

# **Metro**

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



## **Agenda - Final**

**Thursday, November 15, 2018**

**9:00 AM**

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

### **Operations, Safety, and Customer Experience Committee**

*Mike Bonin, Chair*

*Hilda Solis, Vice Chair*

*Jacquelyn Dupont-Walker*

*John Fasana*

*Robert Garcia*

*John Bulinski, non-voting member*

*Phillip A. Washington, Chief Executive Officer*

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

**PUBLIC INPUT**

A member of the public may address the Board on agenda items, before or during the Board or Committee's consideration of the item for one (1) minute per item, or at the discretion of the Chair. A request to address the Board should be submitted in person at the meeting to the Board Secretary. Individuals requesting to speak on more than three (3) agenda items will be allowed to speak up to a maximum of three (3) minutes per meeting. For individuals requiring translation service, time allowed will be doubled.

Notwithstanding the foregoing, and in accordance with the Brown Act, this agenda does not provide an opportunity for members of the public to address the Board on any Consent Calendar agenda item that has already been considered by a Committee, composed exclusively of members of the Board, at a public meeting wherein all interested members of the public were afforded the opportunity to address the Committee on the item, before or during the Committee's consideration of the item, and which has not been substantially changed since the Committee heard the item.

The public may also address the Board on non-agenda items within the subject matter jurisdiction of the Board during the public comment period, which will be held at the beginning and/or end of each meeting. Each person will be allowed to speak for up to three (3) minutes per meeting and may speak no more than once during the Public Comment period. Speakers will be called according to the order in which the speaker request forms are received. Elected officials, not their staff or deputies, may be called out of order and prior to the Board's consideration of the relevant item.

In accordance with State Law (Brown Act), all matters to be acted on by the MTA Board must be posted at least 72 hours prior to the Board meeting. In case of emergency, or when a subject matter arises subsequent to the posting of the agenda, upon making certain findings, the Board may act on an item that is not on the posted agenda.

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

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

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

**INFORMATION RELATING TO AGENDAS AND ACTIONS OF THE BOARD**

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

## DISCLOSURE OF CONTRIBUTIONS

The State Political Reform Act (Government Code Section 84308) requires that a party to a proceeding before an agency involving a license, permit, or other entitlement for use, including all contracts (other than competitively bid, labor, or personal employment contracts), shall disclose on the record of the proceeding any contributions in an amount of more than \$250 made within the preceding 12 months by the party, or his or her agent, to any officer of the agency, additionally PUC Code Sec. 130051.20 requires that no member accept a contribution of over ten dollars (\$10) in value or amount from a construction company, engineering firm, consultant, legal firm, or any company, vendor, or business entity that has contracted with the authority in the preceding four years. Persons required to make this disclosure shall do so by filling out a "Disclosure of Contribution" form which is available at the LACMTA Board and Committee Meetings. Failure to comply with this requirement may result in the assessment of civil or criminal penalties.

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## LIMITED ENGLISH PROFICIENCY

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General Information/Rules of the Board - (213) 922-4600

Internet Access to Agendas - [www.metro.net](http://www.metro.net)

TDD line (800) 252-9040

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

## CALL TO ORDER

## ROLL CALL

### APPROVE Consent Calendar Item(s): 22, 23

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

### CONSENT CALENDAR

22. **SUBJECT: STAINLESS STEEL ANTI-GRAFFITI FILM INSTALLATION AND REPLACEMENT SERVICES** [2018-0585](#)

#### RECOMMENDATION

CONSIDER:

- A. FINDING that the procurement of stainless steel, anti-graffiti film installation and replacement services for all Metro facilities pursuant to Public Utilities Code (PUC) Section 130237, constitutes a single source procurement method for the sole purpose of duplicating or replacing supply, equipment or material already in use; and
- B. AUTHORIZING the Chief Executive Officer to award a non-competitive five-year firm fixed unit rate Contract No. OP1141410003367 to Graffiti Shield, Inc. to provide stainless steel, anti-graffiti film installation and replacement services for all Metro facilities for a not to exceed amount of \$14,919,070 for the three-year base period and a not to exceed amount of \$11,835,168 for the two, one year options for a combined not to exceed total amount of \$26,754,238, effective February 3, 2019.

(REQUIRES 2/3 VOTE OF THE BOARD)

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

23. **SUBJECT: ELECTRONIC CONTROL MODULE** [2018-0628](#)

#### RECOMMENDATION

AUTHORIZE the Chief Executive Officer to award a two year, Indefinite Delivery, Indefinite Quantity Contract No. MA49132000 to Cummins Inc., for electronic control modules for a one year base amount of \$730,578, inclusive of sales tax, and a second year amount of \$748,845, inclusive of sales tax, for a total contract value of \$1,479,423, subject to resolution of protest(s), if any.

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

NON-CONSENT

**24. SUBJECT:      OPERATIONS EMPLOYEES OF THE MONTH** [2018-0644](#)

**RECOMMENDATION**

Operations Employees of the Month

Attachments:      [Presentation](#)

**25. SUBJECT:      SMARTDRIVE PROGRAM UPDATE** [2018-0645](#)

**RECOMMENDATION**

RECEIVE oral report on SmartDrive program update to discuss the positive impact on safety, service and operator behavior as a result of the collaborative efforts between Safety/Risk Management, Operations and IT.

Attachments:      [Presentation](#)

**26. SUBJECT:      P3010 LIGHT RAIL VEHICLE PROCUREMENT** [2018-0485](#)

**RECOMMENDATION**

APPROVE a Modification to Contract No. P3010 with Kinkisharyo International, LLC for Request for Change (RFC) No. 28, Crenshaw Final Cutover Automatic Train Control (ATC) Software Release, for a firm fixed price of \$2,350,680 increasing the total Contract value from \$921,755,722 to \$924,106,402. The contract increase is within the Life of Project Budget.

Attachments:      [Attachment A - Procurement Summary](#)  
                                 [Attachment B - Contract Modification Authority Summary](#)  
                                 [Attachment C - DEOD Summary](#)

**27. SUBJECT:      Q'POD ASSEMBLY KITS WITH CURB SIDE SEAT** [2018-0638](#)

**RECOMMENDATION**

AUTHORIZE the chief Executive Officer to award a two-year, Indefinite Delivery, Indefinite Quantity Contract No. MA53850000 to Gillig LLC, for Kit - Q'Pod Assemblies with Passenger Curb Side Seats. The Contract has a first year amount of \$2,005,420, inclusive of sales tax, and a second year amount of \$2,005,420, inclusive of sales tax, for a total contract value of \$4,010,840, subject to resolution of protest(s), if any.

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

**28. SUBJECT: CRENSHAW/LAX - GREEN LINE OPERATING PLAN**

[2018-0710](#)

**RECOMMENDATION**

CONSIDER:

- A. APPROVING Alternative C-1 (Norwalk - Crenshaw/Expo, and Redondo Beach - Aviation/Century) as the preferred service plan for Crenshaw/LAX - Green Line; and
- B. DIRECTING the CEO to reevaluate the service plan one year prior to the opening of the Green Line extension to Torrance to determine if travel patterns and other relevant factors show a need for a change in service pattern.

**Attachments:**      [Attachment A - Motion 40.1](#)  
                                 [Attachment B - Crenshaw\\_LAX Green Line Alternative Service Plan Evaluation](#)  
                                 [Attachment C - Comparison of Final 6 Operating Alternatives](#)  
                                 [Presentation](#)

**28.1 SUBJECT: PROPOSED CRENSHAW/LAX - GREEN LINE OPERATING PLAN**

[2018-0730](#)

**RECOMMENDATION**

APPROVE Motion by Hahn, Butts, Solis, Najarian, Fasana & Garcia that the Board instruct the CEO to:

- A. implement Alternative C-3 for the Crenshaw/LAX -Green Line Operating Plan as a 1 year pilot plan in anticipation of the opening of the LAX Automated People Mover (APM) and 96th Street Station, maintaining the existing headways on the Green Line;
- B. report back to the Metro Board one (1) year after the pilot is over to reevaluate the ridership and travel demand; and
- C. as a new policy, bring future substantive changes to rail operating plans to the Metro Board for approval as a matter of course, instead of "receive and file."

**29. SUBJECT: MONTHLY UPDATE ON TRANSIT SAFETY AND SECURITY PERFORMANCE** [2018-0697](#)

**RECOMMENDATION**

RECEIVE AND FILE Transit Safety and Security Report.

**Attachments:**      [Attachment A- System-Wide Law Enforcement Overview September 2018](#)  
[Attachment B - Detail by Rail Line September 2018](#)  
[Attachment C - Key Performance Indicators September 2018](#)  
[Attachment D - Transit Policing Summary September 2018](#)

**37. SUBJECT: BURNING BUS MOTION** [2018-0729](#)

**RECOMMENDATION**

APPROVE Motion by Hahn, Solis, Butts & Krekorian that the Board direct the CEO to:

- A. Expedite the replacement of all 52 diesel buses operating in the South Bay region ahead of Metro's current schedule, to ensure the safety of drivers and passengers;
- B. Fully investigate the circumstances surrounding the incidents whereby 7 of these buses caught fire, how driver complaints about safety issues were handled and an explanation as to why the Board was not informed of these incidents;
- C. Conduct a full review of Metro's contract with MV Transportation, including maintenance, quality control and driver safety issues; and
- D. Conduct a full review of Metro's practice of contracting bus services out, and advise as to the feasibility of Metro directly providing bus services instead of through contractors.

FURTHER MOVE that the CEO provide a comprehensive report within 30 days that addresses the fore-mentioned directives.

**SUBJECT: GENERAL PUBLIC COMMENT** [2018-0716](#)

RECEIVE General Public Comment

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

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

**Adjournment**





**Board Report**

**File #:** 2018-0585, **File Type:** Contract

**Agenda Number:** 22.

**OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE  
NOVEMBER 15, 2018**

**SUBJECT: STAINLESS STEEL ANTI-GRAFFITI FILM INSTALLATION AND REPLACEMENT SERVICES**

**ACTION: AWARD CONTRACT**

**RECOMMENDATION**

CONSIDER:

- A. FINDING that the procurement of stainless steel, anti-graffiti film installation and replacement services for all Metro facilities pursuant to Public Utilities Code (PUC) Section 130237, constitutes a single source procurement method for the sole purpose of duplicating or replacing supply, equipment or material already in use; and
- B. AUTHORIZING the Chief Executive Officer to award a non-competitive five-year firm fixed unit rate Contract No. OP1141410003367 to Graffiti Shield, Inc. to provide stainless steel, anti-graffiti film installation and replacement services for all Metro facilities for a not to exceed amount of \$14,919,070 for the three-year base period and a not to exceed amount of \$11,835,168 for the two, one year options for a combined not to exceed total amount of \$26,754,238, effective February 3, 2019.

(REQUIRES 2/3 VOTE OF THE BOARD)

**ISSUE**

The existing contract will expire on February 2, 2019. In order to ensure uninterrupted stainless steel anti-graffiti film installation and replacement services, a new contract award is required effective February 3, 2019.

**BACKGROUND**

In January 2013, a pilot program was implemented to install and replace stainless steel anti-graffiti film at selective Metro stations. This program was developed in an effort to improve stations' overall appearance and cleanliness, mitigate graffiti and protect the stainless steel surfaces against vandalism. Internal estimates at the time established a projected cost savings of \$6.52 per square foot utilizing a sacrificial film compared to mechanical restoration of the steel surface. Furthermore, it

was not known initially if the film could satisfactorily cover already damaged surfaces, be easily peeled away by vandals, or otherwise damaged in any way. By the end of the 10 month pilot period, the material was proven to effectively cover vandalism for an improved appearance, was rarely tampered with or peeled, and offered satisfactory protection against damage to the steel surface by cutting or etching. The turnaround time to remove and replace damaged film was less than 10 percent of the time to mechanically restore surfaces and was less disruptive to patrons. With these positive results the pilot program was determined to be successful. A five year contract was awarded with an effective start date of February 3, 2014 to include all Metro bus and rail stations system-wide. This contract will expire on February 2, 2019.

The stainless steel anti-graffiti film product was exclusively developed for Metro's use in an effort to improve facilities overall condition and mitigate vandalism. A market survey was conducted which revealed there is no comparable stainless steel anti-graffiti film product available. Over the term of the existing contract, we have experienced a 22 percent decrease in material replacements overall and the current cost savings differential has increased from \$6.52 to \$14.31 per square foot. Therefore, it was determined that Graffiti Shield, Inc., is the sole provider of this patent pending stainless steel anti-graffiti film.

## **DISCUSSION**

Graffiti Shield Inc. is a Metro Certified SBE and has made a 100% SBE participation commitment.

Currently, there are approximately 198,000 sq. ft. of stainless steel panel surfaces throughout the Metro transit system subject to vandalism. Based on historical data, approximately 83,500 sq. ft. of stainless steel anti-graffiti film system-wide is etched or vandalized and replaced each month. With the new expansion projects to include Crenshaw/LAX Corridor, Regional Connector, Purple Line Westside Extension Phase I and the Airport Metro Connector, approximately an additional 71,000 sq. ft. of stainless steel panel surfaces subject to vandalism will be added to this Contract. This will increase the total stainless steel panel surfaces to 269,000 sq. ft. with an estimated replacement rate of 113,300 sq. ft. (42%) per month.

## **DETERMINATION OF SAFETY IMPACT**

The approval of this item will ensure the delivery of timely and reliable stainless steel anti-graffiti film maintenance services while improving Metro bus and rail facilities overall appearance and cleanliness, and enhancing customers' transit experience.

## **FINANCIAL IMPACT**

The total three year base contract value is \$14,919,070. Funding of \$2,100,000 for FY19 is allocated under cost center 3367 - Facilities Property Maintenance, account 50308, Service Contract Maintenance, under various projects.

Since this is a multi-year contract, the cost center manager and Sr. Executive Officer, Maintenance and Engineering will be accountable for budgeting the cost in future years.

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Impact to Budget

The current source of funds for this action include Proposition A/C, Measure R/M, and Transportation Development Act. Use of these funding sources currently maximizes funding allocation given approved funding provisions and guidelines.

**IMPLEMENTATION OF STRATEGIC PLAN GOALS**

This unique stainless steel anti-graffiti film installation and replacement services contribute to facilities' overall condition and cleanliness while continuing to deliver outstanding trip experiences for all users of the transportation system.

**ALTERNATIVES CONSIDERED**

Staff considered providing stainless steel restoration services throughout Metro facilities utilizing Metro in-house staff. Staff analysis determined that the necessary patent pending film product does not exist in today's open market; therefore, it would not be available to Metro. Also, this method would require the hiring and training of additional personnel, and purchase of additional equipment, vehicles, and supplies to support this program. Staff's assessment indicates that this method is deemed insufficient, labor intensive, and not a cost-effective option for Metro.

**NEXT STEPS**

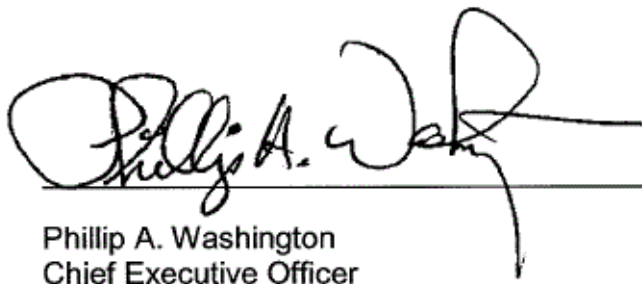
Upon approval by the Board, staff will execute Contract No. OP1141410003367 to Graffiti Shield, Inc., effective February 3, 2019, to provide stainless steel anti-graffiti film installation and replacement services throughout Metro bus and rail facilities.

**ATTACHMENTS**

- Attachment A - Procurement Summary
- Attachment B - DEOD Summary

Prepared by: Brady Branstetter, DEO, Facilities Maintenance, (213) 922-6767  
Lena Babayan, Senior Director, Facilities Maintenance, (213) 922-6765

Reviewed by: James T. Gallagher, Chief Operations Officer, (213) 418-3108  
Debra Avila, Chief, Vendor/Contract Management Officer, (213) 418-3051



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Phillip A. Washington  
Chief Executive Officer

**ATTACHMENT A**

**PROCUREMENT SUMMARY  
STAINLESS STEEL ANTI-GRAFFITI FILM INSTALLATION AND REPLACEMENT  
SERVICES / OP1141410003367**

1.	<b>Contract Number:</b> OP1141410003367	
2.	<b>Recommended Vendor:</b> Graffiti Shield, Inc..	
3.	<b>Type of Procurement (check one):</b> <input type="checkbox"/> IFB <input type="checkbox"/> RFP <input type="checkbox"/> RFP-A&E <input checked="" type="checkbox"/> Non-Competitive <input type="checkbox"/> Modification <input type="checkbox"/> Task Order	
4.	<b>Procurement Dates:</b>	
	A. Issued: 07/20/18	
	B. Advertised/Publicized: n/a	
	C. Pre-proposal/Pre-Bid Conference: n/a	
	D. Proposals/Bids Due: 8/21/18	
	E. Pre-Qualification Completed: October 2, 2018	
	F. Conflict of Interest Form Submitted to Ethics: October 1, 2018	
	G. Protest Period End Date: November 19, 2018	
5.	<b>Solicitations Picked up/Downloaded:</b> n/a	<b>Bids/Proposals Received:</b> n/a
6.	<b>Contract Administrator:</b> Rommel Hilario	<b>Telephone Number:</b> (213) 922-4654
7.	<b>Project Manager:</b> Maral Minasian	<b>Telephone Number:</b> (213) 922-6762

**A. Procurement Background**

This Board Action is to approve a non-competitive firm fixed unit rate contract in support of Facility Maintenance to provide stainless steel anti-graffiti film installation and replacement services for all Metro facilities.

The stainless steel anti-graffiti film product was exclusively developed for Metro's use by Graffiti Shield, Inc. in an effort to improve facilities overall condition and mitigate vandalism. In January 2013, a pilot program was successfully implemented to install and replace stainless steel anti-graffiti film at selective Metro stations. This program was developed in an effort to improve stations' overall appearance and cleanliness, mitigate graffiti and protect the stainless steel surfaces against vandalism. As a result, a five-year contract, OP33673154, was awarded to Graffiti Shield with an effective start date of February 3, 2014 to include all Metro bus and rail stations system-wide. This contract will expire on February 2, 2019.

A market survey was conducted in May 2018. Metro staff reached out to seven firms as potential vendors for providing stainless steel look alike anti-graffiti film product. These firms produce and/or work with window tinting and anti-graffiti film products. Vendors responded to Metro staff's inquiry regarding the availability of stainless steel look alike anti-graffiti film products that can be applied to cover etched stainless steel surfaces and protect them from further vandalism system-wide, and there is no comparable stainless steel anti-graffiti film product available. Graffiti Shield, Inc. is the owner of this proprietary, (patent pending) stainless steel anti-graffiti film. Therefore,

Metro has deemed them as a single/sole source provider of this patent pending stainless steel anti-graffiti film.

This non-competitive procurement was conducted in accordance with Metro's Acquisition Policy.

**B. Evaluation of Proposals**

The proposal submitted by Graffiti Shield, Inc. was evaluated by staff from Vendor/Contract Management and Facility Maintenance, and was determined to be acceptable.

**C. Cost/Price Analysis**

Graffiti Shield's proposed unit rate for the 3 year base is calculated at \$4.45 per square foot which is a 5% increase from their original contract in 2015. The proposed unit rate for Option Year 1 and 2 is calculated at \$4.52 per square footage which represents a 6.8% increase from 2015. According to the Consumer Price Index, similar industries experienced an average of 12.4% price increase from February 2015 to June 2018. Therefore, the recommended price has been determined to be fair and reasonable based upon price analysis, a comparison with historical pricing, Metro's independent cost estimate, fact finding and technical evaluation.

<b>PROPOSER</b>	<b>PROPOSAL AMT</b>	<b>ICE</b>	<b>AWARD AMOUNT</b>
Graffiti Shield, Inc.	\$26,754.238	\$27,168,050	\$26,754,238

**D. Background on Recommended Contractor**

Graffiti Shield, Inc., located in Anaheim, California, manufactures surface protection products for glass, metal, and solid surfaces. The firm specializes in pre-cut anti-graffiti films for public and private spaces. Although Graffiti Shield was founded in early 2013, the firm has experience manufacturing and installing protective films. The owners also established another company called "XInt Tint" to exclusively handle the anti-graffiti solutions for glass surfaces. Graffiti Shield is the incumbent for the existing contract for stainless steel anti-graffiti film installation and replacement services, and has performed satisfactorily.



DEOD SUMMARY

**STAINLESS STEEL ANTI-GRAFFITI FILM INSTALLATION AND REPLACEMENT SERVICES / OP1141410003367**

**A. Small Business Participation**

The Diversity and Economic Opportunity Department (DEOD) did not establish a Small/Disabled Veteran Business Enterprise (SBE/DVBE) goal for this procurement. The anti-graffiti film is a proprietary product and services will be performed using the prime’s own workforce. The Prime, Graffiti Shield, Inc. is SBE certified by Metro.

	<b>SBE Prime</b>	<b>% Committed</b>
1.	Graffiti Shield, Inc.	100%
	<b>Total Commitment</b>	<b>100%</b>

**B. Living/Prevailing Wage and Service Contract Worker Retention Policy Applicability**

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

**C. Prevailing Wage Applicability**

Prevailing Wage requirements are applicable to this project. DEOD will continue to monitor contractors’ compliance with the State of California Department of Industrial Relations (DIR), California Labor Code, and, if federally funded, the U S Department of Labor (DOL) Davis Bacon and Related Acts (DBRA).

**D. Project Labor Agreement/Construction Careers Policy**

Project Labor Agreement/Construction Careers Policy (PLA/CCP) is not applicable to this Contract. PLA/CCP is applicable only to construction contracts that have a construction contract value in excess of \$2.5 million.



## Board Report

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**File #:** 2018-0628, **File Type:** Contract

**Agenda Number:** 23.

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### OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE NOVEMBER 15, 2018

**SUBJECT: ELECTRONIC CONTROL MODULE**

**ACTION: AWARD CONTRACT**

#### **RECOMMENDATION**

AUTHORIZE the Chief Executive Officer to award a two year, Indefinite Delivery, Indefinite Quantity Contract No. MA49132000 to Cummins Inc., for electronic control modules for a one year base amount of \$730,578, inclusive of sales tax, and a second year amount of \$748,845, inclusive of sales tax, for a total contract value of \$1,479,423, subject to resolution of protest(s), if any.

#### **ISSUE**

This procurement is for the acquisition of new engine electronic control modules, which are required for maintaining the safe and reliable operation of the bus fleet. Award of this Contract will ensure that Bus Maintenance has adequate inventory to repair and maintain buses according to Metro maintenance standards.

#### **BACKGROUND**

The component usage reports from Material Management revealed that on an annual basis nearly 300 engine electronic control modules were issued to Bus Maintenance to replace failed components and to support replacement during engine rebuild programs. The control modules are installed by Metro Mechanics at the Central Maintenance Shops and at all bus operating divisions. Buses cannot operate without properly functioning engine control modules.

#### **DISCUSSION**

Engine electronic control modules are an engine management component that is commonly known to be the brains of the engine. The control module provides key data to the engine and component parts and ensures efficient operation of the engine to meet emission regulations. Problems with the engine electronic control module can quickly lead to engine performance issues. The engine electronic control modules support over 90% of our bus fleet which have Cummins 8.9 ISLG engines and Cummins 8.9 ISLG Near-Zero engines.

The contract to be awarded is a “requirements type” agreement in which we commit to order only from the awardee, up to the specified quantity for a specific duration of time, but there is no obligation or commitment for us to order any or all of the engine control modules that may be anticipated. The



bid quantities are estimates only, with deliveries to be ordered and released as required. The Diversity and Economic Opportunity Department (DEOD) recommended a two percent (2%) DBE goal for this solicitation. The purchased engine electronic control modules are installed by Metro Mechanics.

Bus engine electronic control modules will be purchased and maintained in inventory and managed by Material Management. As electronic control modules are issued, the appropriate budget project numbers and accounts will be charged.

### **DETERMINATION OF SAFETY IMPACT**

Award of contract will ensure that all operating divisions and the Central Maintenance Facility have an adequate inventory to maintain the equipment according to Metro Maintenance standards.

### **FINANCIAL IMPACT**

Funding in the amount of \$730,578 for these engine electronic control modules is included in the FY19 budget under account 50441, Parts - Revenue Vehicle in multiple bus operating cost centers under project 306002 Operations Maintenance, and in the Central Maintenance cost center 3366.

Since this is a multi-year contract, the cost center manager and Chief Operations Officer will be accountable for budgeting the cost in future fiscal years.

#### **Impact to Budget**

The current sources of funds for this action are Federal Section 5307, State SB1, Proposition A/C, Measure R/M, and Transportation Development Act. Use of these funding sources currently maximizes funding allocation given approved funding provisions and guidelines.

### **IMPLEMENTATION OF STRATEGIC PLAN GOALS**

The procurement of engine electronic control modules supports Strategic Goal 1: Provide high-quality mobility options that enable people to spend less time traveling. The new engine electronic control modules will maintain the reliability of the bus fleet and ensure that our customers are able to arrive at their destinations without interruption and in accordance with the scheduled service intervals for Metro bus operations.

### **ALTERNATIVES CONSIDERED**

The alternative is to not award the Contract and procure engine electronic control modules on the open market on an as-needed basis. This approach is not recommended since it does not provide a commitment from the supplier to ensure availability and price stability.

### **NEXT STEPS**

Metro's requirements for bus engine electronic control modules will be fulfilled under the provisions of the Contract.


### **ATTACHMENTS**

Attachment A - Procurement Summary

Attachment B - DEOD Summary

Prepared By: James D. Pachan, Superintendent of Maintenance, (213) 922-5804

Reviewed by: Debra Avila, Chief Vendor/Contract Management (213) 922-6383  
James T. Gallagher, Chief Operations Officer (213) 418-3108



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Phillip A. Washington  
Chief Executive Officer

**PROCUREMENT SUMMARY**

**ELECTRONIC CONTROL MODULE / MA49132000**

1.	<b>Contract Number:</b> MA49132000	
2.	<b>Recommended Vendor:</b> Cummins Inc. 1939 Deere Avenue, Irvine, CA 92606	
3.	<b>Type of Procurement (check one):</b> <input checked="" type="checkbox"/> IFB <input type="checkbox"/> RFP <input type="checkbox"/> RFP-A&E <input type="checkbox"/> Non-Competitive <input type="checkbox"/> Modification <input type="checkbox"/> Task Order	
4.	<b>Procurement Dates:</b>	
	A. <b>Issued:</b> 7/25/18	
	B. <b>Advertised/Publicized:</b> 7/25/18	
	C. <b>Pre-proposal/Pre-Bid Conference:</b> N/A	
	D. <b>Proposals/Bids Due:</b> 8/30/18	
	E. <b>Pre-Qualification Completed:</b> 9/21/18	
	F. <b>Conflict of Interest Form Submitted to Ethics:</b> 9/21/18	
	G. <b>Protest Period End Date:</b> 11/20/18	
5.	<b>Solicitations Picked up/Downloaded:</b> 11	<b>Bids/Proposals Received:</b> 2
6.	<b>Contract Administrator:</b> Tanya Allen	<b>Telephone Number:</b> 213/922-1018
7.	<b>Project Manager:</b> Alex DiNuzzo	<b>Telephone Number:</b> 213/922-5860

**A. Procurement Background**

This Board Action is to approve Contract No. MA49132000 issued for the procurement of Electronic Control Modules. Board approval of contract award is subject to resolution of any properly submitted protest.

IFB No. MA49132 was issued in accordance with Metro’s Acquisition Policy and the contract type is Indefinite Delivery, Indefinite Quantity (IDIQ).

No amendments were issued during the solicitation phase of this IFB:

A total of two bids were received on August 30, 2018.

**B. Evaluation of Bids**

This procurement was conducted in accordance, and complies with LACMTA’s Acquisition Policy for a competitive sealed bid. The two bids are listed below in alphabetical order:

1. Cummins, Inc.
2. The Aftermarket Parts Company, LLC (New Flyer Parts)

All bids received were determined to be responsive and responsible, and in full compliance with the requirements of the IFB.

**C. Price Analysis**

The recommended bid price from Cummins Inc. has been determined to be fair and reasonable based upon adequate price competition and selection of the lowest responsive and responsible bidder.

<b>Low Bidder Name</b>	<b>Bid Amount</b>	<b>Metro ICE</b>
Cummins Inc.	\$1,479,423	\$1,430,023
The Aftermarket parts Company, LLC (New Flyer Parts)	\$1,714,921	

**D. Background on Recommended Contractor**

The recommended firm, Cummins Inc. is located in Irvine, CA has been in business for 26 years. Cummins Pacific, LLC has provided similar products for other agencies including Orange County Transportation Authority, San Diego Metropolitan Transit System, and Santa Monica's Big Blue Bus and has provided satisfactory service and product to Metro on previous purchases.

DEOD SUMMARY

ELECTRONIC CONTROL MODULE / MA49132000

**A. Small Business Participation**

The Diversity and Economic Opportunity Department (DEOD) established a 2% Disadvantaged Business Enterprise (DBE) goal for this solicitation. Cummins, Inc. met the goal by making a 2% DBE commitment.

<b>Small Business Goal</b>	<b>2% DBE</b>	<b>Small Business Commitment</b>	<b>2% DBE</b>
----------------------------	---------------	----------------------------------	---------------

	<b>DBE Subcontractors</b>	<b>% Committed</b>
1.	Say Cargo Express	2%
	<b>Total Commitment</b>	<b>2%</b>

**B. Living/Prevailing Wage and Service Contract Worker Retention Policy Applicability**

The Living Wage and Service Contract Worker Retention Policy (LW/SCWRP) is not applicable to this Contract.

**C. Prevailing Wage Applicability**

Prevailing Wage is not applicable to this Contract

**D. Project Labor Agreement/Construction Careers Policy**

Project Labor Agreement/Construction Careers Policy (PLA/CCP) is not applicable to this Contract. PLA/CCP is applicable only to construction contracts that have a construction contract value in excess of \$2.5 million.



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

## Board Report

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**File #:** 2018-0644, **File Type:** Oral Report / Presentation

**Agenda Number:** 24.

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**OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE  
NOVEMBER 15, 2018**

**SUBJECT: OPERATIONS EMPLOYEES OF THE MONTH**

**RECOMMENDATION**

Operations Employees of the Month

**DISCUSSION**

Operations Employees of the Month recognizes Transportation, Maintenance and Logistics frontline employees for their outstanding leadership contributions to the Operations Department.

# November Employees of the Month



**Metro**

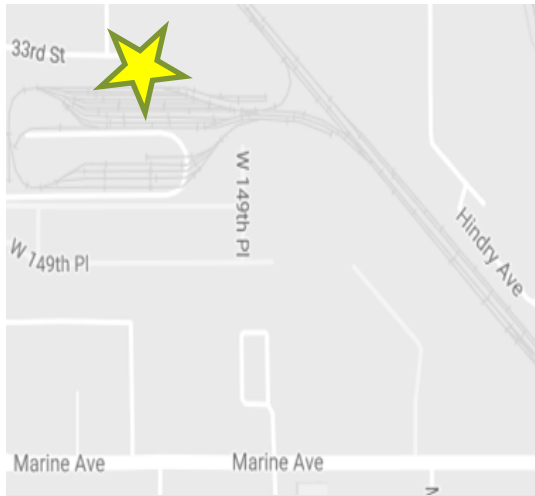
# Employees of the Month



## Transportation

### Green Line Transportation

Manager     Renee Hill



**Division 22 – Lawndale**

## Maintenance

### Lead Custodian

**Gary Martinez**



**Division 20 – Los Angeles**

## Logistics

### Storekeeper

**Jorge Ponte**



**Division 24 – Monrovia**





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Los Angeles, CA

## Board Report

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**File #:** 2018-0645, **File Type:** Oral Report / Presentation

**Agenda Number:** 25.

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**OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE  
NOVEMBER 15, 2018**

**SUBJECT: SMARTDRIVE PROGRAM UPDATE**

**RECOMMENDATION**

RECEIVE oral report on SmartDrive program update to discuss the positive impact on safety, service and operator behavior as a result of the collaborative efforts between Safety/Risk Management, Operations and IT.



**SMARTDRIVE<sup>®</sup>**



**Metro<sup>®</sup>**

*November 15, 2018*

*Operations, Safety, and Customer Experience Committee*

# Introduction

- Incident-based digital video solution
- External and internal facing cameras, audio recording capabilities
- Proactive monitoring of safety-based triggers
- Video and operator performance data utilized to monitor driving behavior
- Provides video analysis, predictive analytics and performance review to help improve driving skills



**Metro**

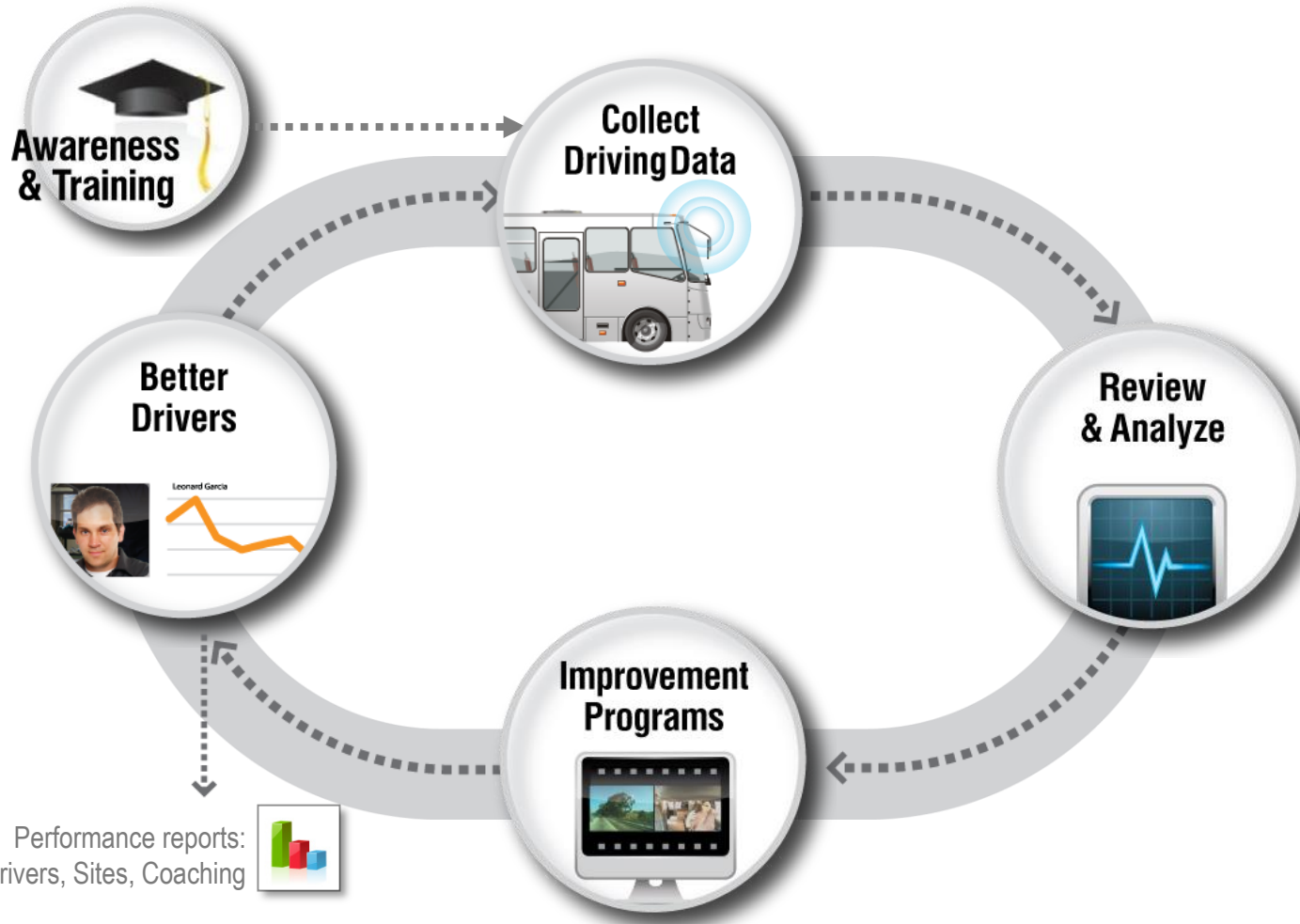
## Introduction (Continued)

- Captures collisions and other unexpected events on video
- Allows investigators to identify safety issues that may lead to future accidents if not addressed
- Provides information for determining Root-Cause Analysis and liability
- Data analysis tool allows review of operator performance by type

## Program Overview

- Program inception date 2009 in Metro bus fleet, with installation for rail fleet currently in progress.
- Currently installed on:
  - All Metro Buses, including Contract Service Buses
  - Blue Line retrofit underway with new rail vehicles
  - Red & Purple Rail Vehicles
  - Gold Line installation currently in review process

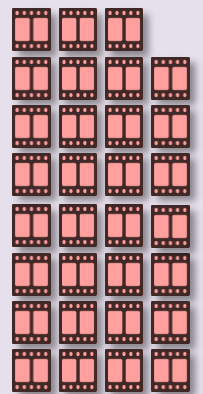
# Program Workflow



**Metro**

# The SmartDrive Program

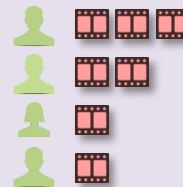
Focuses on the right operator, right skills, right priority



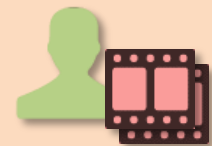
Videos  
Captured



Consistent  
Review  
& Scoring  
verifies risk



Operators  
& Risk  
Prioritized



Coaching  
Sessions

# Video Event Recording

## SAFETY PRIORITIES

### FLEET 1



Speeding



Unsafe Braking



Mobile Phone



Stopping



Following to Close



## SAFETY PRIORITIES

### FLEET 2



Speeding



Passing Signal Bar



Mobile Phone



Paperwork

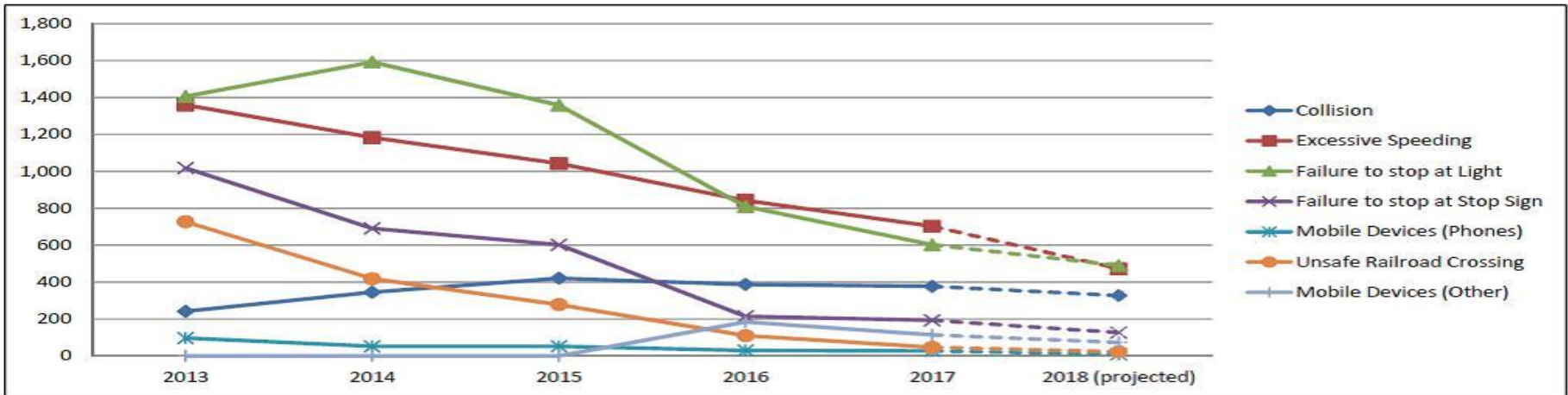


Red over Red



# Safety Trends

Calendar Year 2013 - 2018(projected) Events by Type



Events	2013	2014	2015	2016	2017	2018 (projected)
Collision	242	345	421	387	377	327
Excessive Speeding	1,359	1,183	1,042	842	703	473
Failure to stop at Light	1,406	1,592	1,358	809	602	490
Failure to stop at Stop Sign	1,018	691	602	215	193	126
Mobile Devices (Phones)	97	52	52	30	28	10
Unsafe Railroad Crossing	727	418	278	110	47	23
Mobile Devices (Other)	-	-	-	184	115	73
<b>Total</b>	<b>4,849</b>	<b>4,281</b>	<b>3,753</b>	<b>2,577</b>	<b>2,065</b>	<b>1,521</b>

2018 Q1-Q3 (actuals)
253
347
390
104
13
21
53
<b>1,181</b>

\*In 2016, the Mobile Device category was redefined. The Mobile Device (Other) category was created to consider any on board device (ATMS, Radio, Farebox, etc.) used by an operator while the vehicle is not at a complete stop. This change is reflected in Monthly and Annual Reports.

\*\*CalYear 17 Q1, and CalYear 18 Q1-Q3 : WI-FI issues and Proof-of-Concept tests affected offloading on many devices

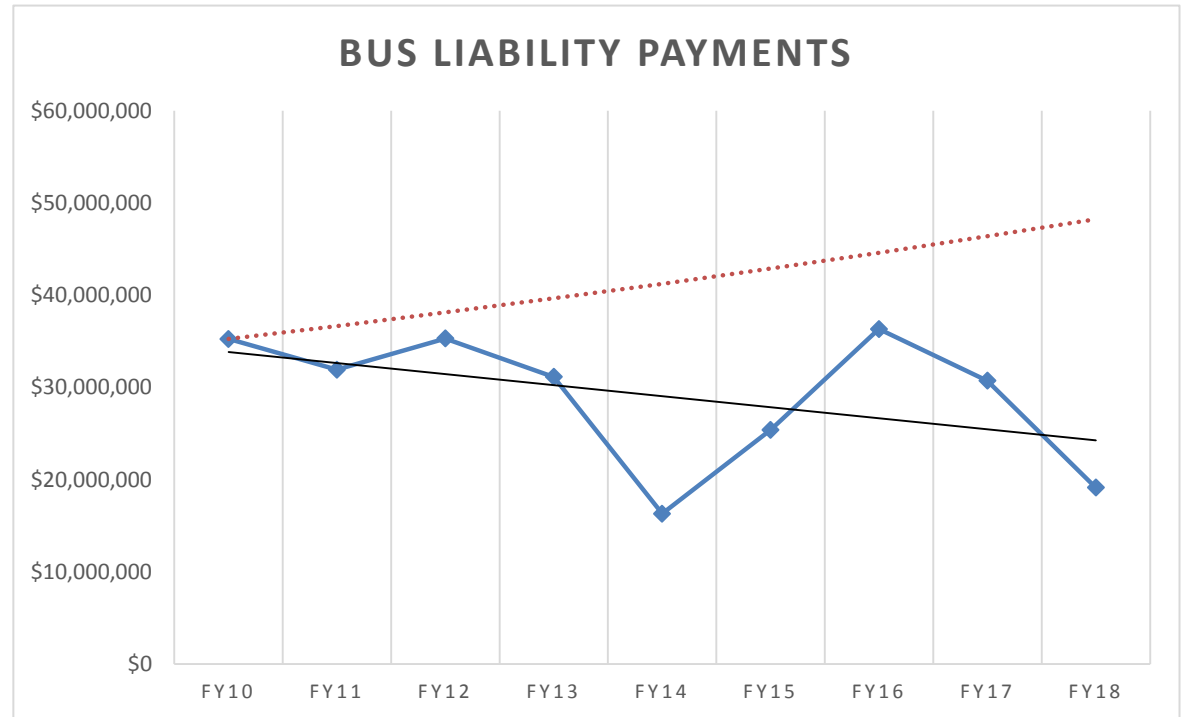
## Merits

- Helps with the Safety Assurance aspect of System Safety Management (SMS), by providing the right data at the right time
- Increased visibility into validity of claims
- Supports regulatory reporting requirements
- Speed of access to data = faster collision review
- Substantially lower real payouts for bus liability claims since FY10

# Bus Liability

## BUS LIABILITY PAYMENTS

FY10	\$35,258,793
FY11	\$31,926,123
FY12	\$35,305,743
FY13	\$31,150,778
FY14	\$16,301,056
FY15	\$25,394,643
FY16	\$36,333,441
FY17	\$30,717,957
FY18	\$19,137,103



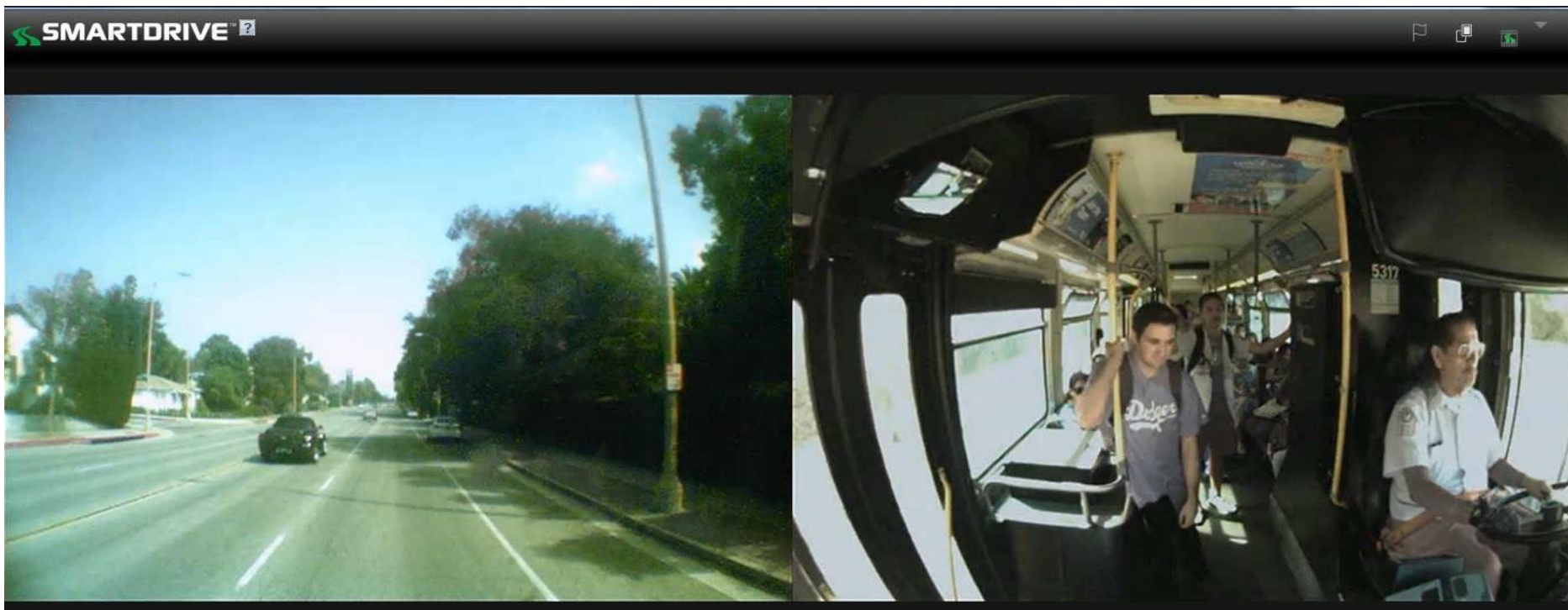
# Near Miss - Vehicle



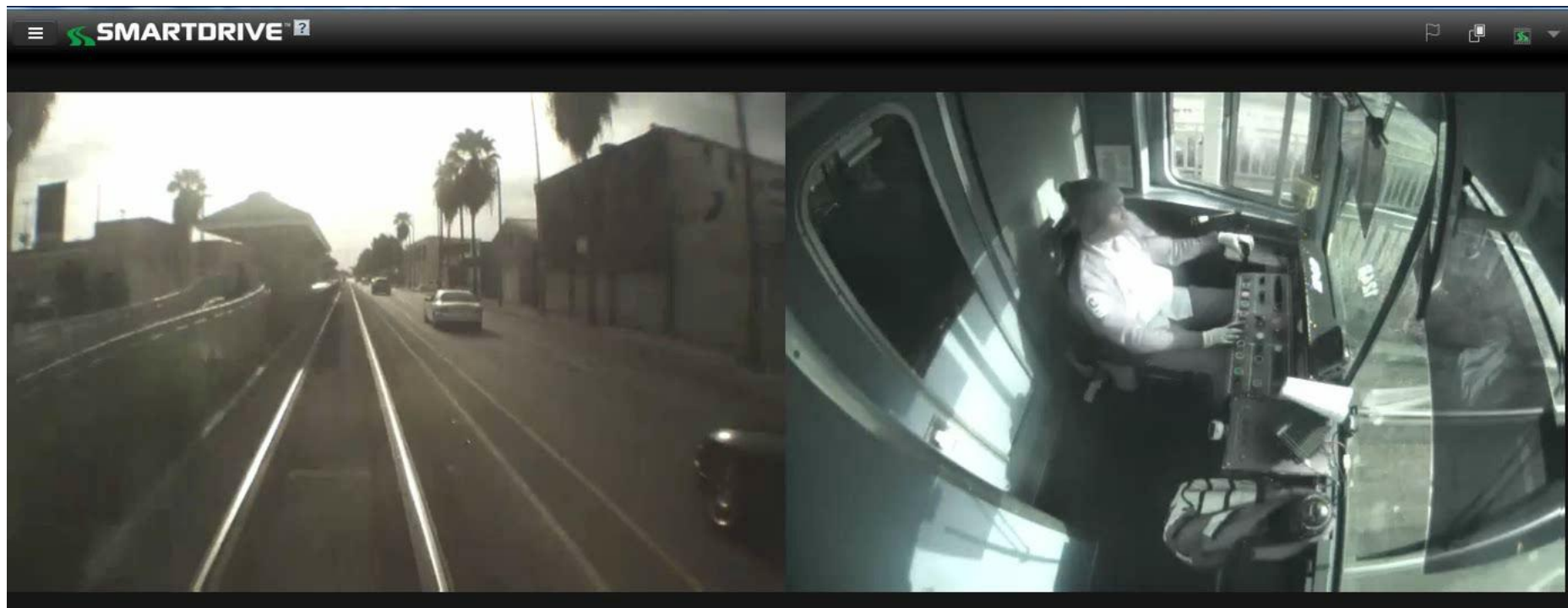
# Near Miss – Grade Crossing



# Near Miss – Bus/Pedestrian



# Near Miss – Rail/Pedestrian





Thank you



Metro®



# Bus: Quick Stats

## ▪ SmartDrive Equipped Vehicles

- Bus 2,346
- Contract Services 180

## ▪ Event Volume

- Events Reviewed Last 12 Months
  - Bus 185,370
  - Contract Services 70,200
- Collisions Captured Last 12 Months
  - Bus 410
  - Contract Services 77



## Rail: Quick Stats

### ▪ SmartDrive Equipped Vehicles

- Red Line 104
- Blue Line 7

### ▪ Event Volume

- Events Reviewed Last 12 Months: 22,569
- Collisions Captured Last 12 Months: 3





## Board Report

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File #: 2018-0485, File Type: Contract

Agenda Number: 26.

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### OPERATIONS, SAFETY AND CUSTOMER EXPERIENCE COMMITTEE NOVEMBER 15, 2018

**SUBJECT: P3010 LIGHT RAIL VEHICLE PROCUREMENT**

**ACTION: APPROVE CHANGE ORDER**

#### **RECOMMENDATION**

APPROVE a Modification to Contract No. P3010 with Kinkisharyo International, LLC for Request for Change (RFC) No. 28, Crenshaw Final Cutover Automatic Train Control (ATC) Software Release, for a firm fixed price of \$2,350,680 increasing the total Contract value from \$921,755,722 to \$924,106,402. The contract increase is within the Life of Project Budget.

#### **ISSUE**

P3010 Light Rail Vehicles (LRV's) are intended to support service on all Metro's light rail lines, including the Crenshaw/LAX Line. In 2013, when the P3010 design was being finalized, the Crenshaw design was still in development.

For the P3010 vehicles to support service on the new Line it is necessary for the ATC and the Automatic Train Protection (ATP) systems to be upgraded and qualified for compatibility with the Crenshaw/LAX wayside system to ensure safe and reliable operation.

As the RFC amount exceeds Metro's Chief Executive Officer's delegated negotiating authority of \$1,000,000, staff is requesting Board approval for the contract change.

#### **BACKGROUND**

In April 2012, Kinkisharyo International, LLC was awarded the P3010 LRV contract for a base order of 78 LRVs. Four options, for an additional 157 LRVs, were subsequently exercised, for a total of 235 vehicles to be delivered. In accordance with Metro's Long Range Transportation Plan, the P3010 LRVs are intended to support service on all Metro's light rail lines, including the Crenshaw/LAX Line.

#### **DISCUSSION**

P3010 vehicles are currently not compatible with the wayside signaling system being implemented on

the Crenshaw/LAX Line. In 2013, when the P3010 design was being finalized, information was not available to ensure compatibility of the P3010 LRVs with the Crenshaw/LAX Line as the Crenshaw design was still in development. For the P3010 vehicles to support service on the new line, it is necessary to upgrade the ATC and the ATP systems to ensure safe and reliable operation.

Approval of this Change Order is necessary for Kinkisharyo to work with its signaling system supplier, Ansaldo-STC, to design and deliver new ATC/ATP software and then qualify the new software in the field before it is installed on the P3010 Base Order and Option order vehicles.

Successful implementation of this upgrade will ensure compliance with Metro's Long Range Transportation Plan, and ensure safe and reliable operation on existing lines and the new Crenshaw/LAX Line. It will ensure a consistent fleet configuration to preserve enhanced levels of vehicle performance and passenger experience. Application of the change will have no impact to current project schedule and is within the remaining contingency of the Life of Project budget.

### **DETERMINATION OF SAFETY IMPACT**

This board action will ensure that safety is preserved by equipping the vehicles with the latest safety related software releases. Without application of these software upgrades, the vehicles will have to operate in degraded mode which can compromise service.

### **FINANCIAL IMPACT**

Adoption of the recommendation to approve the subject RFC will increase the Contract price by \$2,350,680 from \$921,755,722 to \$924,106,402. This amount is within the project LOP of \$972,000,000. Funding for the change will be reflected in the FY19 budget in Cost Center 3043 - Strategic Vehicle and Infrastructure Delivery, Account 53105 - Acquisition of Revenue Vehicle, Project 206035 - P3010 LRV Project including options.

Since this is a multi-year contract, the Cost Center Manager and Project Manager will ensure that the balance of funds are budgeted in the future years, including all options exercised.

#### Impact to Budget

The current source of funds for this action is Measure R, Federal STIP, and Proposition A35. Use of these funding sources maximizes allowable project funding allocations given established provisions and guidelines.

### **IMPLEMENTATION OF STRATEGIC PLAN GOALS**

Approval of this recommendation supports the following Metro Strategic Plan Goal: Deliver outstanding trip experiences for all users of the transportation system. This project will improve safety, service, and reliability in an effort to provide a world-class transportation system that enhances quality of life for all who live, work, and play within LA County.

### **ALTERNATIVES CONSIDERED**

The alternative is to not upgrade the P3010 LRVs and this alternative is not recommended as the vehicles will not recognize the new track circuits and will lead to many in-service failures. To operate, trains will need to operate in degraded mode which will compromise service and operation on the Crenshaw/LAX and connecting lines.

### **NEXT STEPS**

If this item is approved, staff will issue a contract modification to Kinkisharyo and will then work with the supplier and the Crenshaw/LAX Project Management team to design, test, and implement the software upgrades on the P3010 base and option order vehicles to ensure safe and reliable operation on the Crenshaw/LAX and existing lines.

### **ATTACHMENTS**

Attachment A - Procurement Summary

Attachment B - Contract Modification Authority (CMA) Summary

Attachment C - DEOD Summary

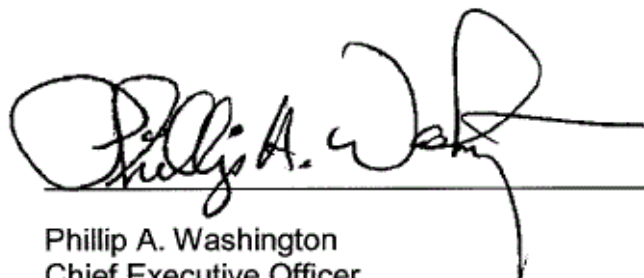
Prepared by: Annie Yang, Sr. Director of Rail Vehicle Acquisition, (213) 922-3254

Wayne Okubo, Director of Contract Administration, (213) 922-7466

Jesus Montes, Sr. EO, Vehicle Acquisition, (213) 418-3277

Reviewed by: James T. Gallagher, Chief Operations Officer, (213) 418-3108

Debra Avila, Chief Vendor/Contract Management Officer, (213) 418-3051



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Phillip A. Washington  
Chief Executive Officer

## PROCUREMENT SUMMARY

**P3010 LIGHT RAIL VEHICLE  
CRENSHAW FINAL CUTOVER ATC SOFTWARE UPDATES**

<b>1.</b>	<b>Contract Number:</b> P3010		
<b>2.</b>	<b>Contractor:</b> Kinkisharyo, International LLC		
<b>3.</b>	<b>Mod. Work Description:</b> The Contractor shall install Type II ATC/ATP software source code on 235 P3010 LRVs. This software is necessary to operate the P3010 LRVS on Metro's new Crenshaw Line.		
<b>4.</b>	<b>Contract Work Description:</b> New Light Rail Vehicles		
<b>5.</b>	<b>The following data is current as of:</b> 10/9/2018		
<b>6.</b>	<b>Contract Completion Status</b>		<b>Financial Status</b>
	<b>Contract Awarded:</b>	4/20/2012	<b>Contract Award Amount:</b> \$299,061,827
	<b>Notice to Proceed (NTP):</b>	8/2012	<b>Total of Modifications Approved:</b> \$622,693,895
	<b>Original Complete Date:</b>	2/2017 (Base only)	<b>Pending Modifications (including this action):</b> \$2,350,680
	<b>Current Est. Complete Date:</b>	6/2021 (including Options)	<b>Current Contract Value (with this action):</b> \$924,106,402
<b>7.</b>	<b>Contract Administrator:</b> Wayne Okubo		<b>Telephone Number:</b> (213) 922-7466
<b>8.</b>	<b>Project Manager:</b> Jason Yaw		<b>Telephone Number:</b> (213) 922-3325

**A. Procurement Background**

This Board Action is to approve Modification No. 37 to Contract No. P3010 for Crenshaw final cutover Automatic Train Control (ATC) Software Release. The Contractor will install the software on 235 P3010 light rail vehicles (LRVs).

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

In April 2012, Kinkisharyo International LLC (KI) was awarded a firm fixed price contract in the amount of \$299,061,827 for the manufacturing and delivery of 78 LRVs under Contract No. P3010. On August 14, 2013, KI was awarded Contract Options 1 and 4 for a firm fixed price amount of \$366,321,644.00 to manufacture and deliver an additional 97 LRVs. Then, on July 31, 2015, KI was awarded a firm fixed price amount of \$244,758,402.00 to manufacture and deliver 60 LRVs. Totalling the Base Contract and four options, Metro has ordered 235 LRVs from KI.

The scope of work under this Contract Modification is to update and install Type II ATC/ATP software source code on all 235 P3010 LRVs so that the LRVs can operate on the Metro Crenshaw Line currently under construction and schedule to begin operation in late 2019. During the P3010 vehicle final design review phase, the relevant alignment information from the Crenshaw Line was not available. It has been Metro's intent to run P3010 LRVs on the new Crenshaw Line; therefore, the current ATC/ATP software source code will need to be updated, tested, and formally qualified for compatibility with new wayside equipment, new track alignments, and OCS equipment.

On July 23, 2018, procurement issued a Limited Notice to Proceed (LNTP) for RFC No. 28 with a not-to-exceed amount of \$500,000 to initiate the software development in order to meet the Crenshaw project's test schedule. The LNTP allowed KI and their subcontractor Ansaldo STS to begin long lead segmental field testing of the Crenshaw line to prepare for the P3010 vehicle software upgrades.

**B. Cost/Price Analysis**

The recommended price has been determined to be fair and reasonable based upon cost analysis, an independent cost estimate, technical evaluation, and negotiations.

<b>Proposal Amount</b>	<b>Metro ICE</b>	<b>Negotiated Amount</b>
\$2,548,217.00	\$2,591,871.10	\$2,350,680.00

## CONTRACT MODIFICATION/CHANGE ORDER LOG

## P3010 LIGHT RAIL VEHICLES

Mod No.	Description	Status	Date	\$ Amount
N/A	Award Base Contract	Approved	8/2/2017	\$ 299,061,827.00
1	Modify SP-27 US Employment Plan, Section B – New FTE Positions	Executed	9/10/2012	\$ 0.00
2	Exercise Contract Option No. 1 for \$104,428,419 and Option No. 4 for \$261,893,225 and Period of Performance	Executed	8/14/2013	\$ 336,321,644.00
3	Revise Period of Performance to include 30 days retooling period after delivery of last car on prior order	Executed	9/23/2013	\$ 0.00
4	Modify applicable commercial Specs and Technical Specs for Request for Change No. 9 LED on Recording Cameras. Increase Contract Amount for the Base Buy by \$120,362.19	Executed	1/27/2014	\$ 120,362.19
5	Modify Applicable Commercial Specs and Technical Specs for Request for Change No.10 - Door Close Operator Alert. Increase Contract Amount for the Base Buy by \$74,763.06	Executed	1/28/2014	\$ 74,763.06
6	Modify Applicable Commercial Specs and Technical Specs for Request for Change No.11 Train Operator Log In. Increase Contract Amount for the Base Buy by \$253,955.52	Executed	6/24/2014	\$ 253,955.52
7	Modify Applicable Commercial and Technical specs for RFC No. 14 for revising car number to four digits	Executed	1/30/2014	\$ 0.00
8	Modify Applicable Commercial and Technical specs for RFC No. 1 for the addition of a backup train operator display	Executed	6/27/2014	\$ 861,695.00
9	Modify Applicable Commercial and Technical specs for RFC No. 8 Location for Emergency Tool Enclosures	Executed	7/7/2014	\$ 0.00
10	Deleted	Not Executed	7/18/2014	\$ 0.00
11	Exterior Rear View Mirrors	Executed	11/24/2014	\$ 677,317.00
12	Sandbox Location	Executed	12/10/2014	\$ 548,242.00
13	RFC No. 13 - Adding Graphic Display	Executed	1/16/2015	\$ 355,848.00



14	Revised Invoice Procedures	Executed	1/16/2014	\$ 0.00
15	RFC No. 2 - Exterior route signs with color ID	Executed	2/26/2015	\$ 1,206,791.85
16	RFC No. 6 - Interior Route Information Signs	Executed	4/3/2015	\$ 1,274,944.00
17	Escalation Increase in accordance with CP-09 entitled "Option Prices and Adjustment" for Option 1 and Option 4	Executed	5/13/2015	\$ 6,534,165.00
18	Exercise of Contract Options 2 and 3	Executed	5/20/2015	\$ 224,758,804
19	Addition of Interior Route Information Signs – Design Change	Executed	10/15/2015	\$ 169,146.00
20	Cab Console – Door Control	Executed	10/15/2015	\$ 194,439.00
21	Vehicle Scale Model	Executed	2/12/2016	-\$ 75,000.00
22	Escalation Increase in accordance with CP-09 entitled "Option Prices and Adjustment" for Option 2 and Option 3	Executed	3/21/2016	\$ 11,651,376.00
23	Transport of three LRVs (No. 1003, 1014, and 1016)	Executed	5/4/2016	\$ 30,647.00
24	Windshield wipers and brake cut out skirt openings	Executed	9/20/2016	\$ 248,892.03
25	Revision of SP-04 entitled "Approved Subcontractors and Suppliers" list	Executed	12/14/2016	\$ 0.00
26	Extension of Time Base Contract from 53 to 56 months	Executed	1/27/2017	\$ 0.00
27	Transport of 19 railcars from Monrovia to Green Line	Executed	6/28/2017	\$ 205,571.00
28	Modification of CP-02. Modification changes the percentage for the Conditional Acceptance and Final Acceptance Milestones	Executed	10/31/2017	\$ 0.00
29	Crenshaw Line Tie-In Support	Executed	2/7/2018	\$ 191,747.16
30	RFC #19 Reflective Labels for 78 Base LRVs	Executed	5/7/2018	\$ 609,974.61
31	Award RFC No. 1 for Addition of Train Operator, RFC No. 2 for Color Route ID, RFC No. 3 for Addition of exterior rear view mirrors, and RFC No. 6 for Interior route information signs	Executed	6/25/2018	\$5,687,691.00
32	Award RFC #7 for Sandbox Relocation and RFC #19 Reflective Labels, on 157 LRVs Option 1-4	Executed	6/28/2018	\$3,675,427.00
33	<b>Award RFC #11 for Train Operator Log-In and RFC# 13 for Graphic Design at ADA and Priority Seats on 157 LRVs, Options 1-4</b>	Executed	7/18/2018	\$913,473.00

34	Award RFC #23 for Car Paint on 78 Base Order LRV's and RFC #24 for Brake Cut-Out Skirt Opening on 157 LRVs, Options 1-4	Executed	7/26/2018	\$355,656.00
35	Award RFC #9 for LED's on Recording Camera's, RFC #10 for Door Close Operator, and RFC #22 for Windshield Wiper, on 157 LRV's, Options 1-4	Executed	8/8/2018	\$233,280.24
36	Replace existing 100% Performance Bond with a \$50 million Irrevocable Letter of Credit	Approved in September 2018 Board	Pending Execution	-\$4,386,957.00
37	Award RFC #28 for Crenshaw Final Cutover Software Updates	Recommended for Approval	TBD	\$2,350,680.00
	<b>Subtotal – Negotiated and In Process Changes</b>			\$924,106,402.01
	Subtotal – Negotiated and Recommended for Approval			\$0.00
	<b>Subtotal — Negotiated but Not Executed, Recommended Approval for CEO to negotiate and execute (Pending)</b>			\$2,350,680.00
	Total Estimated Modifications Including Pending Changes			\$622,693,895.01
	Prior CMA Authorized by the Board (CMA 10% of aggregate amount of original award plus Options 1-4)			\$89,014,227.10
	Increased CMA requested			\$0.00
	Total CMA including this action			\$15,778,586.01
	Remaining CMA for Future Changes			\$73,235,641.09

## DEOD SUMMARY

**P3010 LIGHT RAIL VEHICLE  
CRENSHAW FINAL CUTOVER ATC SOFTWARE UPDATES**

**A. Small Business Participation**

Kinkisharyo International, LLC is a Transit Vehicle Manufacturer (TVM) and is on the Federal Transit Administration's (FTA) list of eligible TVMs. Kinkisharyo reported that it submitted its overall Disadvantaged Business Enterprise (DBE) goal of 10% to FTA for Federal Fiscal Year 2019, in compliance with 49 Code of Federal Regulations (CFR) Section 26.49(a)(1). TVMs submit overall DBE goals and report participation directly to FTA annually.

**B. Living Wage and Service Contract Worker Retention Policy Applicability**

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

**C. Prevailing Wage Applicability**

Prevailing wage is not applicable to this Contract.

**D. United States Employment Plan Program**

United States Employment Plan (USEP) Program is applicable on this Contract. DEOD staff within V/CM has been monitoring progress on USEP commitments, including the contractual commitment in creating employment opportunities in the U.S. The Contractor Kinkisharyo has currently created over 600 new jobs nationwide to support this project, totaling \$101,822,155 in new wages and benefits. .

To date, Kinkisharyo has exceeded its USEP commitment in new wages and benefits.

USEP Commitment for Base + All Options	\$97,889,293.00
USEP Actuals to Date	\$101,822,155.49
Balance of USEP to be Attained	\$0.00

**E. Project Labor Agreement/Construction Careers Policy**

Project Labor Agreement/Construction Careers Policy (PLA/CCP) is not applicable to this Contract. PLA/CCP is applicable only to construction contracts that have a construction contract value in excess of \$2.5 million.

**Board Report**

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**File #:** 2018-0638, **File Type:** Contract**Agenda Number:** 27.

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**OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE  
NOVEMBER 15, 2018****SUBJECT: Q'POD ASSEMBLY KITS WITH CURB SIDE SEAT****ACTION: AWARD CONTRACT****RECOMMENDATION**

AUTHORIZE the chief Executive Officer to award a two-year, Indefinite Delivery, Indefinite Quantity Contract No. MA53850000 to Gillig LLC, for Kit - Q'Pod Assemblies with Passenger Curb Side Seats. The Contract has a first year amount of \$2,005,420, inclusive of sales tax, and a second year amount of \$2,005,420, inclusive of sales tax, for a total contract value of \$4,010,840, subject to resolution of protest(s), if any.

**ISSUE**

This procurement is for the acquisition of Q'Pod Wheelchair Securement Kits that include two Q'Pod units and one wall mounted flip seat per bus. The Q'POD's 3-point system and integrated restraints make securing wheelchair passengers quicker and easier than the current wheelchair securement systems. Award of this Contract will ensure that Bus Maintenance has adequate inventory to replace the current wheelchair securement systems with the Q'Pod's 3-point system during the bus midlife refurbishment.

**BACKGROUND**

The Central Maintenance Shop (CMS) will begin midlife refurbishments on the North American Bus Industries (NABI) 8500 series composite buses in the spring of 2019 and plans to install Q'Pod wheelchair securement kits and the wall mounted flip seat on all of these midlife buses. The Q'Pod wheelchair securement kits will be installed by Metro Mechanics at the CMS during the midlife refurbishment process.

**DISCUSSION**

The Q'Pod wheelchair securement 3-point technology provides one of the fastest ways to secure a wheelchair passenger. In addition, the Q'Pod's integrated stabilizing bumper acts as a 4th contact point, improving lateral stability and greatly reducing wheelchair tip-overs. All Q'Pod lap, shoulder, and self-tensioning rear belts are fully enclosed when not in use and located in easy-to-reach locations. The lap, shoulder, and rear belts are also precisely positioned for the proper wheelchair securement angles.

The contract to be awarded is a “requirements type” agreement in which we commit to order only from the awardee, up to the specified quantity for a specific duration of time, but there is no obligation or commitment for us to order any or all of the Q’Pod wheelchair securement kits that may be anticipated. The bid quantities are estimates only, with deliveries to be ordered and released as required. The Diversity and Economic Opportunity Department (DEOD) recommended a two percent (2%) DBE goal for this solicitation. The purchased Q’Pod wheelchair securement kits are installed by Metro Mechanics.

The Q’Pod wheelchair securement kits will be purchased and maintained in inventory and managed by Material Management. As the Q’Pod wheelchair securement kits are issued, the appropriate budget project numbers and accounts will be charged.

### **DETERMINATION OF SAFETY IMPACT**

Award of contract will ensure that the Central Maintenance Facility will have an adequate inventory of the Q’Pod wheelchair securement kits to replace the current wheelchair securement systems with the Q’Pod’s 3-point system during the bus midlife refurbishment.

### **FINANCIAL IMPACT**

The FY19 annual budget for the Q’Pod Wheelchair Securement Kit project is \$746,300 with \$253,948 for materials and \$492,352 in Labor under Cost Center 3366 in Central Maintenance, Account 50441, Parts - Revenue Vehicle and Project 203039 ADA Equipment Installation. The approved LOP is \$2,728,000. Additional expenditures related to the Q’Pod assembly kits with curb side seat contract award will be charged to project 203024 - Bus Midlife.

Since this is a multi-year contract, the cost center manager will be responsible for budgeting all forecasted project expenditures in future fiscal years.

#### **Impact to Budget**

The current source of funds for this action are Transportation Development Act (TDA). Use of this funding source maximizes allowable project funding allocations given established provisions and guidelines.

### **IMPLEMENTATION OF STRATEGIC PLAN GOALS**

The procurement of Q’Pod wheelchair securement kits supports Strategic Goal 1: Provide high-quality mobility options that enable people to spend less time traveling. The new Q’Pod wheelchair securement kits will allow wheelchair patrons to be secured more quickly, improve the reliability of the securement system, and ensure that our customers are able to arrive at their destinations without interruption and in accordance with the scheduled service intervals for Metro bus operations.

### **ALTERNATIVES CONSIDERED**

The alternative is to not award the Contract and procure the Q’Pod wheelchair securement kits on the open market on an as-needed basis. This approach is not recommended since it does not

provide a commitment from the supplier to ensure availability and price stability.

**NEXT STEPS**

Metro's requirements for the Q'Pod wheelchair securement kits will be fulfilled under the provisions of the Contract.

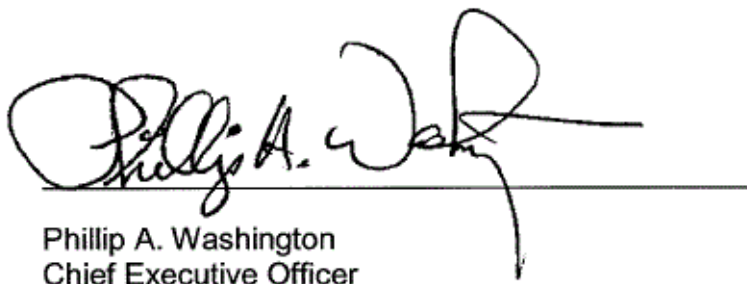
**ATTACHMENTS**

Attachment A - Procurement Summary

Attachment B - DEOD Summary

Prepared By: James D. Pachan, Superintendent of Maintenance, (213) 922-5804

Reviewed by: Debra Avila, Chief, Vendor/Contract Management (213) 922-6383  
James T. Gallagher, Chief Operations Officer (213) 922-4424



Phillip A. Washington  
Chief Executive Officer

## PROCUREMENT SUMMARY

## Q'POD ASSEMBLY KITS WITH CURB SIDE SEAT/MA53850000

1.	<b>Contract Number:</b> MA53850000	
2.	<b>Recommended Vendor:</b> Gillig, LLC, 25972 Eden Landing Road, Hayward, Ca 94545	
3.	<b>Type of Procurement (check one):</b> <input checked="" type="checkbox"/> IFB <input type="checkbox"/> RFP <input type="checkbox"/> RFP-A&E <input type="checkbox"/> Non-Competitive <input type="checkbox"/> Modification <input type="checkbox"/> Task Order	
4.	<b>Procurement Dates:</b>	
	A. Issued: 7-17-18	
	B. Advertised/Publicized: 7-27-18	
	C. Pre-proposal/Pre-Bid Conference: 7-31-18	
	D. Proposals/Bids Due: 8-31-18	
	E. Pre-Qualification Completed:	
	F. Conflict of Interest Form Submitted to Ethics: 9-13-18	
	G. Protest Period End Date: : 11-23-18	
5.	<b>Solicitations Picked up/Downloaded:</b> 6	<b>Bids/Proposals Received:</b> 2
6.	<b>Contract Administrator:</b> Juelene Close	<b>Telephone Number:</b> 213/922-1066
7.	<b>Project Manager:</b> James Pachan	<b>Telephone Number:</b> 213/922-5804

**A. Procurement Background**

This Board Action is to approve Contract No. MA53850000 issued for the procurement of Q'Pod Assembly Kits. Board approval of contract awards are subject to resolution of any properly submitted protest.

IFB No. MA53850 was issued in accordance with Metro's Acquisition Policy and the contract type is Indefinite Delivery, Indefinite Quantity (IDIQ).

One amendment was issued during the solicitation phase of this IFB:

- Amendment No. 1, issued on August 16, 2018, provided clarifications to the solicitation.

A total of two bids were received on August 31, 2018.

**B. Evaluation of Bids**

This procurement was conducted in accordance, and complies with Metro's Acquisition Policy for a competitive sealed bid. The two bids are listed below in alphabetical order:

1. Gillig, LLC

2. The Aftermarket Parts Company LLC (New Flyer Parts)

The above bidders were determined to be responsive and responsible, and in full compliance with the requirements of the IFB.

**C. Price Analysis**

The recommended bid price from Gillig LLC has been determined to be fair and reasonable based upon adequate price competition and selection of the lowest responsive and responsible bidder.

Low Bidder Name	Bid Amount	Metro ICE
Gillig, LLC	\$4,010,840	\$3,384,520
The Aftermarket parts Company LLC (New Flyer Parts)	\$5,857,812	

**D. Background on Recommended Contractor**

The recommended firm, Gillig, LLC, is located in Livermore, California and has been in business since 1890. Gillig has provided similar products for other public agencies including the Los Angeles International Airport (LAX), Dallas/Fort Worth International Airport (DFW), and Long Beach Transit. Gillig has provided satisfactory services and products to Metro on previous purchases.



## DEOD SUMMARY

## Q'POD ASSEMBLY KITS WITH CURB SIDE SEAT/MA53850000

**A. Small Business Participation**

The Diversity and Economic Opportunity Department (DEOD) established a 2% Disadvantaged Business Enterprise (DBE) goal for this solicitation. Gillig LLC exceeded the goal by making a 5.60% DBE commitment.

<b>Small Business Goal</b>	<b>2% DBE</b>	<b>Small Business Commitment</b>	<b>5.60% DBE</b>
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	<b>DBE Subcontractors</b>	<b>Ethnicity</b>	<b>% Committed</b>
1.	Say Cargo Express	Hispanic American	5.60%
<b>Total Commitment</b>			<b>5.60%</b>

**B. Living/Prevailing Wage and Service Contract Worker Retention Policy Applicability**

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

**C. Prevailing Wage Applicability**

Prevailing Wage is not applicable to this project.

**D. Project Labor Agreement/Construction Careers Policy**

Project Labor Agreement/Construction Careers Policy is not applicable to this Contract. Project Labor Agreement/Construction Careers Policy is applicable only to construction contracts that have a construction contract value in excess of \$2.5 million.

# Bus Q' Pods

# Q' Pods



# Q' Pods





## Board Report

**File #:** 2018-0710, **File Type:** Motion / Motion Response

**Agenda Number:** 28.

### OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE NOVEMBER 15, 2018

**SUBJECT: CRENSHAW/LAX - GREEN LINE OPERATING PLAN**

**ACTION: APPROVE RECOMMENDATION**

#### RECOMMENDATION

CONSIDER:

- A. APPROVING Alternative C-1 (Norwalk - Crenshaw/Expo, and Redondo Beach - Aviation/Century) as the preferred service plan for Crenshaw/LAX - Green Line; and
- B. DIRECTING the CEO to reevaluate the service plan one year prior to the opening of the Green Line extension to Torrance to determine if travel patterns and other relevant factors show a need for a change in service pattern.

#### ISSUE

On June 28, 2018, the Board of Directors (Board) approved Motion 40.1 by Directors Hahn, Butts, and Fasana (Attachment A), requesting staff to:

- Expand ridership estimates to include projected Green Line extension to Torrance;
- Add a third scenario that gives both ends of the Green Line a one-seat ride to the Expo Line; and
- Explain the pros and cons of each scenario and conduct a robust public engagement campaign with local cities, COGs, and the community.

Eleven alternative service plans were evaluated (Attachment B) and reviewed through the public engagement process. Based on stakeholder and public input, the two alternatives that surfaced with most support are:

- Alt C-1: trains every 6 minutes (peak) between Norwalk Station (Green Line) and Expo/Crenshaw, and trains every 6 minutes (peak) between Redondo Beach (Green Line) and Century/Aviation Station.

- Alt C-3: trains every 6 minutes (peak) between Norwalk Station (Green Line) and Expo/Crenshaw, and trains every 6 minutes (peak) between Willowbrook/Rosa Parks Station and Redondo Beach.

The staff recommendation is Alt C-1 for the following reasons:

- Connections to LAX from all directions - LAX is the fifth busiest airport in the world and third busiest in the US. In addition, LAX and the surrounding area generates 620,610 local jobs according to LAEDC (April 2016). Alt C-1 provides a direct connection from all three segments to and from the LAX area, while Alt C-3 eliminates direct service from South Bay.
- Special event service to the new Inglewood NFL Stadium - The new Inglewood Stadium will be a significant regional and national sports venue when completed in 2020. With 22+ NFL games per year, and major sporting events including the Super Bowl (2022), College Football National Championship (2023), FIFA World Cup (2026), and the Olympics and Paralympics Games (2028), it is imperative that convenient and direct connections are provided from all three directions of the Crenshaw/Green Line and the Downtown Inglewood Station on game days. Alt C-1 provides the opportunity to extend South Bay trains from the LAX station to Downtown Inglewood Station to support special events. However, South Bay would not have direct service to the Downtown Inglewood Station in Alt C-3 as South Bay trains would be headed east along the Green Line and not north along Crenshaw.
- New opportunities for South Bay residents - The cell phone location-based data confirmed that the predominant travel pattern of South Bay residents is north/south along the I-405 corridor. Alt C-3 continues the current east/west alignment for South Bay residents, and therefore does not serve their travel pattern. Alt C-1, however, provides a new opportunity to travel north/south from South Bay. Coupled with frequent bus connections at LAX north along the Sepulveda and Lincoln Blvd corridors, South Bay residents will have a new and competitive transit option to their primary travel destinations.
- Providing adequate capacity to meet demand - Alt C-1 matches train capacity to current and anticipated demand, and provides opportunities for capacity increases from 2 to 3 car trains along Crenshaw/LAX when ridership increases or to serve special events. Alt C-3, however, overserves the I-105 corridor of the Green Line between Aviation/Imperial and Willowbrook/Rosa Parks Stations by increasing service along this segment from 6 minute peak and 15 minute midday frequencies to 3 minute peak and 6 minute midday. This increased service is unwarranted and will cost \$10 million additional compared to Alt C-1. Alt C-1 requires 53 cars (peak requirement + spares) and 195,000 annual revenue vehicle hours to operate. At a marginal cost per revenue vehicle hour of \$395, the annual operating cost is \$77 million. Alt C-3 requires 60 cars (peak requirement + spares) and 221,000 annual revenue vehicle hours to operate. At a marginal cost per revenue vehicle hour of \$395, the annual operating cost is \$87 million. The \$395 cost per revenue vehicle hour consists of transportation (operators, supervisors, etc.), maintenance (vehicles, systems, right of way, etc), and other operating costs (security, utilities, etc.), minus support department costs,

including procurement, human resources, ITS, etc.

- In addition, with 2 car trains running every 3 minutes, there will not be sufficient traction power to increase service along the Crenshaw/LAX corridor from 2 to 3 car trains when needed. This means service will be capped at two thirds of design capacity on the Crenshaw corridor.

This report provides a more detailed response to the Motion and recommends Alt C-1 as the preferred Crenshaw/LAX - Green Line service plan based on the technical evaluation and public engagement process.

## **BACKGROUND**

The Crenshaw/LAX Transit Project, currently under construction, is 85% complete. Unlike the recent Gold Line Foothill and Expo Line Santa Monica extensions in which case the rail line was further extended from the end of the line, the Crenshaw/LAX Line will connect with the Green Line at a mid-line location between Mariposa and Aviation Stations. Therefore, operations of both the Green and Crenshaw/LAX Lines must be planned as an integrated network vs. an extension of an existing line.

## **DISCUSSION**

The opening of this new rail network will provide three potential directions for trains to operate.

- Between Norwalk Station and Redondo Beach Station (existing Green Line)
- Between Expo/Crenshaw Station and Norwalk Station
- Between Expo/Crenshaw Station and Redondo Beach Station

When accounting for both directions, the above three service patterns result in six potential train movements through the wye junction connecting the two lines.

There are several constraints at the junction that control the frequency and direction of train travel.

- Conflicting Moves - The wye junction where the Crenshaw/LAX Line meets the Green Line is a flat junction that only allows for certain train movements within each cycle. Like a street traffic intersection, a left-hand turn cannot be permitted while oncoming through traffic is moving. Three of the six train movements cannot be made concurrently due to this conflict: 1) Redondo Beach to Expo/Crenshaw, 2) Expo/Crenshaw to Norwalk, and 3) Norwalk to Redondo Beach. Therefore, any service plan requiring all three of these moves will result in at least three different phases of movements within each headway cycle (e.g. three phases within six minutes for a six-minute headway.)
- Traction Power - Traction power between the future 96<sup>th</sup> St/LAX Station and Expo/Crenshaw can support headways of up to 5 minutes per direction. Therefore, operating from both ends of the Green Line to the Expo/Crenshaw Station would result in trains every 10 minutes per branch, at best. Current Green Line service operates every 6 minutes during rush hour to accommodate the peak commute crowds.

Given these operating constraints, Metro evaluated 11 alternative service plans, as presented in Attachment B, based on the following criteria:

- Connection to LAX
- Current travel patterns
- Overall travel time for each of the six terminal-to-terminal moves
- Ridership demand for each of the three segments
- Consistent headways
- Network simplicity
- Annual Operating Cost

### **Motion 40.1 Response**

#### Include Torrance Extension in Ridership Estimation

The Green Line currently carries about 33,000 average weekday boardings, with roughly 25,500 boardings on the segment along I-105 between Norwalk and Aviation, and about 7,500 on the Redondo Beach - Aviation segment. The Crenshaw/LAX and Airport Metro Connector is expected to carry an additional 16,400 new boardings along the extension.

Future ridership will include the Green Line Extension to Torrance anticipated in 2028. This segment plus the current Redondo Beach demand is expected to generate about 16,300 boardings, matching the ridership projections of the Crenshaw/LAX segment. Therefore, the service plan should be revisited at least one year prior to the Torrance Extension opening to determine if travel patterns and other relevant factors show a need to change the service plan.

Adjusting the operating plan of a rail line when demand changes is consistent with past practice. For example, the operating plan for the Gold Line Foothill Extension to Azusa was changed from every other train serving the extension on a 12 minute frequency from Sierra Madre Villa Station to every train serving Azusa on a 7 minute frequency. This change was made to accommodate the specific ridership patterns between Azusa and Old Town Pasadena, as well as increased demand along the extension.

#### Add a third scenario giving both ends of the Green Line a one-seat ride to the Expo Line

Staff developed two alternatives that address the Motion's directive. Alt D1: Operate trains from Norwalk and Redondo Beach to LAX every 6 minutes with every other train from each line extended to Expo/Crenshaw, and Alt D-2: Operate trains between Norwalk-Expo/Crenshaw and Redondo Beach - Expo/Crenshaw every 10 minutes. Please refer to Attachment B, for an illustration of the two additional alternatives.

Alt D1 is not recommended as the headways (spacing between trains) are uneven along the Green Line segments due to the conflicts at the junction as well as different running times along each of the three segments. The resulting headways would be a train every 9 minutes, then 3 minutes, then 9



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minutes, etc. on the Redondo Beach and Norwalk/I-105 segments. This uneven headway will result in overcrowding followed by an underutilized train as well as inconsistent headways for transfers to and from the Blue Line.

Alt D-2 is also not recommended. Since the closest headway along Crenshaw is a train every 5 minutes, there can only be a train every 10 minutes each from Norwalk and Redondo Beach. Current peak demand on the Green Line requires a train every 6 minutes, so 10 minute service will result in severe overcrowding and pass ups.

During the public outreach efforts, South Bay Cities Council of Governments (SBCCOG), requested that a rail engineering consultant be retained to further evaluate the impacts of various train movements through the junction. Therefore, a task order was issued to Program Management's engineering bench to develop a rail simulation model to test the operational resilience and service regularity of each given the junction, traction power, and street running traffic signal phasing constraints along Crenshaw Blvd. Five operating scenarios that represent all possible movements through the junction were chosen to be tested, including:

- Alt C-1  
This recommended alternative proposes trains every 6 minutes (peak) between Norwalk Station (Green Line) and Expo/Crenshaw, and trains every 6 minutes (peak) between Redondo Beach (Green Line) and Century/Aviation Station.
- Alt C-2  
This alternative swaps the service patterns for trains every 6 minutes (peak) between Redondo Beach (Green Line) and Expo/Crenshaw, and trains every 6 minutes (peak) between Norwalk (Green Line) and Century/Aviation Station.
- Alt C-3  
This alternative proposes trains every 6 minutes (peak) between Norwalk Station (Green Line) and Expo/Crenshaw, and trains every 6 minutes (peak) between Willowbrook/Rosa Parks Station and Redondo Beach.
- Alt C-4  
This alternative proposes trains every 6 minutes (peak) between Norwalk and Redondo Beach Station (existing Green Line), and trains every 6 minutes (peak) between Willowbrook/Rosa Parks (Green Line) and Expo/Crenshaw Station.
- Alt D-2  
This alternative proposes trains every 6 minutes (peak) between Norwalk Station (Green Line) and Century/Aviation Station, then every 12 minutes (peak) to Expo/Crenshaw, and trains every 6 minutes (peak) between Redondo Beach (Green Line) and Century/Aviation Station, then every 12 minutes (peak) to Expo/Crenshaw. This means every other train from Norwalk or Redondo Beach would terminate at Century/Aviation Station.

These simulations provide an animated visualization of train movements along the entire network for a one hour peak period. Within the visualizations, one can see potential conflicts at the junction for

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Alt B-1, B-2, and D-1 which, combined with different running times on each segment, results in uneven spacing between trains of 3 and 9 minutes along each of the Green Line segments. These simulation results were used to illustrate the complexity of the Crenshaw/LAX-Green Line operations during stakeholder and public engagement.

### Public Engagement

Metro reviewed the various alternatives, including pros and cons of each, at several stakeholder outreach meetings and events, and working closely with the COGs, Regional Service Councils, and the local community. Meetings were conducted as follows:

#### Councils of Government

- Thursday, July 26 - South Bay COG Transportation Committee
- Monday, August 13 - South Bay COG Transportation Committee
- Wednesday, September 5 - Gateway Cities COG Transportation Committee and Board Meeting
- Thursday, September 20 - Westside COG Board Meeting
- Thursday, September 27 - South Bay COG Board Meeting
- Monday, October 8 - South Bay COG Transportation Committee

#### Regional Service Councils

- Wednesday, September 12 - Westside/Central Service Council
- Thursday, September 13 - Gateway Cities Service Council
- Friday, September 14 - South Bay Service Council

#### Community

- Tuesday, September 25 - Crenshaw Community Leadership Council (CLC) (Inglewood Public Library)
- Monday, September 17 - Public Meeting (Gateway Council of Governments)
- Thursday, September 20 - Public Meeting (The Proud Bird - 11022 Aviation Blvd)
- Wednesday, September 26 - Public Meeting (Baldwin Hills Crenshaw Mall)

In addition to these meetings staff met and briefed the offices of Los Angeles Councilmembers Wesson and Harris-Dawson, Westchester Neighborhood Council, LAX Coastal Chamber, Gateway LA Business Improvement District, and the North Redondo Beach Merchants Association.

Comments and recommendations varied widely depending on the groups represented. In general, constituents along the Crenshaw corridor favor staff's recommendation of Alt C-1 given the travel patterns of the vast majority of Green Line riders as well as potential new riders identified through cell phone based travel demand data. Gateway Cities stakeholders also agree with alternatives that connect the Norwalk/I-105 segment of the Green Line with the Crenshaw corridor, including Alt C-3 and staff's recommended Alt C-1. South Bay stakeholders prefer any alternative that preserves service for current Green Line riders and provides a fast service between the South Bay and Downtown LA via direct connections to the Silver and Blue Lines. This service would essentially help to augment LADOT's Commuter Express Line 438 between South Bay and Downtown LA, which only operates during the peak hours in the peak direction. Below is specific feedback received by

each of the groups.

#### South Bay Cities COG (SBCCOG)

- Overall, the SBCCOG agree that the Metro Board should approve a preferred alternative that maintains enough capacity to accommodate existing Green Line demand. They also believe that the Board should select an operating plan that meets the demand and travel patterns existing today, but that the plan should be revisited if demand changes such as with the Green Line Torrance Extension.
- Specific to South Bay, they are concerned that without a major line operating out of Redondo Beach, ridership will not increase along their segment. There was also significant discussion about the need for fast service all day between the South Bay and downtown LA, and several members mentioned LADOT's Commuter Express Line 438 as being the ideal service for them. The only drawback to Line 438 currently is the limited span of service (peak hour only).
- The SBCCOG prefers the following alternatives, in priority order:
  1. C-5 (Redondo Beach - Norwalk, and Redondo Beach - Expo/Crenshaw)
  2. C-4 (Redondo Beach - Norwalk, and Willowbrook/Rosa Parks - Expo/Crenshaw)
  3. C-3 (Redondo Beach - Willowbrook/Rosa Parks, and Norwalk - Expo/Crenshaw)

In addition, SBCCOG wanted to continue to explore opportunities to address the junction conflicts and uneven headways of B-2.

#### Gateway Cities COG (GCCOG)

- GCCOG selected the following as their preferred alternatives, in priority order:
  1. C-3 (Redondo Beach - Willowbrook/Rosa Parks, and Norwalk - Expo/Crenshaw). *Note that this option is only preferred if Metro will commit to maintaining 6 minute frequencies on both lines. This would result in over-service of the segment between Aviation Station and Willowbrook/Rosa Parks Station with trains every 3 min during the peak period compared to the current 6 minute frequency. If service along this segment is reduced to the current 6 minute frequency, GCCOG prefers Alt C-1.*
  2. C-1 (Norwalk - Expo/Crenshaw, Redondo Beach - LAX)

#### Regional Service Councils

- While this item was a receive and file at the service council meetings, Gateway Cities Service Council members prefer the staff recommendation of Alt. C-1.

- South Bay Service Council discussed this item and took public comment. There was no consensus on a preferred alignment.
- Westside Central Service Council had little comment on the operating plan.

### Public Meetings

- The Crenshaw Community Leadership Council agreed that the staff recommended Alt C-1 is the preferred operating plan given current ridership patterns from the Green Line Norwalk/I-105 segment and the fact that most people travelling from the South Bay are destined along the I-405 corridor which is west of the Crenshaw Line.
- Comments at the Baldwin Hills Crenshaw Mall focused on bus service within the Crenshaw area rather than the rail operating plan.
- While GCCOG members reiterated their adopted recommendations at the public meeting held in Paramount, the general sentiment of the public participants was in favor of C-1.
- Comments at the Proud Bird public meeting favored alternatives that provided service between Redondo Beach and Expo/Crenshaw or direct connections between Redondo Beach and the Silver or Blue Lines for fast service into Downtown LA.
- Oral comments were provided by the public and recorded on tape. Six written comments were submitted for the public record.

### **Recommendation**

Attachment C provides a comparison of the 6 alternatives that were selected by stakeholders for final consideration. Based on stakeholder and public input, the two alternatives that surfaced with most support are:

- Alt C-1: trains every 6 minutes (peak) between Norwalk Station (Green Line) and Expo/Crenshaw, and trains every 6 minutes (peak) between Redondo Beach (Green Line) and Century/Aviation Station.
- Alt C-3: trains every 6 minutes (peak) between Norwalk Station (Green Line) and Expo/Crenshaw, and trains every 6 minutes (peak) between Willowbrook/Rosa Parks Station and Redondo Beach.

Both of these alternatives match the current travel patterns of the majority of Green Line riders as well as expected future ridership based on the cell phone travel demand data. As seen from the cell phone based travel demand data shown in Attachment B, people travelling from the I-105 corridor are

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destined to many places that the Crenshaw Line will service. In contrast, people travelling from the El Segundo area are destined to places north and south along the I-405 corridor. Therefore, potential new ridership along the Crenshaw corridor would be expected from the I-105 corridor and not from El Segundo. However, 3,400 current Green Line riders who are destined to the Redondo Beach segment will incur a 7 minute transfer penalty under Alt C-1. This transfer is similar to the Blue - Expo Line transfer at Pico Station which requires 9 minutes (3 min from junction to Pico Station, 3 min transfer, 3 min from Pico Station to junction).

The tradeoff for the transfer penalty is that Alt C-1 provides direct connections to LAX and the future 96<sup>th</sup> Street Station from all three terminals, while Alt C-3 does not serve LAX/96<sup>th</sup> Street north of the new AMC/LAX Station directly from the Redondo Beach segment, reducing access to LAX and employment around the airport from the South Bay. In addition, it would limit the ability to provide weekend special event service directly from the South Bay to the new NFL stadium via the Downtown Inglewood Station since there would not be a train route from the Redondo Beach segment that could be extended north from LAX to Downtown Inglewood on game days. (Of note, due to the junction and traction power constraints identified above, it is not feasible to run every day service between the South Bay and Downtown Inglewood Station under Alt C-1).

The cell phone location-based data also confirms that the predominant travel pattern of South Bay residents is north/south along the I-405 corridor. Alt C-3 continues the current east/west alignment for South Bay residents, and therefore does not serve their travel pattern. Alt C-1, however, provides a new opportunity to travel north/south from South Bay. Coupled with frequent bus connections at LAX north along the Sepulveda and Lincoln Blvd corridors, South Bay residents will have a competitive transit option to their primary travel destinations.

Finally, C-3 overserves the 8 mile segment of the Green Line between Aviation Station and Willowbrook/Rosa Parks Station. Currently this segment of the Green Line operates every 6 minutes during peak hours and 15 minutes during midday using 2-car trains. This amount of capacity is sufficient to accommodate demand. C-3 would increase service along this segment to every 3 minutes during the peak and 6 minutes during midday. As a result, this corridor would be greatly overserved at an additional cost of \$10 million per year compared to Alt C-1. Alt C-1 requires 53 cars (peak requirement + spares) and 195,000 annual revenue vehicle hours to operate. At a marginal cost per revenue vehicle hour of \$395, the annual operating cost is \$77 million. Alt C-3 requires 60 cars (peak requirement + spares) and 221,000 annual revenue vehicle hours to operate. At a marginal cost per revenue vehicle hour of \$395, the annual operating cost is \$87 million. The \$395 cost per revenue vehicle hour consists of transportation (operators, supervisors, etc.), maintenance (vehicles, systems, right of way, etc), and other operating costs (security, utilities, etc.), minus support department costs, including procurement, human resources, ITS, etc.

In addition, with 2 car trains running every 3 minutes, there will not be sufficient traction power to increase service along the Crenshaw/LAX corridor from 2 to 3 car trains when needed. This means service will be capped at two thirds of design capacity on the Crenshaw corridor. Given the evaluation criteria, rail operations simulation, and public engagement results, staff recommends Alt C-1 as the preferred operations plan for initial revenue service of the Crenshaw/LAX - Green Line network.

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## **DETERMINATION OF SAFETY IMPACT**

The recommended action of Alt C-1 will improve the implementation of the Crenshaw/LAX Line by simplifying the operating plan and enhance Metro's ability to provide service that is safe and reliable.

## **FINANCIAL IMPACT**

The operating cost for the Crenshaw/LAX and Green Line rail service will be approved through the FY20 budget process.

## **IMPLEMENTATION OF STRATEGIC PLAN GOALS**

Approval of this recommendation supports several following Metro Strategic Plan Goals:

1. Provide high-quality mobility options that enable people to spend less time travelling
2. Deliver outstanding trip experience for all users of the transportation system
3. Enhance communities and lives through mobility and access to opportunity

## **ALTERNATIVES CONSIDERED**

The remaining scenarios could be considered for the Crenshaw/LAX operating plan. However, staff does not recommend this approach. Staff asserts that there are distinct advantages to Alt C-1. Pursuing other alternatives could lead to significant overcrowding for today's customers, underutilized trains in other areas, poor transfer connectivity to the overall Metro system, and potentially negative impacts to the Blue and Expo Lines.

## **NEXT STEPS**

Staff will continue public outreach on the Crenshaw/LAX Line and update information, including station signage and maps, to match the recommended operating plan.

## **ATTACHMENTS**

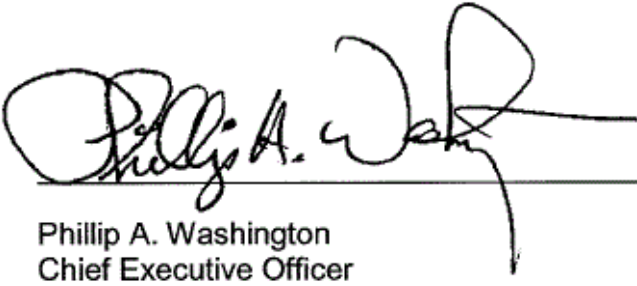
Attachment A - Motion 40.1 - Crenshaw/Green Line Operating Plan

Attachment B - Crenshaw/LAX - Green Line Alternative Service Plan Evaluation

Attachment C - Comparison of Final 6 Operating Alternatives

Prepared by: Stephen Tu, Senior Manager, Operations, (213) 418-3005  
Conan Cheung, Senior Executive Officer, (213) 418-3034

Reviewed by: James T. Gallagher, Chief Operations Officer, (213) 418-3108



Phillip A. Washington  
Chief Executive Officer

**Motion 40.1:**

**DIRECTOR HAHN, DIRECTOR BUTTS, DIRECTOR FASANA**

**Related to Item 40: CRENSHAW/LAX SERVICE PLAN AND BUS/RAIL  
INTERFACE AND PLAN**

WE THEREFORE MOVE THAT THE CEO:

Direct Metro staff to report back on the following:

- A. To expand the ridership and travel pattern study to include the ridership versus the boarding numbers from Norwalk as well as the ridership projected from the Green Line extension to Torrance.
- B. To add a third scenario to the service plan that gives both ends of the Green Line a one-seat ride to the Expo Line.
- C. To clearly explain all the pros and cons of each scenario and to have a robust public engagement with the local cities, the COG, and the community, in order to give the opportunity for the public to know the good and bad of each option.
- D. To return to the board in September with the recommended plan for Board approval.



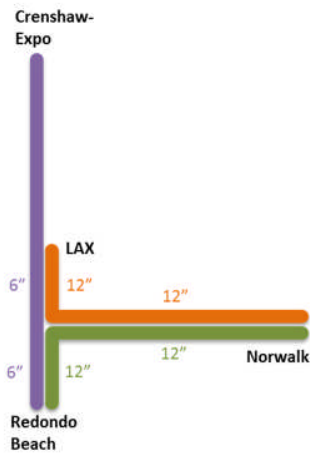
## CRENSHAW/LAX – GREEN LINE ALTERNATIVE SERVICE PLAN EVALUATION

The Crenshaw/LAX Line will be connected to the existing Green Line mid-line between Mariposa and Aviation Stations. The opening of this new rail network will provide three potential directions for trains to operate.

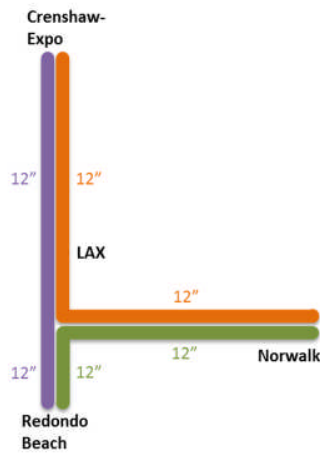
- Between Norwalk Station and Redondo Beach Station (existing Green Line)
- Between Expo/Crenshaw Station and Norwalk Station
- Between Expo/Crenshaw Station and Redondo Beach Station

Based on these train moves, 11 alternative service plans were developed, including:

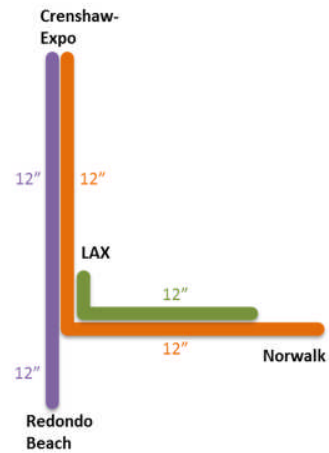
Alt B-1: Crenshaw/Redondo Green Line Branch



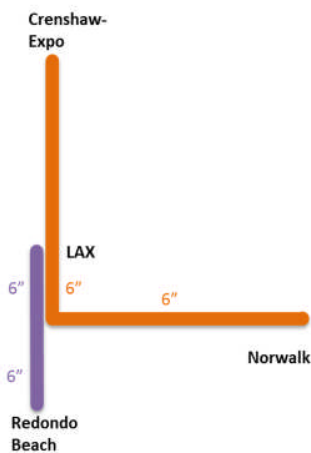
Alt B-2: Crenshaw/Green Line Branch



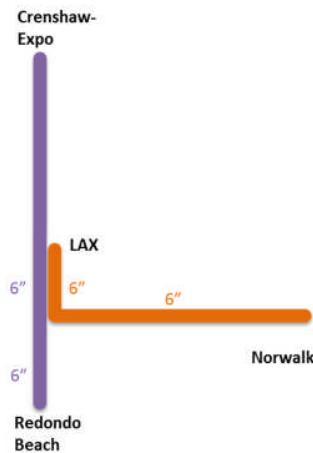
Alt B-3: Willowbrook/RP – Century/Aviation Shortline



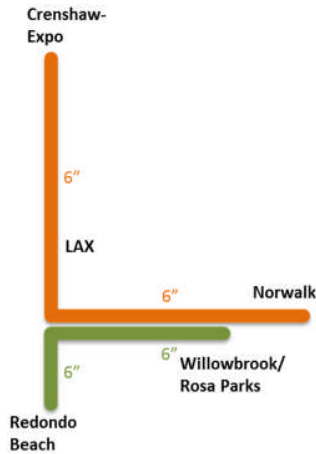
Alt C-1: Crenshaw/Norwalk Interline with Redondo Shuttle



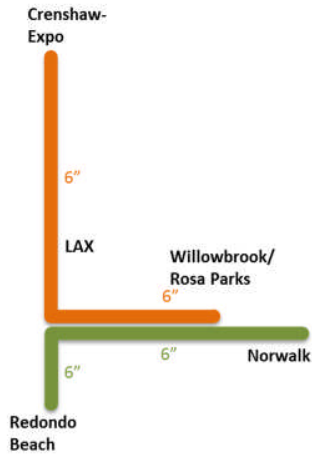
Alt C-2: Crenshaw/Redondo Interline, Norwalk Shortline



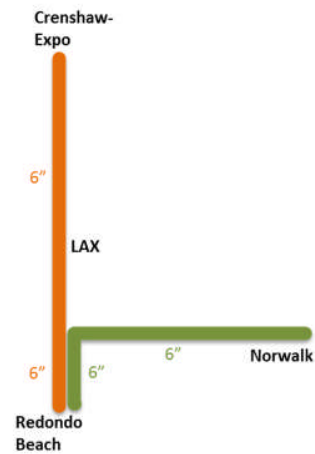
Alt C-3: Green Line shortline, Crenshaw to Norwalk



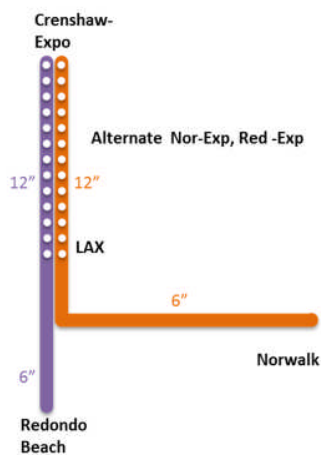
Alt C-4: Green Line, Crenshaw To Willowbrook/Rosa Parks



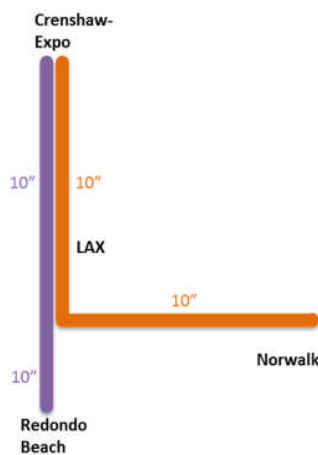
Alt C-5: Green Line, Crenshaw To Redondo Beach



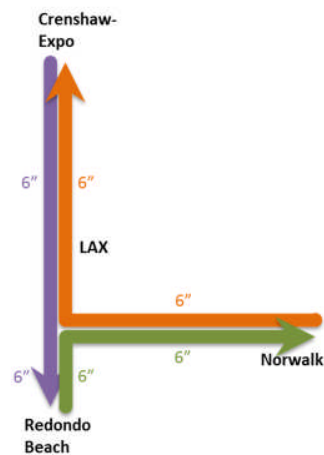
Alt D-1: Alternate Norwalk/ Crenshaw, Redondo/Crenshaw



Alt D-2: Alternate Norwalk/ Crenshaw, Redondo/Crenshaw



Alt D-3: One Way Operations



Each alternative service plan was evaluated using the following criteria:

- Connection to LAX

One primary goal of the Crenshaw/LAX Transit Project is to provide connectivity to LAX. Most bus connections, including the LAX Airport G Shuttle, will move from the current Aviation Station to the new Aviation/Century Station once Crenshaw/LAX opens. Therefore, the preferred service concept should ensure that a direct connection is provided between each of the three segments and the Aviation/Century and future 96th Street/AMC Station. Eight of the 11 alternatives achieve this criterion, including B-1, B-2, B-3, C-1, C-2, D-1, D-2, D-3.

- Current travel patterns – Figure 1-2 show the destinations of customers using the Green Line from each of the two segments (Norwalk – Aviation and Mariposa – Redondo Beach) based on TAP data. As shown in Figure 1, customers travelling along the Norwalk/I-105 Freeway segment are largely destined to central/south/southeast and downtown LA, along the Crenshaw Line corridor, and west along the Wilshire Corridor towards Santa Monica.

Figure 1  
Transit Destinations from Norwalk/I-105 Freeway Segment

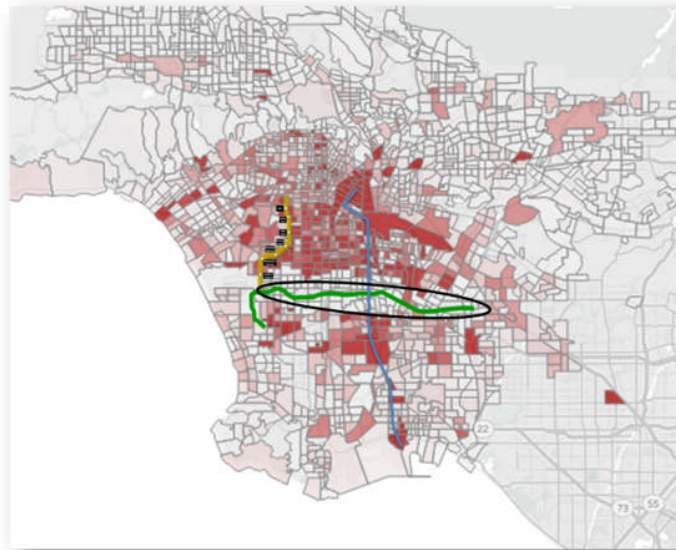
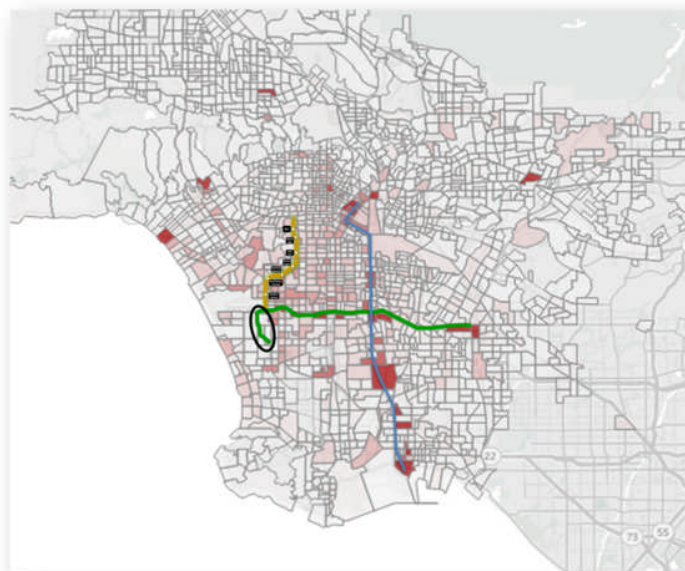


Figure 2  
Transit Destinations from Redondo Beach Segment



Customers boarding the Green Line along the Redondo Beach segment are largely travelling to destinations along the Blue Line. These are generally return trips for people working in the El Segundo business district.

Using Location Based Data from mobile devices, destinations of people travelling from a 1-mile buffer around the Norwalk/I-105 Freeway segment show similar results to the TAP data with more penetration south of the Green Line (Figure 3).

Figure 3  
All Travel Destinations from Norwalk/I-105 Freeway Segment

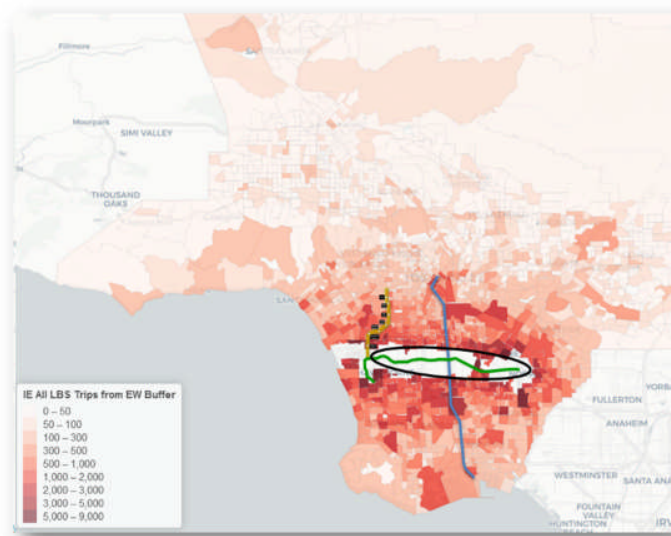
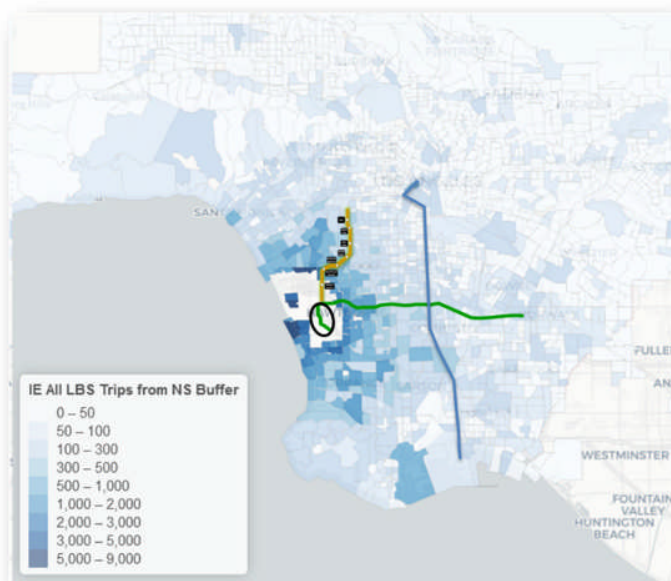


Figure 4  
All Travel Destinations from Redondo Beach Segment



Conversely, people starting their trips within a mile of the Redondo Beach segment are largely destined north and south along the I-405 corridor, and not east into the Crenshaw corridor nor the Green Line I-105 segment.

- Overall travel time for each of the six terminal-to-terminal moves

With the operating constraints from traction power and the wye junction, all scenarios have tradeoffs between providing one seat rides to and from all three terminals and frequency of service. If a transfer is required, the impact ranges between 3 and 7 minutes during the peak periods compared to a one seat ride. Transfers are required for some trips in all alternatives except for B-2. While B-2 provides a one seat ride to and from all three terminals, frequencies are reduced by 50% on each route from 6 to 12 minutes. Therefore, average wait time doubles from 3 to 6 minutes during the peak periods.

Based on the current Green Line travel demand, transfers between Norwalk and Expo/Crenshaw are likely to impact the most customers. Therefore, C-1 and C-3 provide the best overall travel time to the greatest number of customers with a 6 minute frequency and one seat ride between Norwalk and Expo/Crenshaw.

- Ridership demand for each of the three segments

It is important to consider current and future ridership along each of the three segments of the network to ensure that the appropriate capacity is provided to match demand. The Green Line currently carries about 33,000 average weekday boardings, with roughly 25,500 boardings on the I-105 Freeway segment between Norwalk and Aviation, and about 7,500 on the Redondo Beach – Aviation segment. The Crenshaw/LAX and Airport Metro Connector is expected to carry an additional 16,400 new boardings along the extension.

In addition, there is significant transfer activity currently occurring between the Green Line and major north/south bus corridors, such as Crenshaw BI, Hawthorne BI, and Vermont Av. Therefore, it is anticipated that many Green Line customers will migrate from these bus corridors to the Crenshaw/LAX Line, as experienced on the Expo Line from parallel bus services such as Wilshire BI, Olympic BI and Venice BI.

Future ridership will include the Green Line Extension to Torrance anticipated in 2028. This segment plus the current Redondo Beach demand is expected to generate about 16,300 boardings, matching the ridership projections of the Crenshaw/LAX segment. Therefore, the service plan should be revisited at least one year prior to the Torrance Extension opening to determine if travel patterns and other relevant factors show a need for a change in the service plan.

- Consistent Headways

To ensure that customers have an even level of service along the entire Crenshaw/LAX – Green Line network, and passenger loads are even from train to train, both directions of each segment should operate at a consistent frequency. Service is anticipated to begin in the Fall of 2019 with 6 minute peak hour frequencies on all segments with a maximum design frequency of 5 minutes. This frequency is also consistent with the Blue and Expo Lines, ensuring transfer loads are balanced between all three rail lines.

All alternatives provide consistent headways except for B1, B-2, and D-1.

- Network Simplicity

Simplifying the network makes the rail service more intuitive and easy to navigate. Fewer variations in routing and frequencies reduce confusion and requires less pre-planning by the customer before making the trip. This is especially beneficial for airport service as some customers will be first time riders and many from different parts of the world. Alternatives C-1, C-2, C-3, C-4, C-5, and D-2 are the easiest to navigate given their consistent routing and headways.

CRENSHAW/LAX – GREEN LINE  
FINAL 6 OPERATING SCENARIOS

ATTACHMENT C

Alternatives	Direct connection to LAX from all three terminals	Service on each segment matches ridership demand	Routing matches where most people want to go	Even spacing between trains	Minimize wait times and transfers				Network is easy to understand	Operating Cost/Year																													
					Origin	Destination	Avg Wait	Xfer Cost																															
<p>B-2</p>					<p>Uneven frequencies on Green Line segments. Does not match Blue Line frequencies.</p> <table border="1"> <thead> <tr> <th>Origin</th> <th>Destination</th> <th>Avg Wait</th> <th>Xfer Cost</th> </tr> </thead> <tbody> <tr> <td>Norwalk</td> <td>Expo/Crenshaw</td> <td>6 min</td> <td></td> </tr> <tr> <td>Norwalk</td> <td>Redondo Beach</td> <td>6 min</td> <td></td> </tr> <tr> <td>Expo/Crenshaw</td> <td>Norwalk</td> <td>6 min</td> <td></td> </tr> <tr> <td>Expo/Crenshaw</td> <td>Redondo Beach</td> <td>6 min</td> <td></td> </tr> <tr> <td>Redondo Beach</td> <td>Norwalk</td> <td>6 min</td> <td></td> </tr> <tr> <td>Redondo Beach</td> <td>Expo/Crenshaw</td> <td>6 min</td> <td></td> </tr> </tbody> </table>				Origin	Destination	Avg Wait	Xfer Cost	Norwalk	Expo/Crenshaw	6 min		Norwalk	Redondo Beach	6 min		Expo/Crenshaw	Norwalk	6 min		Expo/Crenshaw	Redondo Beach	6 min		Redondo Beach	Norwalk	6 min		Redondo Beach	Expo/Crenshaw	6 min				\$93.5M
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**ITEM 28**

# **CRENSHAW/GREEN LINE OPERATING PLAN**

**Expo/Crenshaw Station**

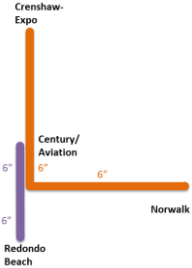









**DECEMBER 6, 2018**



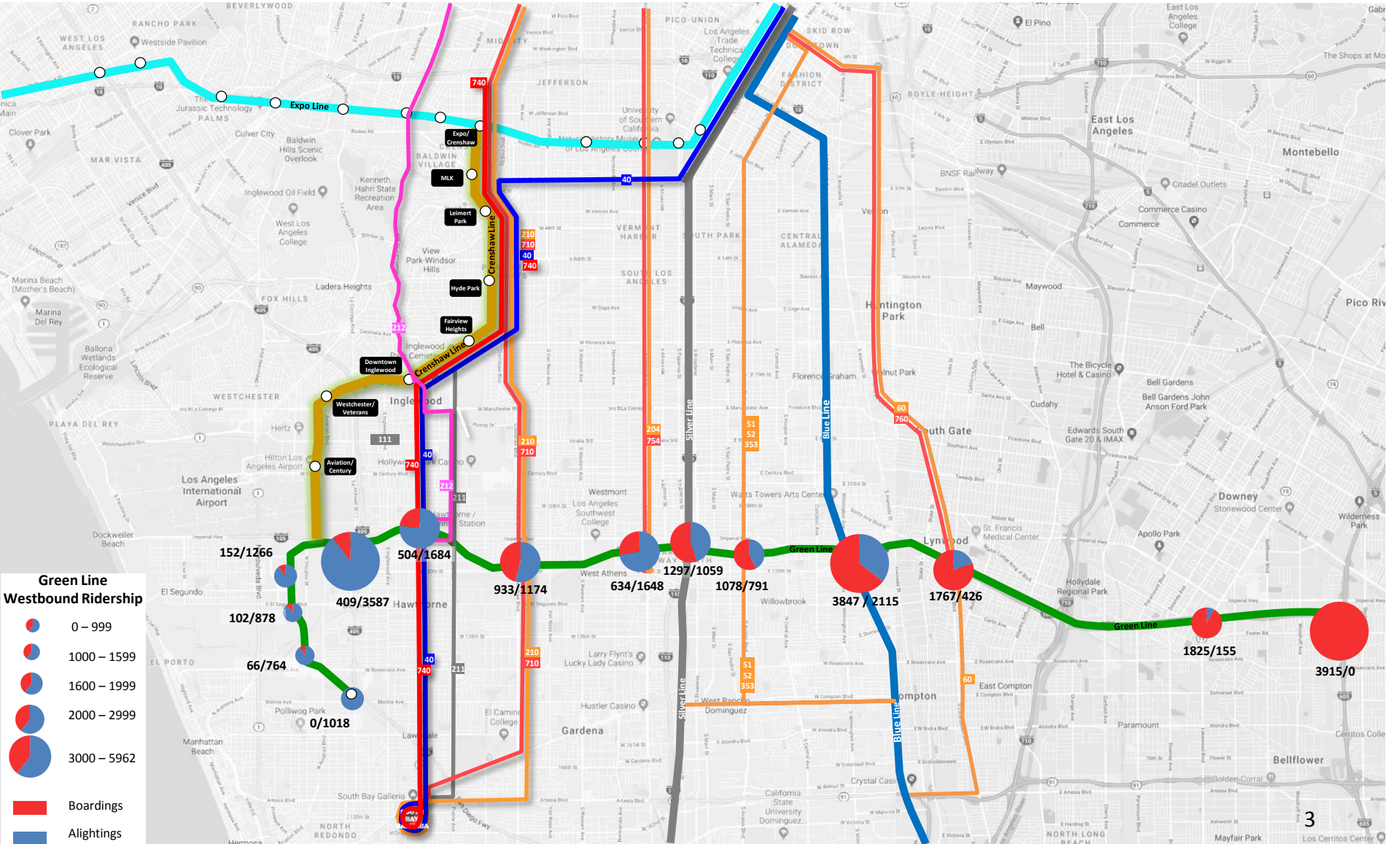
# OPERATING PLAN OBJECTIVES

## Evaluation of Final 2 Alternatives



	<p><u>C-1</u></p> <ul style="list-style-type: none"> <li>Norwalk-Expo/Crenshaw</li> <li>Redondo Beach-LAX</li> </ul> 	<p><u>C-3</u></p> <ul style="list-style-type: none"> <li>Norwalk-Expo/Crenshaw</li> <li>Redondo Beach-Willowbrook</li> </ul> 
<p>Direct connections to LAX Airport from all directions</p>	<ul style="list-style-type: none"> <li>Direct service to 5<sup>th</sup> busiest airport in the world from all directions, and improving access to over 620K jobs within the LAX area</li> </ul> 	<ul style="list-style-type: none"> <li>No direct service to and from LAX from South Bay for visitors and workers</li> </ul> 
<p>Special event service to new NFL Stadium</p>	<ul style="list-style-type: none"> <li>Opportunity for special event service to Downtown Inglewood from all directions for NFL, Super Bowl, World Cup, Olympics, etc.</li> </ul> 	<ul style="list-style-type: none"> <li>No opportunity to route South Bay trains to Downtown Inglewood for special events</li> </ul> 
<p>Provides optimal capacity to meet current and future demand</p>	<ul style="list-style-type: none"> <li>Matches capacity with demand on all three segments</li> <li>Allows for 3-car trains along Crenshaw when ridership grows or for special events</li> </ul> 	<ul style="list-style-type: none"> <li>Overserves I-105 segment at a cost of \$10M/year</li> <li>Cannot expand to 3-car trains on Crenshaw due increased power consumption on I-105 segment</li> </ul> 
<p>New opportunities for South Bay residents</p>	<ul style="list-style-type: none"> <li>New opportunity to provide north/south service to take South Bay residents where they want to go</li> </ul> 	<ul style="list-style-type: none"> <li>Continues serving east/west alignment, which is very lightly used by South Bay residents</li> </ul> 

# CRENSHAW/GREEN LINE Bus/Rail Connections



# GREEN LINE

## Average # People Travelling Each Segment



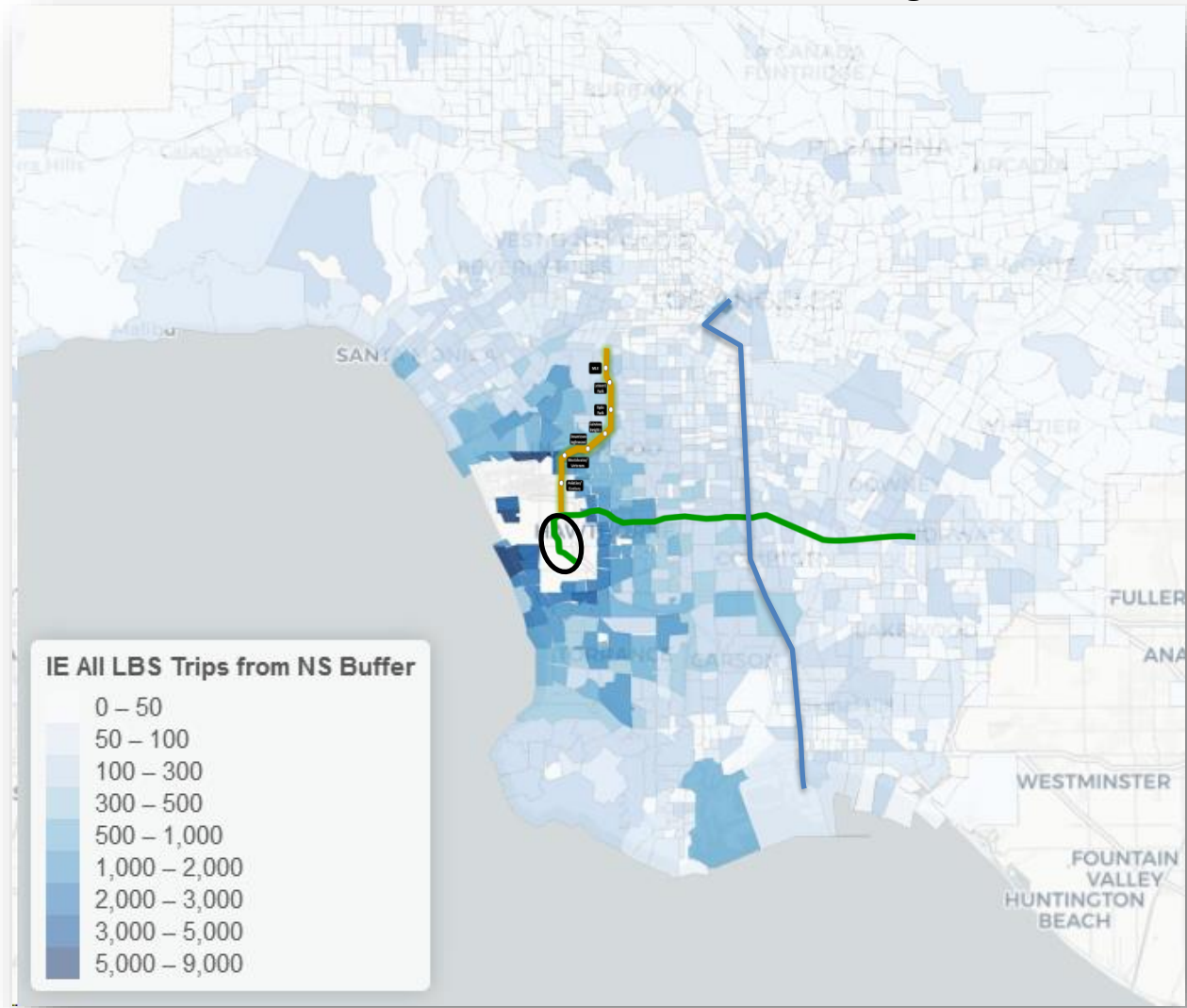
Between	Persons	Percent
2 ↔ 2 NOR NOR	12,240	77%
1 ↔ 2 SB NOR	3,392	21%
1 ↔ 1 SB SB	197	1%
Total	15,828	100%



## 2. All Travel (cell phone data) RB-Mariposa Green Line Destinations



### All Destinations from Redondo Beach Segment



# NEW OPPORTUNITIES FOR SOUTH BAY

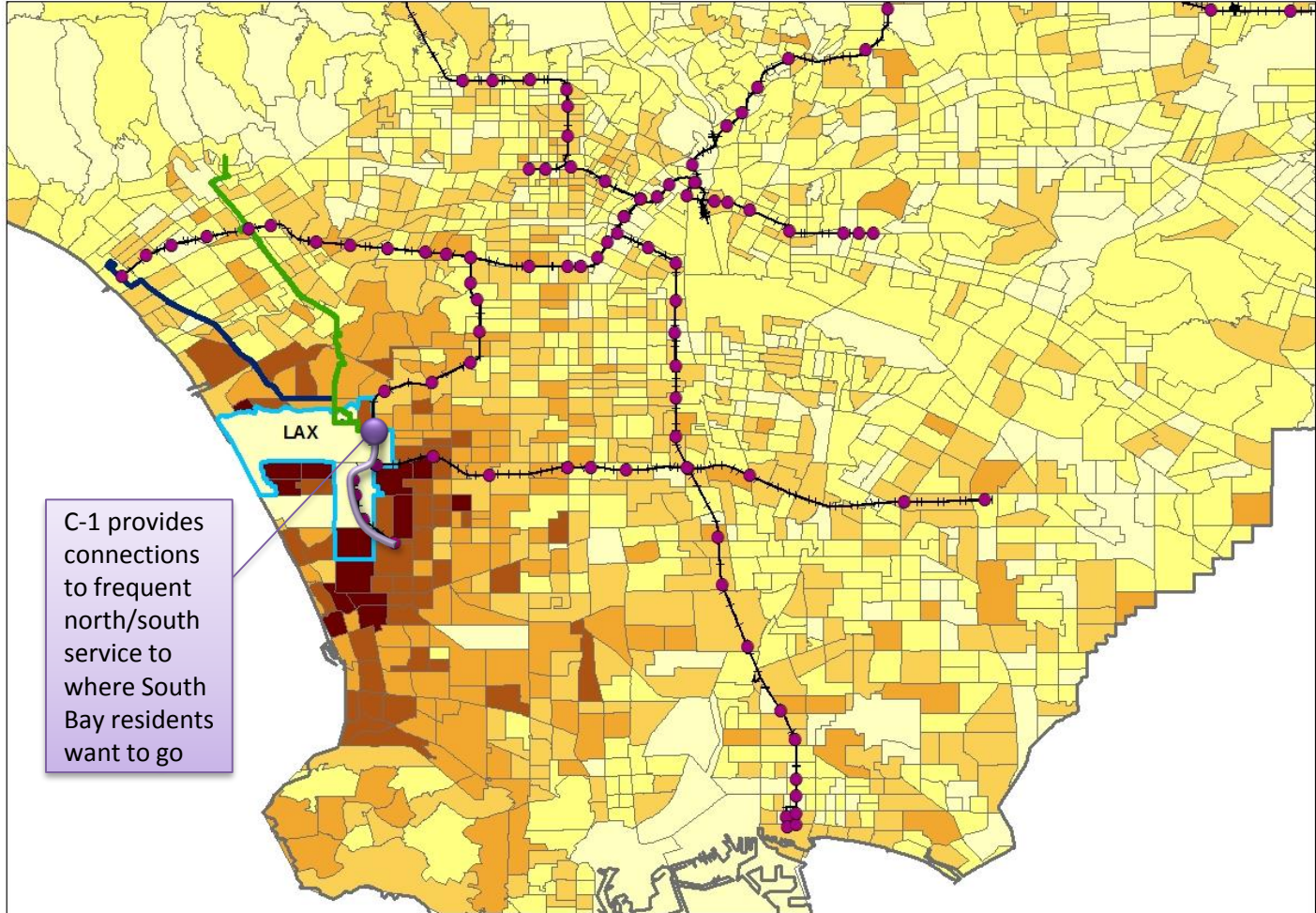
## C-1 Provides Better Connections to Jobs



### Commute Work Flows to LAX-Aerospace Corridor From Los Angeles County Census Journey to Work 2006 - 2010 Survey

#### Legend

- Metro Rail Stations
  - Culver City 6
  - Santa Monica 3
  - Metro Rail System
  - LAX-Aerospace Corridor
- Workers**
- 4 <= 45
  - 45 <= 110
  - 110 <= 230
  - 230 <= 415
  - 415 <= 765
  - Los Angeles County



# ACCESS TO MAJOR SPECIAL EVENTS

## Inglewood Sports & Entertainment District



-  C-1 South Bay Route
-  C-1 Special Event Service
-  C-3 South Bay Route
-  Downtown Inglewood Station
-  22 NFL games per year
-  Super Bowl (2022)
-  NCAA Football Championship (2023)
-  FIFA World Cup (2026)
-  Olympics and Paralympics Games (2028)

# TRACTION POWER CONSTRAINT

## Impact to Train Performance with Alt C-3



- 2-car trains at 3 min headways on Green Line (Aviation – Willowbrook/Rosa Parks)
- Cars designed to operate at 750VDC for best sustainable performance (normal acceleration, HVAC, lighting, etc.)

- 2-car trains at 3 min headways - power degrades to a **marginal level** (above 600vdc)
- With one substation off-line and/or less than perfect train spacing - power degrades to an **unsustainable level** (below 600 vdc)
- Alternating 2- and 3-car trains at 3 min headways; a substation off-line; and less than perfect train spacing - power degrades to an **unacceptable level** (below 500vdc)

- Impacts of unsustainable low voltage operations to customers:
  - Slow speed and delayed trains
- Impacts of unacceptable low voltage operations to customers:
  - Loss of HVAC
  - Loss of full body lighting (emergency lighting only)
  - Loss of power/stranded trains

- 2-car trains at 3 min headways on the green line poses service reliability risks;
- Alternating 2- and 3-car trains at 3 min headways poses clear service reliability risks.

# RESOURCE REQUIREMENT

## C1 vs C3



	Alt C-1	Alt C-3
Vehicle Requirement (Peak + Spares)	53	60
Ann Rev Vehicle Hrs	195,000	221,000
Ann Operating Cost	\$77M	\$87M

	Cost/RVH
Transportation	\$62
Maintenance	\$201
Other Operating	\$132
<b>Total</b>	<b>\$395</b>





**Expo/Crenshaw Station**

**DECEMBER 6, 2018**



## Board Report

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**File #:** 2018-0697, **File Type:** Informational Report

**Agenda Number:** 29.

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**OPERATIONS, SAFETY AND CUSTOMER EXPERIENCE COMMITTEE  
NOVEMBER 15, 2018**

**SUBJECT: MONTHLY UPDATE ON TRANSIT SAFETY AND SECURITY PERFORMANCE**

**ACTION: RECEIVE AND FILE**

**RECOMMENDATION**

RECEIVE AND FILE Transit Safety and Security Report.

**ISSUE**

This report reflects September 2018 performance data as reported under the transit policing deployment strategy which is a combination of in-house fare compliance officers, private security for fixed assets and a multi-agency law enforcement deployment strategy by the Los Angeles Police Department (LAPD), Los Angeles County Sheriff's Department (LASD), and Long Beach Police Department (LBPD). The information in this report summarizes Crimes Against Persons, Crimes Against Property, and Crimes Against Society data under Uniform Crime Reporting (UCR) Program, average emergency response times, assaults on bus operators, and Metro's fare compliance and homeless outreach efforts. The Six Key Performance Indicators (KPI) are Uniform Crime Reporting guidelines, Average Emergency Response Times, Percentage of Time Spent on the System, Ratio of Staffing Levels vs Vacant Assignments, Ratio of Proactive vs Dispatched Activity, and Number of Grade Crossing Operations.

**BACKGROUND**

UCR is a National Incident-Based Reporting System from the US Department of Justice. It captures crime offenses in one of three categories: Crimes Against Persons, Crimes Against Property, and Crimes Against Society.

**DISCUSSION**

**Crime stats are as follows:**

**Crimes Against Persons**

For the month of September 2018, crimes against persons decreased by 9.7% system-wide compared to the same period last year.

**Crimes Against Property**

For the month of September 2018, crimes against property decreased by 7.1% system-wide compared to the same period last year.

### **Crimes Against Society**

For the month of September 2018, crimes against society increased by 25% system-wide compared to the same period last year.

### **September Bus Operator Assaults:**

There were 8 bus operator assaults reported in September, which is 2 more operator assaults compared to the same period last year, resulting in a 33.3% increase.

### **Average Emergency Response Times:**

Emergency response times averaged 3.96 minutes for the month of September.

### **Physical Security Improvements:**

The Systems Security and Law Enforcement division continues to provide a secure and safe environment for our patrons and employees. Our Metro Facility physical security assessment was completed, and the report was presented to key Metro leaders in Bus and Rail Operations, Information Technology and Facilities. The physical security assessment of Union Station started in August, and will conclude in December 2018.

Metro was asked to demonstrate the Thruvision detection at range technology for National Public Radio, the NBC network and the Walt Disney Company in September. Our acquisition of this technology has been noticed by these media and other agencies across the nation.

The Red Line ancillary area surge continues, and we are making progress with securing our underground rail stations.

### **Community and Problem Oriented Policing Activities:**

Transit Law Enforcement Officers assessed a homeless encampment at 7800 E. Telegraph Rd in Downey on September 10.

### **Metro's Homeless Efforts:**

In spring 2016, Metro created the Metro Homeless Task Force to address the displaced persons that have turned to Metro system and property for alternative shelter. Out of the Task Force, Metro created the Metro Transit Homeless Action Plan which was presented to the Metro Board of Directors in February 2017. The Action Plan's goals are to enhance the customer experience, maintain a safe and secure system, and provide coordinated outreach. Components of the plan include Metro's coordination with County and City Measure H and Measure HHH. The plan also called for the hiring of two C3 teams (County, City, Community) through the County Department of Health Services as indicated by Metro's Board of Directors. The C3 teams are to provide coordinated and responsive outreach to the homeless and to ultimately get them in housing resources.

### **Metro's C3 Homeless Outreach Teams:**

Metro's C3 Homeless Outreach teams' twelve-month pilot program began on May 22, 2017 with initial homeless outreach on the Red Line. Since the launch of Metro's C3 Homeless Outreach teams they have provided substantial homeless outreach-with 3,176 total unduplicated homeless contacts, 743 of whom have been linked to permanent housing solutions. Metro will expand C3

outreach in the FY19 budget to provide homeless outreach on rail, night owl bus service and Union Station during the evening hours.

***C3 Homeless Outreach Sept 1, 2018 through Sept 30, 2018:***

<b>Performance Measure</b>	<b>Sept. Number Served</b>	<b>Project Year to date Number Served</b>
Contacts with unduplicated individuals	154	3,176
Unduplicated individuals engaged	89	2,039
Unduplicated individuals provided services (obtaining vital documents, follow-up activities, transportation, CES packet, clinical assessment, etc.) or successful referral (supportive services, benefits linkage etc.)	70	1,191
Unduplicated individuals engaged who are successfully linked to an interim housing resource	41	423
Unduplicated individuals engaged who are linked to a permanent housing resource	1	276
Unduplicated individuals engaged who are permanently housed	3	44

***C3 Coordination with Law Enforcement***

With Metro System Security and Law Enforcement personnel as the lead, Metro's C3 teams coordinate with LAPD's Homeless Outreach and Protective Engagement (HOPE) Teams, LASD's Mental Evaluation Teams (MET), Long Beach PD, and Metro's Transit Security Officers, in an effort to engage the homeless and provide placement into services. These law enforcement entities provide gap service to the Red Line when the C3 Teams are off duty and provide outreach support for the rest of the system that is not part of pilot program. Being that LAPD's patrol includes the Red Line, connections were made between C3 teams and LAPD during the C3 pilot program. Of the above homeless contacts:

- Thirty-two were referred by the LAPD. Of these, eight people could not be contacted at the numbers provided, and four people refused to engage with the team.
- Nine people were placed into interim housing.
- Three people were placed in hotels. Two of these refused services after leaving the hotel. One person was connected to mental health services. One person was referred to Rapid Rehousing.
- Two people were assisted with obtaining documentation for housing.
- One person completed an assessment but refused other services.

- One person was reunified with family and permanently housed. The team is continuing to attempt contact with the remaining referrals.

Teams, LASD’s Mental Evaluation Teams (MET), Long Beach PD, and Metro’s Transit Security Officers, strive to engage the homeless and provide placement into services. These law enforcement entities provide gap service to the Red Line when the C3 Teams are off duty and provide outreach support for the rest of the system that is not part of pilot program.

Sheriff Mental Evaluation Team (MET) Contacts September 2 - October 6, 2018

These monthly statistics only include contacts of the Transit MET Units. They do not include contacts made by other Transit Services Bureau personnel. In addition to the below data:

- LASD transported 17 clients to other homeless outreach connection services
- One team assessed a homeless encampment located behind the Gold Line, at 730 W. Foothill Blvd., Duarte, 09/17/2018.
- One team conducted a homeless encampment clean up located behind Metro Division 24, 800 E. Duarte Rd, Duarte, 09/20/2018.
- Two teams conducted a homeless encampment clean up located behind the Gold Line, 730 W. Foothill Blvd, Azusa, 09/21/2018.
- Three teams assisted Team Leaders Deputy Tineo and Deputy Mullings conduct a Homeless Outreach Operation on the Expo Line. Contacted 35 PINS, everyone refused homeless outreach services and no one met 5150 WIC criteria, 09/24/2018.
- Team attended a Crisis and Bridge Housing Training meeting at the ROC hosted by LAHSA, 10/03/2018.

ACTION	LAPD	LASD	LBPD
	HOPE	MET	
Contacts	156	398	13
Referrals	57	171	7
5150 Hold	2	9	0
Mental Illness	14	135	11
Substance Abuse	18	98	1
Veterans	2	5	2
Shelter	8	8	0
Motel With Housing Plan	1	1	0
VA Housing	0	0	0
Return To Family	0	0	0
Transitional Long-Term Housing	3	1	0
Detox	0	1	0
Rehab	2	2	0

**FY19 Officer Expansion:**

Metro's contracted law enforcement specialized in homeless engagement will increase during FY19. LAPD HOPE officers will be increased from 10 part time officers to 10 full time officers, LASD MET deputies will be increased from 6 to 10, and Long Beach PD will hire 2 quality of life officers.

**Metro's Encampment Protocol:**

LAPD HOPE and Sheriff's MET teams continue to provide enforcement and outreach on city properties abutting Metro. Metro is contracting the sorting and storage services as prescribed by the law to support the protocol.

**Measure H Generalist:**

Metro's Homeless Action Plan integrates itself into the work provided under Measures H and HHH. Part of the E6 Strategies of Measure H includes 40 additional outreach workers otherwise known as "generalists" to conduct outreach on government properties including Metro, and countywide parks, libraries, beaches and harbors. These generalists will not go past the fare gates and their data, per the county will not be extrapolated for Metro. However, these generalists will work with the C3 teams to provide outreach services.

**Mental Health Outreach Workers:**

Metro is in the process of launching a pilot program in partnership with the LA county Department of Mental Health to have proactive mental health outreach on the system.

**ATTACHMENTS**

Attachment A - System-Wide Law Enforcement Overview September 2018

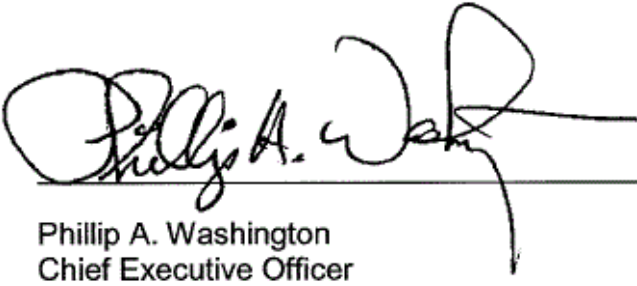
Attachment B - Detail by Rail Line September 2018

Attachment C - Key Performance Indicators September 2018

Attachment D - Transit Police Summary September 2018

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

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



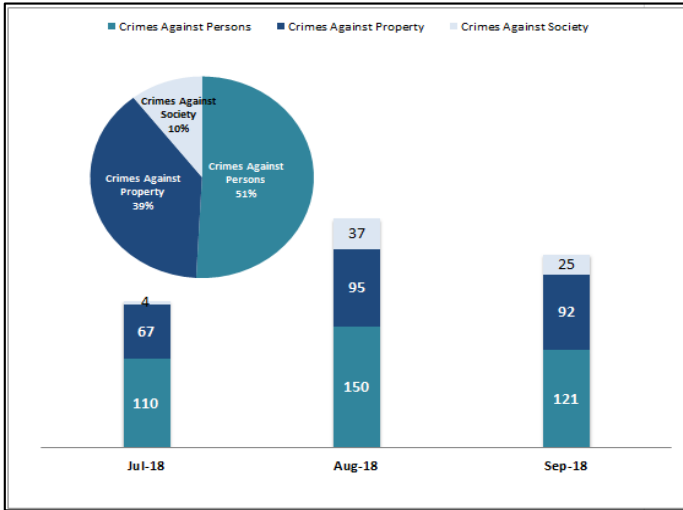
Phillip A. Washington  
Chief Executive Officer

# SYSTEM-WIDE LAW ENFORCEMENT OVERVIEW

SEPTEMBER 2018

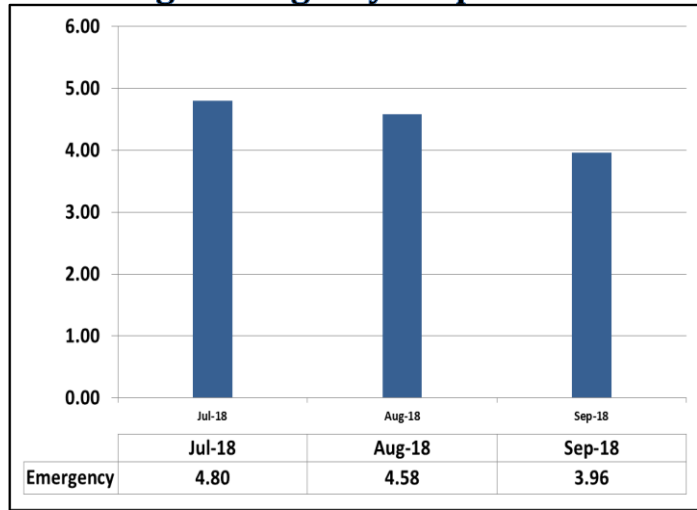
Attachment A

## Crimes Against Persons, Property, and Society



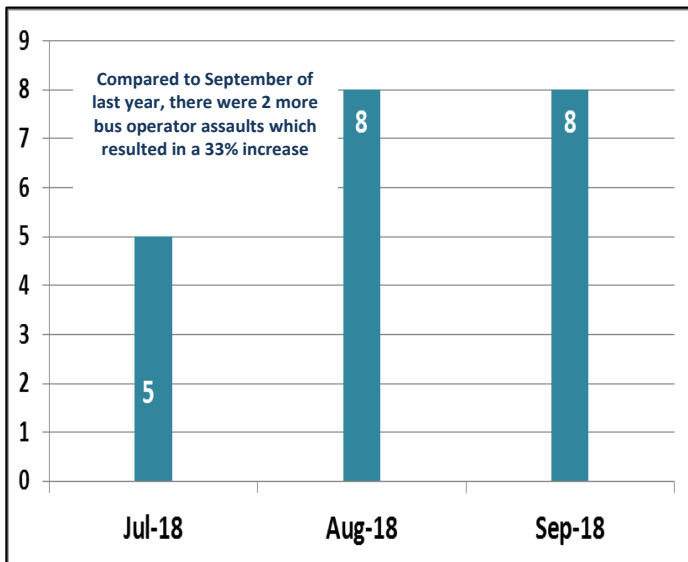
When compared to the same period last year, Crimes Against Persons decreased by 9.7%, Crimes Against Property decreased by 7.1%, and Crimes Against Society increased by 25%.

## Average Emergency Response Times



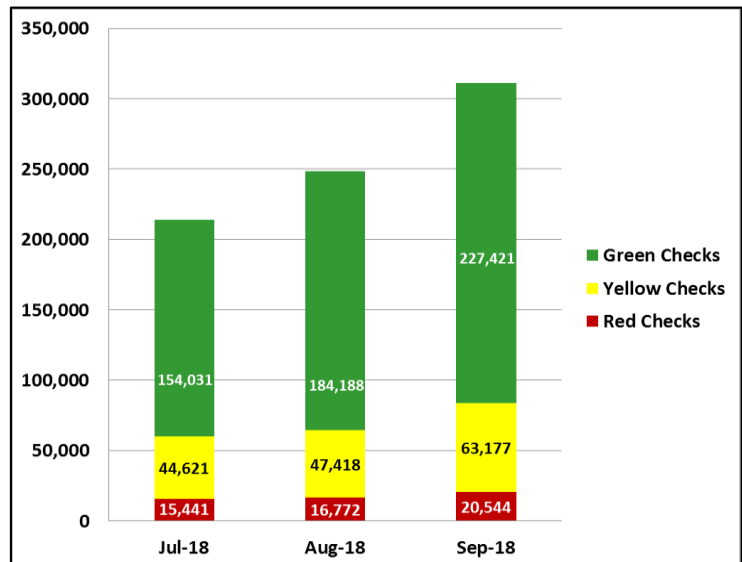
Average emergency response times were 3.96 mins.

## Bus Operator Assaults



For the month of September 2018, bus operator assaults increased by 33% compared to the same period last year.

## Fare Compliance



**Green Checks**- Occurs when a patron has valid fare

**Yellow Checks**- Occurs when a patron has valid fare, but did not tap at transfer station

**Red Checks**- Occurs when a patron has invalid fare



# Attachment B

## Detail by Rail Line September 2018

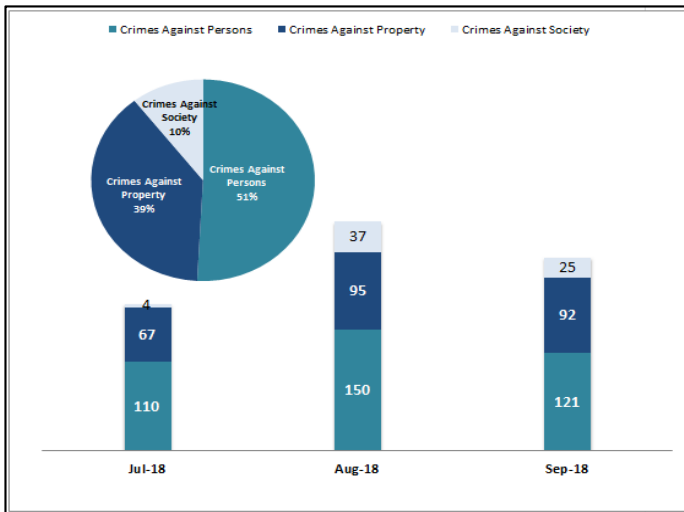
[http://libraryarchives.metro.net/DB Attachments/181018 Supporting Data.pdf](http://libraryarchives.metro.net/DB_Attachments/181018_Supporting_Data.pdf)

# Key Performance Indicators

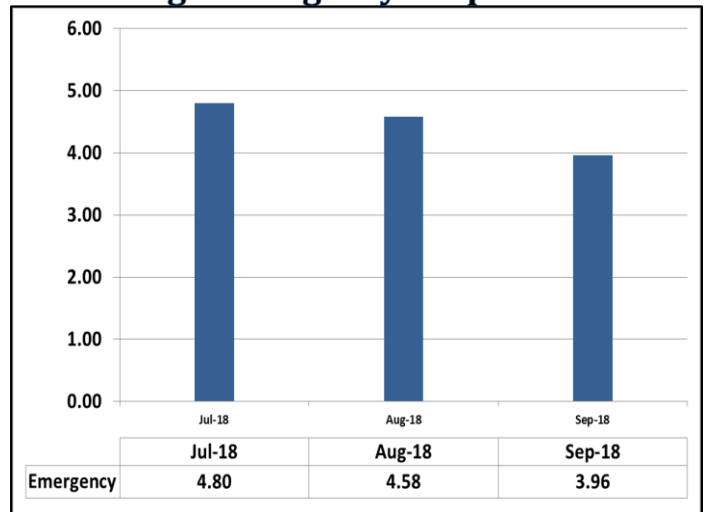
September 2018

Attachment C

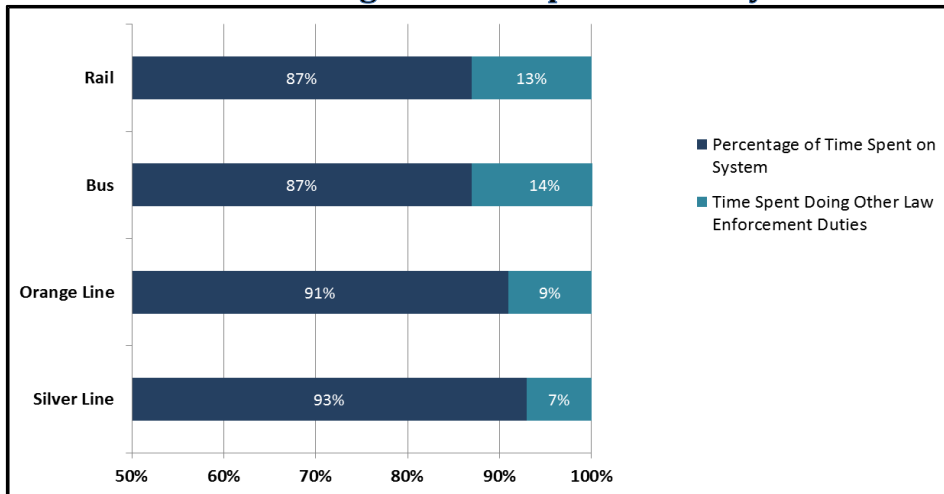
## Crimes Against Persons, Property, and Society



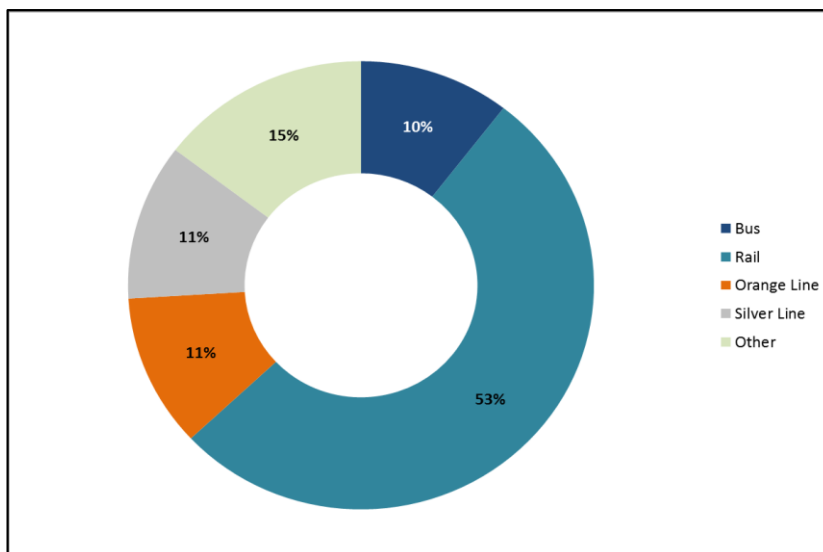
## Average Emergency Response Times



## Percentage of Time Spent on the System



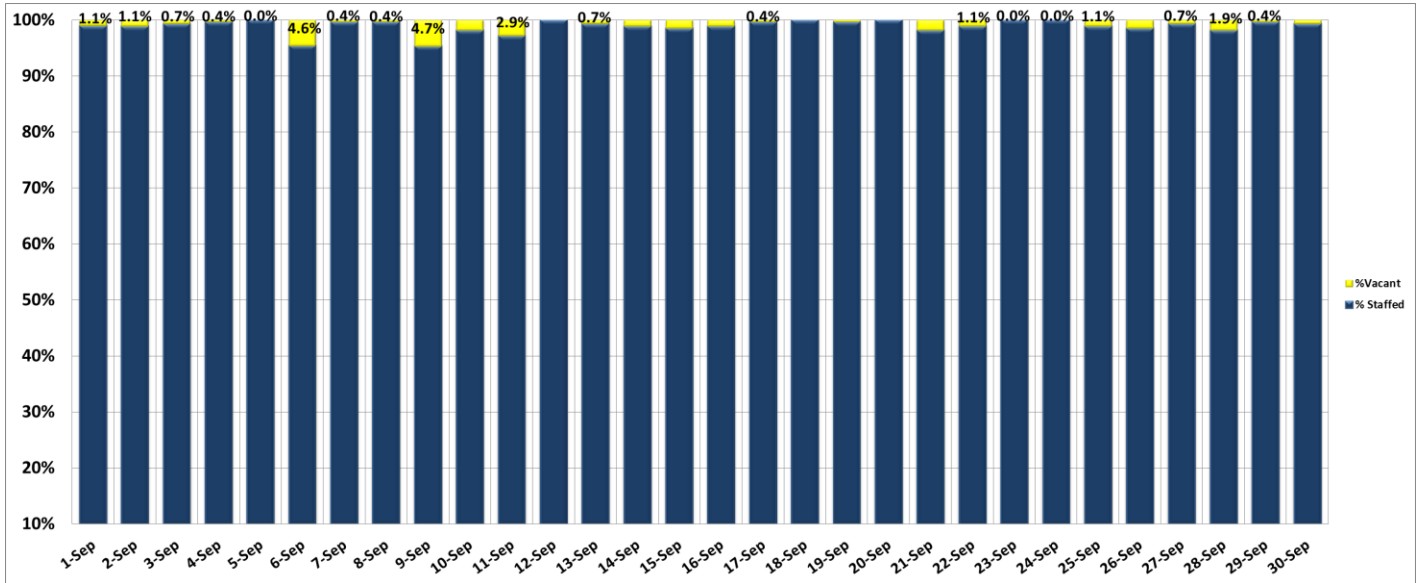
## Percentage of Time Spent on the System as a Whole



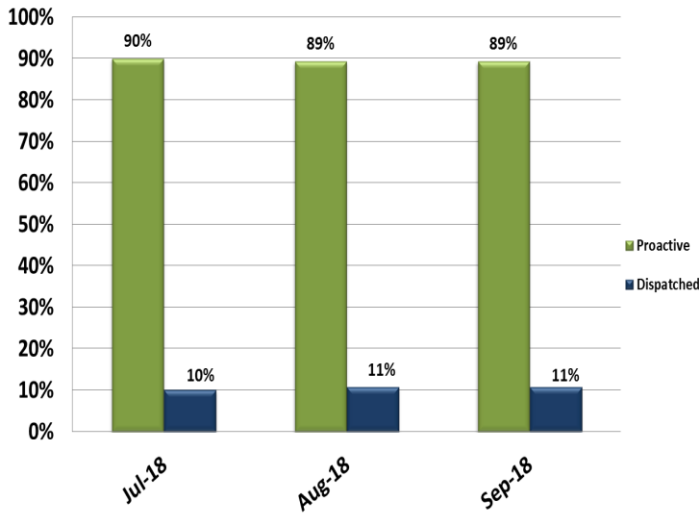
# Key Performance Indicators

## September 2018

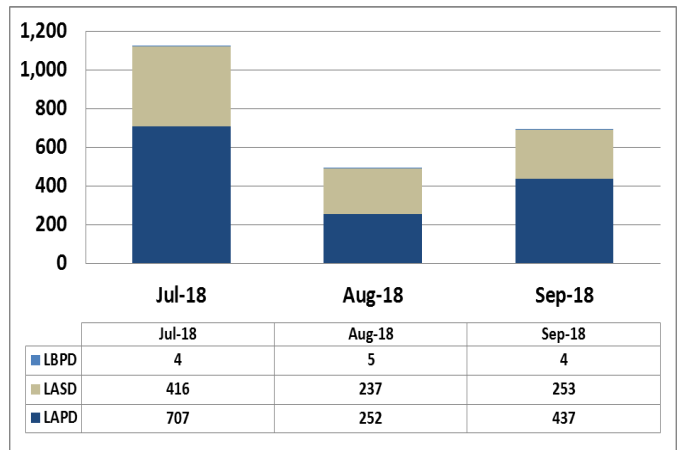
### Ratio of Staffing Levels vs Vacant Assignments



### Ratio of Proactive vs Dispatched Activity



### Grade Crossing Operations



Grade Crossing Operation Locations September:

1. Blue Line Stations (129)
2. Expo Line Stations (258)
3. Gold Line Stations (307)

# Transit Police

## Monthly Crime Report



Attachment D

	2017	2018
	September	September
<b>CRIMES AGAINST PERSONS</b>		
Homicide	0	0
Rape	0	1
Robbery	35	24
Aggravated Assault	22	27
Aggravated Assault on Operator	1	2
Battery	64	53
Battery Rail Operator	5	6
Sex Offenses	7	8
<b>SUB-TOTAL</b>	<b>134</b>	<b>121</b>
<b>CRIMES AGAINST PROPERTY</b>		
Burglary	2	0
Larceny	73	57
Bike Theft	13	13
Motor Vehicle Theft	5	4
Arson	0	0
Other	0	0
Vandalism	6	18
<b>SUB-TOTAL</b>	<b>99</b>	<b>92</b>
<b>CRIMES AGAINST SOCIETY</b>		
Weapons	5	2
Narcotics	11	21
Trespassing	4	2
<b>SUB-TOTAL</b>	<b>20</b>	<b>25</b>
<b>TOTAL</b>	<b>253</b>	<b>238</b>
<b>ENFORCEMENT EFFORTS</b>		
Arrests	202	225
Citations	1,299	1,801
Fare Checks	306,942	311,142
Calls for Service	1,516	984



**Metro**

*To provide excellence in service and support*