered throughout the ensuing discussions.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

Recommendations support strategic plans:

Goal #1: Provide high quality mobility options that enable people to spend less time traveling. Improving the speed and reliability of the bus network will reduce transit travel times, as well as improve competitiveness with other transportation options.

Goal #2: Deliver outstanding trip experiences for all users of the transportation system. These initiatives help to move more people within the same street capacity, where currently transit users suffer service delays and reliability issues because of single occupant drivers.

Goal #3: Enhance communities and lives through mobility and access to opportunity. With faster transit service and improved reliability, residents have increased access to education and employment, with greater confidence that they will reach their destination on time.

Goal #4: Transform Los Angeles County through regional collaboration and national leadership. Because Metro does not have jurisdiction over local streets and arterials, collaboration with other partner agencies such as LADOT, Caltrans, City and County of Los Angeles are necessary to ensure these speed and reliability improvements are successfully implemented.

NEXT STEPS

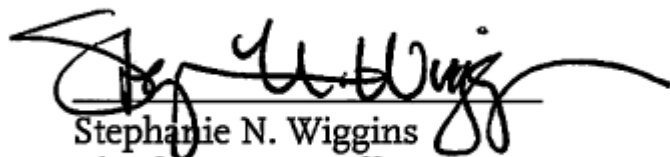
The NextGen Bus Speed Engineering Working Group will continue to discuss and analyze future corridors along key arterials for equitable opportunities and are actively collaborating with partner agencies and stakeholders. Staff plans to provide further details about these corridors in the next quarterly update in Summer 2022.

ATTACHMENTS

Attachment A - Motion 22.1

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ITEM 19



NEXTGEN **Bus Plan**

Bus Speed Engineering Working Group Update

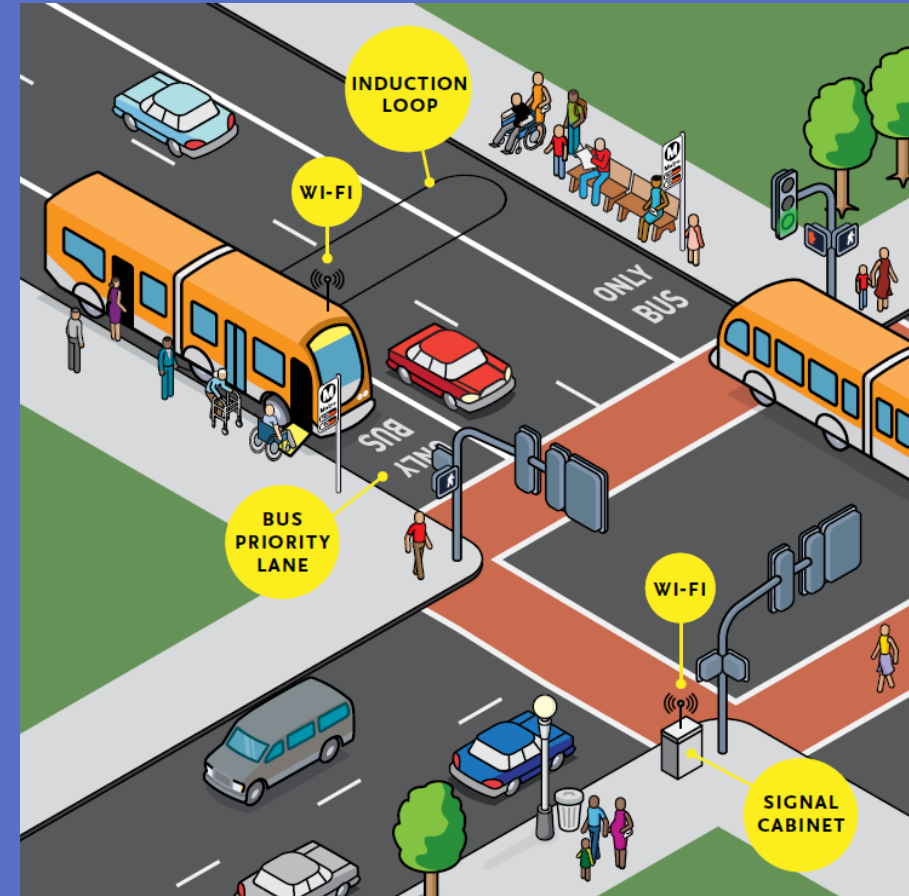


Metro[®]

Operations, Safety & Customer Experience Committee Meeting
May 19, 2022

Speed & Reliability (S&R) Program Overview

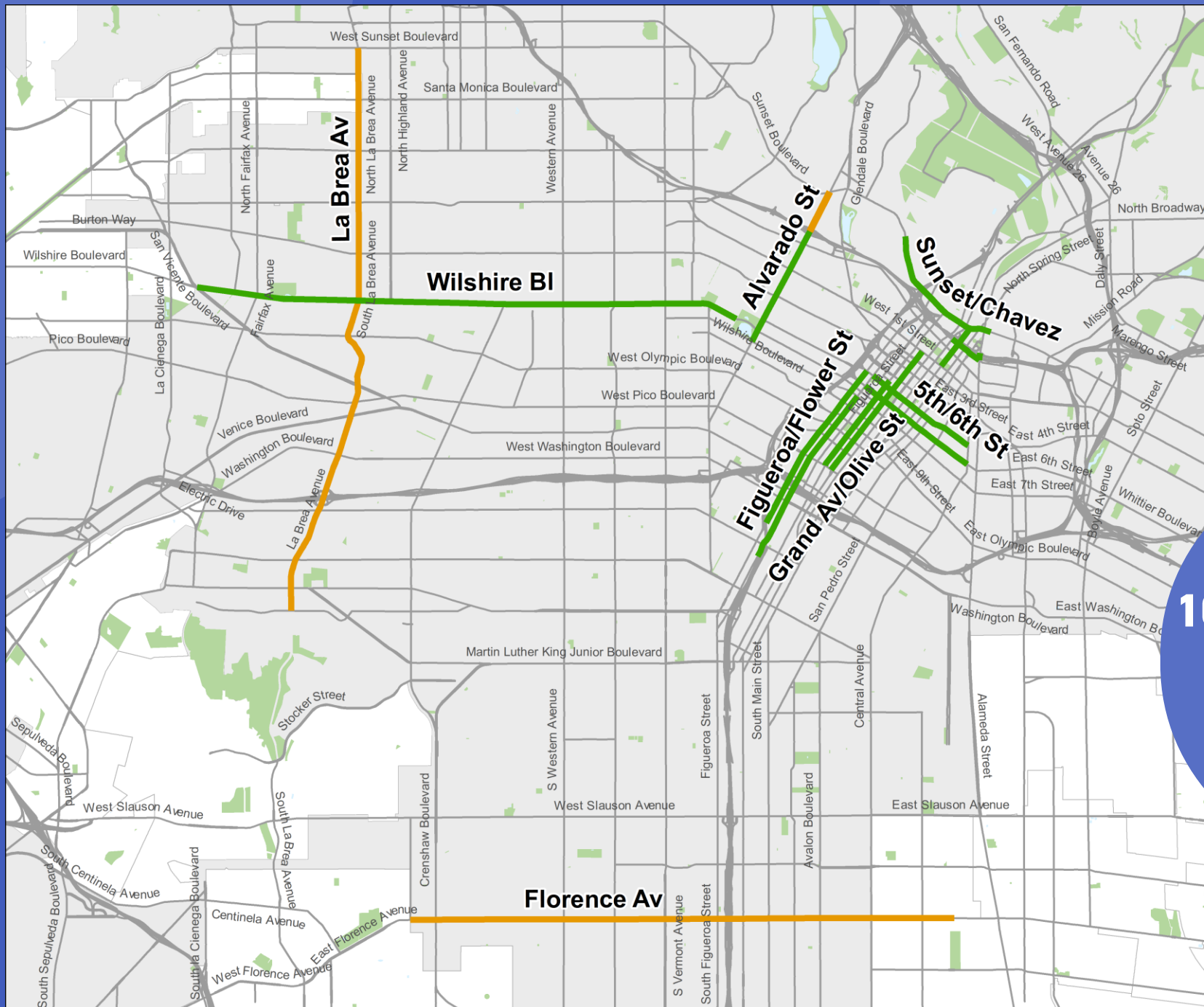
- New, in-house Transit Operations Engineering program to sustainably deliver NextGen Transit First Service Plan frequencies by improving bus speed and reliability
 - Bus Priority Lanes
 - Transit Signal Priority
 - All Door Boarding
 - Tactical Treatments & Studies (Bus & Rail)
 - Bus Stop & Layover Improvements
- Accelerates transit improvements with laser focus, resolves core issues and builds trust with partner agencies
 - Similar Transit Operations Engineering programs in SF, Portland, Seattle, Vancouver, Minneapolis
- Force multiplier that improves customer experience (CX) and operator conditions, with operational savings reinvested into better service
- \$25M awarded from California Transportation Commission



Bus Lane Map

Bus Priority Lane Corridors

- ✓ Wilshire Bl
- ✓ Sunset/Chavez
- ✓ Figueroa St
- ✓ Flower St
- ✓ Aliso St
- ✓ 5th St
- ✓ 6th St
- ✓ Alvarado St
- ✓ Grand Av
- ✓ Olive St
- 🚚 La Brea Av
- 🚚 Florence Av



Bus Lane Projects

DRAFT, 5/5/2022

Bus Lanes

- Completed Corridors
- In-Progress Corridors

Nearly
10 Bus Lane Miles
Completed In
18 Months



0 0.75 1.5 Mile

Alvarado St Peak Bus Priority Lanes

- LADOT Southern Segment (MacArthur Park to US-101) showing 13% bus speed improvement during morning period (May vs. Oct 2021)
- Caltrans Northern Segment (US-101 to Sunset Bl) anticipated for Summer 2022 opening, pending final implementation arrangements between Caltrans and LADOT



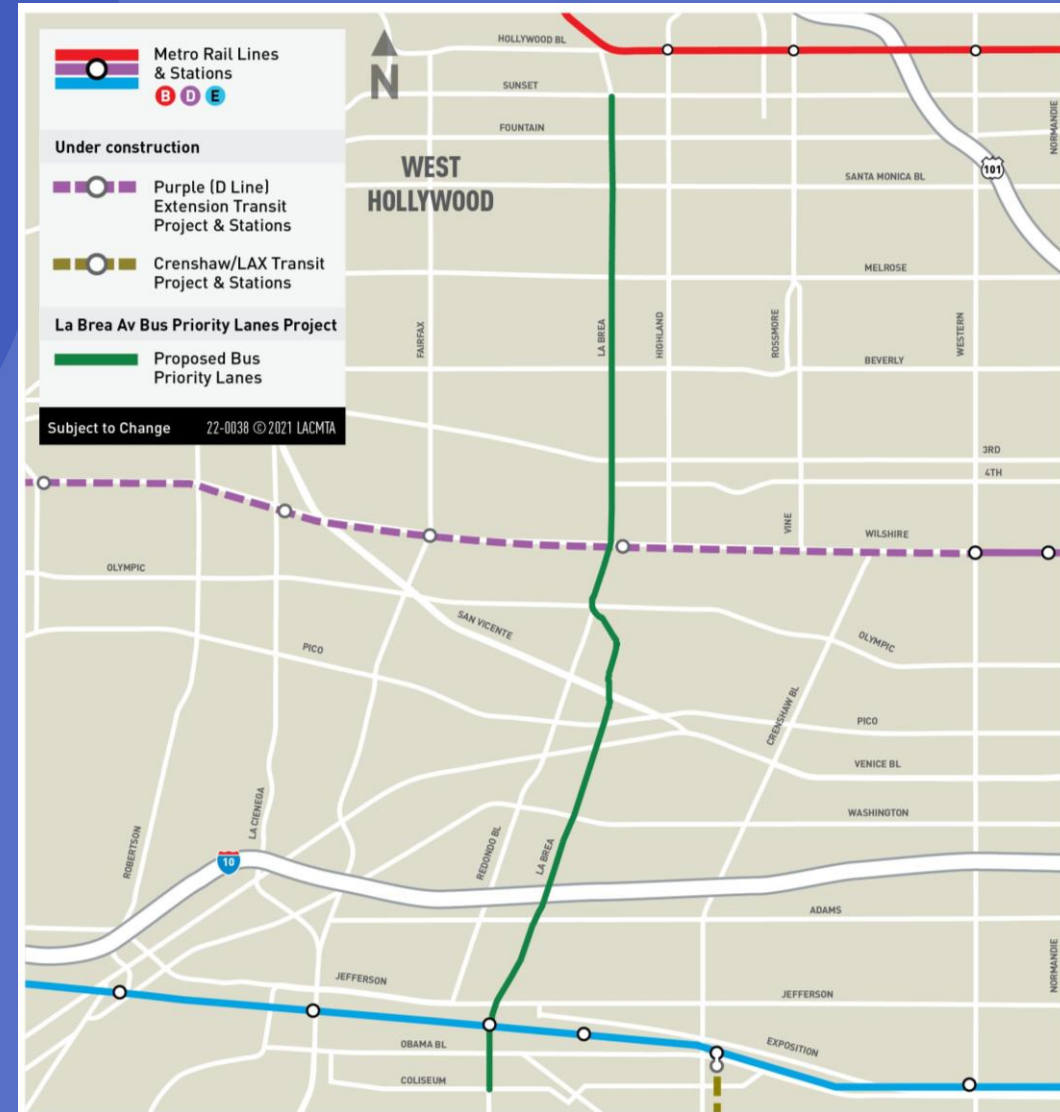
Grand Av-Olive St Bus Priority Lanes

- Post-implementation analysis conducted following November 2021 Opening
- During PM peak period, bus speeds are now up to:
 - 22% faster on Olive St
 - 18% faster on Grand Ave
- 8 in 10 riders agreed buses are more on-time than before
- 8 in 10 riders agreed buses are faster than before
- 94% of riders use these bus lanes nearly everyday
- 93% of riders were going to work or school



La Brea Av Peak Bus Priority Lanes

- **Phase 1** (La Brea/Sunset to La Brea/Olympic) to be implemented starting later next month (June 2022) following conclusion of traditional school year
- **Phase 2** (La Brea/Olympic to La Brea/Coliseum) continues ongoing outreach with stakeholders and would expand the reach of improvements to more Line 212 riders within this community



Florence Av Peak Bus Priority Lanes

- Proposed 5.4 mile segment on Metro Line 111 from Florence A Line (Blue) Station to West Bl
 - Convert peak hour, general purpose curbside lane into bus priority and right turns only
 - Proposed hours weekdays 7-10am and 3-7pm
 - Up to 15% travel time improvement
- Typically, over 16,500 daily boardings
 - 88% of Florence bus riders do NOT own a car
 - 93% are people of color
 - 6 in 10 are below the poverty line
 - 9 in 10 take Metro at least several times per week
- Extensive community outreach underway with proposed implementation in Fall 2022



Red Paint / Thermoplastic Pilot

- Overall, 55% reduction in non-bus vehicles using bus lane, with some intersections with nearly 75% reduction in improper usage
- Additional locations completed in March 2022:
 - Aliso St approaching Alameda St
 - Northbound Alameda St from Aliso St to I-10 El Monte Busway Entrance
 - Eastbound 1st St approaching Spring St
 - Eastbound Hollywood Blvd approaching Vermont Ave



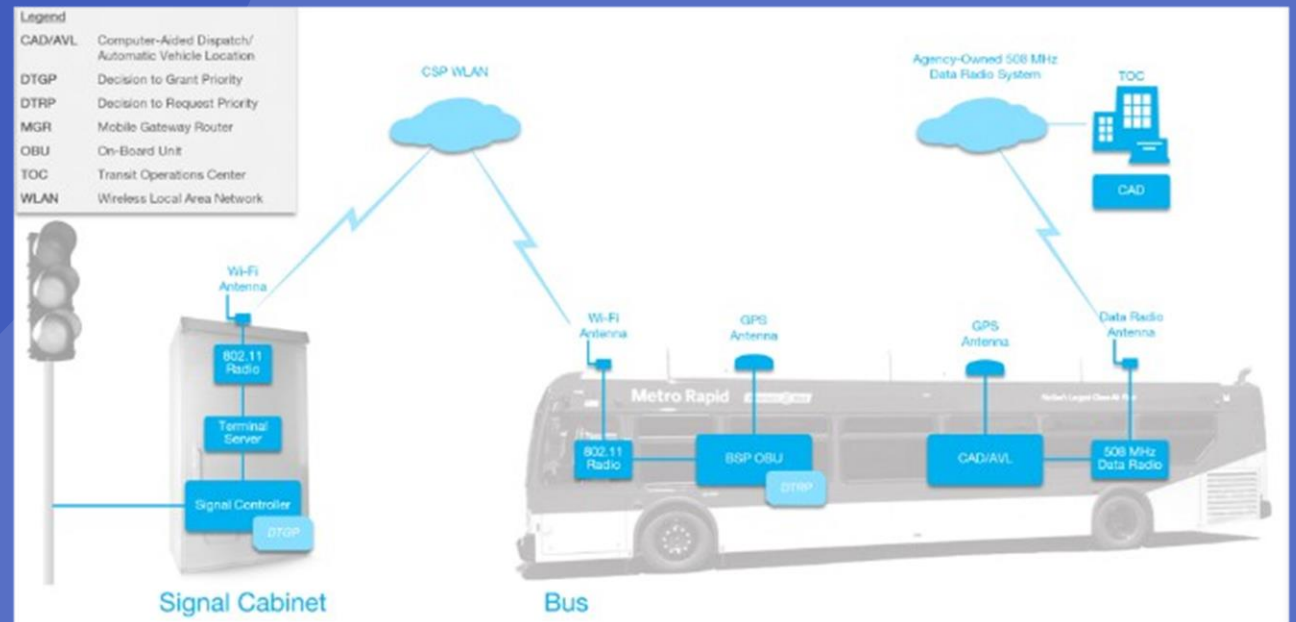
Targeted LADOT Parking Enforcement

- Partnership began March 2022 based on bus operator and public feedback
- Targeted approach focused on education first
- Preliminary results show improvements:
 - Each week has seen a decrease in number of vehicles in non-compliance
 - In 1st week, over 800 vehicles were warned or instructed to clear the bus lane
 - In 4th week, around 550 vehicles were warned, cited or impounded (33% decrease)
 - Metro Rapid 720 on Wilshire Bl and Metro Line 2 on Alvarado St saw up to 15% travel time improvement in first month of targeted parking enforcement to improve bus lane compliance



Transit Signal Priority (TSP)

- LADOT TSP Upgrade
 - Prioritizes buses at 1,200+ Intersections with 10% travel time savings
 - Managing RFP and Contract Oversight
 - Near-Term Improvements Began Feb 2022
 - Reactivate Rapid Infrastructure to work with NextGen Bus Plan
 - Long-Term Improvements Begin Dec 2022
 - Replace legacy loop-based system with more intelligent and reliable, cloud-based technology
- Countywide TSP Upgrade
 - Began Jan 2022 on a similar improvement covering 300 Countywide intersections



All Door Boarding Expansion

- 2,900 Bus Mobile Validators to be installed on rear doors of buses
- Contract modification approved Feb 2022
- Boarding speeds up to 2X faster than front door only, especially at busier bus stops
- Reduces crowding at front door and bus operator area
 - Minimizes unnecessary distractions
 - Naturally facilitates social distancing
- Improves customer experience



Bus Stop Bulb Outs & Boarding Islands

- Not every corridor can easily accommodate bus lanes without adverse tradeoffs
- Next best treatment is to implement bus stop bulb outs or boarding islands
 - Allows buses to stop in-lane to quickly re-enter traffic flow
 - Improves safety and customer experience by expanding waiting area and creating new space to install amenities
- Allows for quick, effective improvements where bus lanes may not be feasible
- Requires strong partnership with public works agencies



Bus Bulb, Portland, OR (credit: Ben Baldwin)

Looking Ahead

- Original \$1B budget estimate applied wide estimates on planning level order of magnitude
- Detailed planning and partnership with LADOT has improved cost/benefit of this program to ensure tools are focused where needed and supported most
- In addition to Bus Priority Lane expansion on more corridors, Transit Signal Priority and All Door Boarding projects to significantly ramp up in FY23
- Initial analysis and planning work to be conducted in FY23 to begin capital intensive campaigns in FY24 for bus stop bulb outs, boarding islands, terminal layover improvements and other tools
- Five (5) new hires in FY23 budget request to accelerate technical and outreach efforts
- Staff will continue to bring forward annual program to Board reflective of most accurate cost figures tailored to this tactical infrastructure program

