



## Board Report

File #: 2019-0605, File Type: Contract

Agenda Number: 24.

### OPERATIONS, SAFETY AND CUSTOMER EXPERIENCE COMMITTEE SEPTEMBER 19, 2019

**SUBJECT: EXERCISE OPTIONS ON EXISTING BUS PROCUREMENT CONTRACTS**

**ACTION: APPROVE RECOMMENDATIONS**

#### **RECOMMENDATION**

AUTHORIZE the Chief Executive Officer to execute Contract Modifications to exercise the Options Bus Buy as follows:

- A. Modification No.: 14 to Contract OP28367-000, Part A with El Dorado National (California), Inc. ("ENC"), to procure 259 Contract Option forty-foot CNG buses for the firm fixed price of \$189,369,145 increasing the Total Contract Value from \$204,278,402 to \$393,647,547 inclusive of sales tax;
- B. Increase the Life-of-Project budget for the CP 201057 for FY20-22 capital program in the amount of \$213,345,580 from \$207,567,748 to \$420,913,328;
- C. Modification No. 3 to Contract OP28367-003, Part B with New Flyer of America Inc. (NFA) to purchase 70 Contract Option sixty-foot CNG articulated buses for the firm fixed price of \$73,457,860 increasing the Total Contract Value from \$68,414,506 to \$141,872,366, inclusive of sales tax;
- D. Increase the Life-of-Project budget for CP 201076 for FY20-22 capital program in the amount of \$77,111,410 from \$72,200,000 to \$149,311,410;
- E. Modification No. 2 to Contract OP28367-002, Part C with BYD Coach & Bus, LLC (BYD) to purchase 40 Contract Option forty-foot ZE buses for the firm fixed price of \$30,863,440, increasing the Total Contract Value from \$47,774,723 to \$ \$78,638,163, inclusive of sales tax; and
- F. Increase the Life-of-Project budget for CP 201077 for FY21-22 capital program in the amount of \$63,082,341 from \$65,900,000 to \$128,982,341.

#### **ISSUE**

Exercise Options on Existing Bus Contracts to improve service quality, reliability, and reduce

emissions impact from aging fleet.

**BACKGROUND**

In April 2016, Metro’s Board of Directors passed a motion expressing a desire to convert Metro’s bus fleet to Zero Emission Buses (ZEB) by 2030. In June/July 2017, Metro awarded contracts for new CNG and ZE buses. In October of 2018, Metro awarded a contract to ZEBGO to develop the Zero Emission Bus (ZEB) Master Plan. In December 2018, the California Air Resources Board (CARB) approved the Innovative Clean Transit (ICT) Regulation which requires full transition to zero emission buses by 2040. In July 2019, Metro’s bus vehicle requirements indicate a need to replace 834 buses by 2022. At this time, Metro has 465 buses on order resulting with a need for an additional 369 buses needed to maintain the bus fleet in a “State of Good Repair.”

**DISCUSSION**

In April 2016, Metro’s Board of Directors authorized staff to initiate RFP No. OP28367 for the procurement of up to 1,000 CNG or Zero Emission Transit Buses for replacement of approximately 600 40 ft. transit buses and 400 60 ft. transit buses. In response to RFP No. OP28367, Metro awarded contracts for 355 40 ft. buses (295 CNG, 60 ZE) and 105 60 ft. buses (65 CNG, 40 ZE). In March 2018, 46 40 ft. option buses were assigned to Gardena Municipal Bus Lines (G-Trans). As a result, there remain 699 buses (299 40 ft. and 400 60 ft. buses) that can be awarded as Contract Options. Refer to table below:

Contract	Part	OEM	Bus Type (ft.)	Fuel	Base Order	Option Buses to Exercise
OP28365	A	ENC	40	CNG	295	259
	B	New Flyer	60	CNG	65	335
	C	BYD	40	ZE	60	40
	D	New Flyer	60	ZE	40	65

To address the need for 369 buses to maintain a State of Good Repair, Metro considered first exercising the ZE options. However, operationally, the number of ZE buses that may be procured is limited by the charging infrastructure that will be in place at the time the buses are scheduled for delivery (FY21). The analysis performed by Metro’s consultants as part of the ZEB Master Plan projects that infrastructure that will be in place will be limited to supporting approximately 40 electric buses beyond the current order of 105 buses.

Therefore, based on the limitations of the available charging infrastructure the recommendation is to execute contracts for 40 ft. ZE buses, 259 40 ft. CNG buses, and 70 60 ft CNG articulated buses as indicated in the table below:

Contract	Part	OEM	Bus Type (ft.)	Fuel	Base Order	Option Buses to Exercise	Option Buses to Order
OP28365	A	ENC	40	CNG	295	259	259

	B	New Flyer	60	CNG	65	335	70
	C	BYD	40	ZE	60	40	40
	D	New Flyer	60	ZE	40	65	0

**DETERMINATION OF SAFETY IMPACT**

These buses are designed to comply with all applicable federal, state and local safety standards. These buses will include improved safety features and amenities, including enhanced ADA securement provisions, Operator Barriers, and enhanced video surveillance capabilities. These buses will also replace buses that have reached the end of their useful life and have expiring CNG fuel tanks that are impractical to replace.

**FINANCIAL IMPACT**

This action will award bus option contract modifications and increase the LOP for projects 201057 (40 Foot CNG Buses: El Dorado) \$213,345,580, 201076 (60 Foot CNG Buses: New Flyer) \$77,111,410, and 201077 (40 Foot ZEB: BYD). The LOP increases total \$353,539,331. Bus option deliveries are not anticipated until FY21, so there will be no impact to the FY20 budget.

Since these are multi-year contracts, the Cost Center Managers and Chief Operations Officer will be responsible for budgeting the costs in future years.

Impact to Budget

The sources of funds for projects 201057 and 201076 are anticipated State and Federal grants, TDA Article 4, Prop C 40%, and Measure R Clean Fuel Bus Capital. The sources of funds for project 201077 are anticipated State and Federal grants eligible for Zero Emission vehicle purchases, plus Green funds, TDA Article 4, Prop C 40% and Measure R Clean Fuel Bus Capital funding required for local match.

**IMPLEMENTATION OF STRATEGIC PLAN GOALS**

This item supports the following Strategic Goals 1) Provide high-quality mobility options that enable people to spend less time traveling and 5) Provide responsive, accountable, and trustworthy governance within the Metro organization.

**ALTERNATIVES CONSIDERED**

Staff considered not purchasing additional buses and extending the life of existing fleet buses. This alternative is not recommended because many buses scheduled for replacement during the next three years will reach 15 years of age which is the maximum allowable operating life for the CNG tanks and fuel systems installed on these buses. It is not legal to continue operating CNG vehicles beyond the expiration of the CNG tank certification, and it is not practical to replace CNG tanks on buses that have passed the end of their design life.

Staff considered initiating a new procurement for replacement buses. This alternative is not

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recommended because the lead time for new vehicles can take 18-24 months or more; therefore, it is unlikely that a new bus procurement could be completed in time to meet FY22 fleet replacement needs. Staff does intend to initiate a new solicitation for additional replacement buses in FY20/21 for buses to be delivered in FY23/24.

Staff considered exercising the 60 ft. ZE options. This alternative is not recommended at this time as these buses are designed primarily for en-route charging applications to be effective. Further study, as part of Metro's Master Planning effort, is required to identify where they could be deployed.

### **NEXT STEPS**

If this action is approved, staff will execute Contract Options to begin production of buses in FY20-FY22. Staff will work to complete the ZEB Master Plan to inform the decision of new Procurements that will be advertised in Spring 2020.

Staff will review the viability of exercising the 65 ZE 60 ft. options from RFP No. OP28367, Part D in Spring 2020. Currently, the options are configured to work for en-route charging. As part of the Master Planning efforts, staff will review potential en-route charging locations. If no en-route charging locations are possible, staff will review if higher battery capacity configurations are available to serve Metro's needs.

### **ATTACHMENTS**

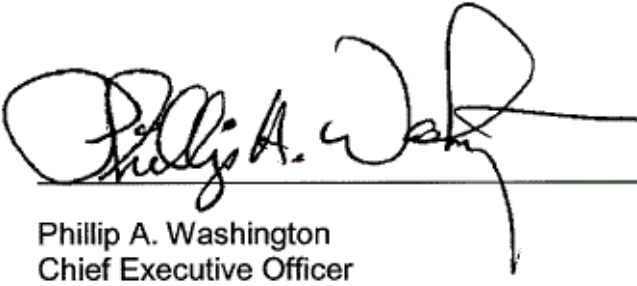
Attachment A - Procurement Summary - (OP28367, Part A)  
Attachment B - Contract Modifications / Change Order Log - (OP28367, Part A)  
Attachment C - DEOD Summary - (OP28367, Part A)  
Attachment D - Funding / Expenditure Plan - (OP28367, Part A)

Attachment E - Procurement Summary - (OP28367, Part B)  
Attachment F - Contract Modifications / Change Order Log - (OP28367, Part B)  
Attachment G - DEOD Summary - (OP28367, Part B)  
Attachment H - Funding / Expenditure Plan - (OP28367, Part B)

Attachment I - Procurement Summary - (OP28367, Part C)  
Attachment J - Contract Modifications / Change Order Log - (OP28367, Part C)  
Attachment K - DEOD Summary - (OP28367, Part C)  
Attachment L - Funding / Expenditure Plan - (OP28367, Part C)

Prepared by: Marc Manning, Sr. Director, Vehicle Engineering & Acquisition, (213) 922-5871  
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Reviewed by: James T. Gallagher, Chief Operations Officer, (213) 418-3108  
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Phillip A. Washington  
Chief Executive Officer

## PROCUREMENT SUMMARY

EL DORADO NATIONAL CALIFORNIA, INC. - 40' LOW FLOOR CNG BUS  
PROCUREMENT/OP28367-000

1.	<b>Contract Number:</b> OP28367-000		
2.	<b>Contractor:</b> El Dorado National California, Inc. (ENC)		
3.	<b>Mod. Work Description:</b> Exercise Option Bus Buy		
4.	<b>Contract Work Description:</b> Procure 40' Low-Floor CNG transit buses		
5.	<b>The following data is current as of:</b> 08/06/19		
6.	<b>Contract Completion Status</b>		<b>Financial Status</b>
	<b>Contract Awarded:</b>	06/29/17	<b>Contract Award Amount:</b> \$203,567,748
	<b>Notice to Proceed (NTP):</b>	09/01/17	<b>Total of Modifications Approved:</b> \$710,654
	<b>Original Complete Date:</b>	11/29/19	<b>Pending Modifications (including this action):</b> \$189,369,145
	<b>Current Est. Complete Date:</b>	11/29/19	<b>Current Contract Value (with this action):</b> \$393,647,547
7.	<b>Contract Administrator:</b> Elizabeth Hernandez		<b>Telephone Number:</b> (213) 922-7334
8.	<b>Project Manager:</b> Kwesi Annan		<b>Telephone Number:</b> (213) 922-5953

**A. Procurement Background**

This Board Action is to approve Contract Modification No. 14 issued in support of Metro's bus fleet replacement plan to exercise a Contract Option to procure 259 units of 40' low floor CNG buses.

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

On June 29, 2017, the Board awarded Contract No.: OP28367-000 to El Dorado National California, Inc. (ENC) for the manufacture and delivery of the 295 units of 40' CNG transit buses base buy in the Not-To-Exceed amount of \$203,567,748 for a period of performance of 117 weeks.

**B. Cost/Price Analysis**

The recommended price has been determined to be fair and reasonable based upon adequate competition performed at the time that the Contract Options were awarded. The Contract Option price and quantities were evaluated as part of the

Best Value determination for the Base and Options Contract award. Furthermore, staff performed market survey, price analysis, technical evaluation, fact finding, and negotiations of the Option prices prior to Contract award.

The proposed Option price per bus reflects the basic unit price without any Contract escalation that is entitled under the Contract. Metro's ICE and Negotiated Price includes the Contract's price adjustment based on the Producer Price Index (PPI) that is defined in the Contract. That PPI is capped in the Contract at 4% per annum. The NTE price per bus is based on the escalated unit rate price per bus, plus all Contract Modifications

<b>Proposal Amount Per Bus</b>	<b>Metro ICE per Bus</b>	<b>Negotiated Amount per Bus</b>	<b>Estimated Tax per Bus</b>
\$615,372	\$666,200	<b>\$666,200</b>	<b>\$64,955</b>

## CONTRACT MODIFICATION/CHANGE ORDER LOG

EL DORADO NATIONAL CALIFORNIA, INC. - 40' LOW FLOOR CNG BUS  
PROCUREMENT/OP28367-000

<b>Mod. no.</b>	<b>Description</b>	<b>Status (approved or pending)</b>	<b>Date</b>	<b>\$ Amount</b>
1	Exercise Optional Configuration Items - Special Tools and Diagnostic Test Equipment	Approved	11/06/17	\$1,722,225
2	Credit for modifications to vehicle configuration	Approved	12/03/17	(\$2,030,332.)
3	Credit for modifications to vehicle configuration	Approved	12/27/17	(\$67,666)
4	Conformed Technical Specifications	Approved	01/19/18	\$0
5	Upgrades on vehicle configuration	Approved	02/06/18	\$355,714
6	Modify fire suppression system	Approved	04/23/18	\$0
7	Modify bike rack configuration	Approved	10/03/18	(\$102,361)
8	Modify flooring configuration	Approved	10/26/18	\$98,972
9	Exercise Optional Configuration Training Aids Items	Approved	11/14/18	\$349,646
10	Modify Contract terms	Approved	01/09/19	\$0
11	Metro requested modifications	Approved	01/15/19	\$279,870
12	Conformed Technical Specifications	Approved	01/17/19	\$0
13	Exercise Optional Configuration Items	Approved	02/08/19	\$104,586
<b>14</b>	<b>Exercise Option to procure 259 buses</b>	<b>Pending</b>	<b>09/20/19</b>	<b>\$189,369,145</b>
	<b>Modification Total:</b>			<b>\$190,079,799</b>
	<b>Original Contract:</b>			<b>\$203,567,748</b>
	<b>Total:</b>			<b>\$393,647,547</b>



DEOD SUMMARY

EL DORADO NATIONAL CALIFORNIA, INC. - 40' LOW FLOOR CNG BUS  
PROCUREMENT/OP28367-000

**A. Small Business Participation**

El Dorado National California, Inc. is a Transit Vehicle Manufacturer (TVM) and is on the Federal Transit Administration's (FTA) list of eligible TVMs. El Dorado National California Inc. reported that it submitted its overall Disadvantaged Business Enterprise (DBE) goal of 3.33% to FTA for FY19, 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 / Service Contract Worker Retention Policy is not applicable to this modification.

**C. Prevailing Wage Applicability**

Prevailing wage is not applicable to this modification.

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

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

**E. Local Employment Plan**

Local Employment Plan Program is applicable on this contract. Staff will monitor progress on all LEP commitments, including the contractual commitments in creating employment opportunities in the State of California and the 10% commitment to hire disadvantaged workers.

**Funding and Expenditure Plan  
40' CNG Transit Buses (Part A)  
CP201057**

In Thousands	Expenses Through FY19	FY20	FY21	FY22	FY23	Total LOP	% of Total
<b>Uses of Funds</b>							
Vehicles	\$ 55,559	\$ 142,674	\$ 214,540	\$ -	\$ -	\$ 412,773	98.1%
Spare Parts, Optional Features, Training Aids	\$ 280	\$ 1,000	\$ 1,000	\$ -	\$ -	\$ 2,280	0.5%
Labor	\$ 1,473	\$ 1,131	\$ 1,127	\$ 656	\$ 673	\$ 5,060	1.2%
Travel/Administration	\$ 275	\$ 190	\$ 334	\$ -	\$ -	\$ 800	0.2%
<b>Total Project Costs</b>	<b>\$ 57,588</b>	<b>\$ 144,995</b>	<b>\$ 217,002</b>	<b>\$ 656</b>	<b>\$ 673</b>	<b>\$ 420,913</b>	<b>100.0%</b>
In Thousands	Expenses Through FY19	FY20	FY21	FY22	FY23	Total LOP	% of Total
<b>Sources of Funds</b>							
Federal (CMAQ/STBGP/5307)		\$ -	\$ 186,904	\$ -	\$ -	\$ 186,904	44.4%
Local (Prop C/Measure R/TDA/Green Fund)		\$ 144,995	\$ 30,098	\$ 656	\$ 673	\$ 176,422	41.9%
<b>Total Project Funding</b>	<b>\$ 57,588</b>	<b>\$ 144,995</b>	<b>\$ 217,002</b>	<b>\$ 656</b>	<b>\$ 673</b>	<b>\$ 420,913</b>	<b>100.0%</b>

## PROCUREMENT SUMMARY

NEW FLYER OF AMERICA INC. - 60' LOW FLOOR CNG BUS PROCUREMENT/  
OP28367-003

1.	<b>Contract Number:</b> OP28367-003		
2.	<b>Contractor:</b> New Flyer of America Inc. (NFA)		
3.	<b>Mod. Work Description:</b> Exercise Option Bus Buy		
4.	<b>Contract Work Description:</b> Procure 60' Low-Floor CNG transit buses		
5.	<b>The following data is current as of:</b> 08/06/19		
6.	<b>Contract Completion Status</b>		<b>Financial Status</b>
	<b>Contract Awarded:</b>	07/27/17	<b>Contract Award Amount:</b> \$67,688,610
	<b>Notice to Proceed (NTP):</b>	01/30/18	<b>Total of Modifications Approved:</b> \$725,896
	<b>Original Complete Date:</b>	03/30/20	<b>Pending Modifications (including this action):</b> \$73,457,860
	<b>Current Est. Complete Date:</b>	03/30/20	<b>Current Contract Value (with this action):</b> \$141,872,366
7.	<b>Contract Administrator:</b> Elizabeth Hernandez		<b>Telephone Number:</b> (213) 922-7334
8.	<b>Project Manager:</b> Lorenzo Lopez		<b>Telephone Number:</b> (213) 922-5711

**A. Procurement Background**

This Board Action is to approve Contract Modification No. 3 issued in support of Metro's bus fleet replacement plan to exercise a Contract Option to procure 70 additional 60' low floor CNG buses.

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

On July 27, 2017, the Board awarded Contract No.: OP28367-003 to New Flyer of America Inc. (NFA) for the manufacture and delivery of the 70 units of 60' CNG transit buses base buy in the Not-To-Exceed amount of \$67,688,610 for a period of performance of 26 months.

**B. Cost/Price Analysis**

The recommended price has been determined to be fair and reasonable based upon adequate competition performed at the time that the Contract Options were awarded. The Contract Option price and quantities were evaluated as part of the

Best Value determination for the Base and Options Contract award. Furthermore, staff performed market survey, price analysis, technical evaluation, fact finding, and negotiations of the Option prices prior to Contract award.

The proposed Option price per bus reflects the basic unit price without any Contract escalation that is entitled under the Contract. Metro's ICE and Negotiated Price includes the Contract's price adjustment based on the Producer Price Index (PPI) that is defined in the Contract. That PPI is capped in the Contract at 4% per annum. The NTE price per bus is based on the escalated unit rate price per bus, plus all Contract Modifications

<b>Proposed Amount Per Bus</b>	<b>Metro ICE per Bus</b>	<b>Negotiated Amount per Bus</b>	<b>Estimated Tax per bus</b>
\$873,858	\$956,170.66	<b>\$956,171</b>	<b>\$93,227</b>

## CONTRACT MODIFICATION/CHANGE ORDER LOG

NEW FLYER OF AMERICA INC. - 60' LOW FLOOR CNG BUS PROCUREMENT/  
OP28367-003

Mod. no.	Description	Status (approved or pending)	Date	\$ Amount
1	Exercise Optional Configuration Items	Approved	11/05/18	\$501,397
2	Exercise Optional Configuration Items	Approved	11/06/19	\$224,499
3	<b>Exercise Option to procure 70 buses</b>	<b>Pending</b>	<b>09/20/19</b>	<b>\$73,457,860</b>
	<b>Modification Total:</b>			<b>\$74,183,756</b>
	<b>Original Contract:</b>			<b>\$67,688,610</b>
	<b>Total:</b>			<b>\$141,872,366</b>

## DEOD SUMMARY

**NEW FLYER OF AMERICA INC. 60' LOW FLOOR CNG BUS  
PROCUREMENT/OP28367-003****A. Small Business Participation**

New Flyer of America is a Transit Vehicle Manufacturer (TVM) and is on the Federal Transit Administration's (FTA) list of eligible TVMs. New Flyer of America reported that it submitted its overall Disadvantaged Business Enterprise (DBE) goal of 4.30% to FTA for FY19, 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 / Service Contract Worker Retention Policy is not applicable to this modification.

**C. Prevailing Wage Applicability**

Prevailing Wage is not applicable to this modification.

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

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

**E. Local Employment Plan**

Local Employment Plan Program is applicable on this contract. Staff will monitor progress on all LEP commitments, including the contractual commitments in creating employment opportunities in the State of California and the 40% commitment to hire disadvantaged workers.

**Funding and Expenditure Plan  
60' CNG Transit Buses (Part B)  
CP201076**

In Thousands	Expenses Through FY19	FY20	FY21	FY22	FY23	Total LOP	% of Total
<b>Uses of Funds</b>							
<b>Vehicles</b>	\$ 2,478	\$ 58,035	\$ 77,893	\$ -	\$ -	\$ 138,406	92.7%
<b>Spare Parts, Optional Features, Training Aids</b>	\$ 14	\$ 3,266	\$ 3,266	\$ -	\$ -	\$ 6,545	4.4%
<b>Labor</b>	\$ 626	\$ 944	\$ 966	\$ 461	\$ 472	\$ 3,469	2.3%
<b>Travel/Administration</b>	\$ 65	\$ 413	\$ 413	\$ -	\$ -	\$ 891	0.6%
<b>Total Project Costs</b>	<b>\$ 3,182</b>	<b>\$ 62,659</b>	<b>\$ 82,538</b>	<b>\$ 461</b>	<b>\$ 472</b>	<b>\$ 149,311</b>	<b>100.0%</b>
In Thousands	Expenses Through FY19	FY20	FY21	FY22	FY23	Total LOP	% of Total
<b>Sources of Funds</b>							
State (STIP/MSRC)		\$ -	\$ 1,500	\$ -	\$ -	\$ 1,500	1.0%
Local (Prop C/Measure R/TDA/Green Fund)		\$ 62,659	\$ 81,038	\$ 461	\$ 472	\$ 144,629	96.9%
<b>Total Project Funding</b>	<b>\$ 3,182</b>	<b>\$ 62,659</b>	<b>\$ 82,538</b>	<b>\$ 461</b>	<b>\$ 472</b>	<b>\$ 149,311</b>	<b>100.0%</b>

## PROCUREMENT SUMMARY

BYD COACH & BUS, LLC - 40' LOW FLOOR ZE BUS PROCUREMENT/  
OP28367-002

1.	<b>Contract Number:</b> OP28367-002		
2.	<b>Contractor:</b> BYD Coach & Bus, LLC (BYD)		
3.	<b>Mod. Work Description:</b> Exercise Option Bus Buy		
4.	<b>Contract Work Description:</b> Procure 40' Low-Floor ZE transit buses		
5.	<b>The following data is current as of:</b> 08/06/19		
6.	<b>Contract Completion Status</b>		<b>Financial Status</b>
	<b>Contract Awarded:</b>	07/27/17	<b>Contract Award Amount:</b> \$47,774,723
	<b>Notice to Proceed (NTP):</b>	11/15/17	<b>Total of Modifications Approved:</b> \$0
	<b>Original Complete Date:</b>	09/16/19	<b>Pending Modifications (including this action):</b> \$30,863,440
	<b>Current Est. Complete Date:</b>	01/22	<b>Current Contract Value (with this action):</b> \$78,638,163
7.	<b>Contract Administrator:</b> Elizabeth Hernandez		<b>Telephone Number:</b> (213) 922-7334
8.	<b>Project Manager:</b> Julio Rodriguez		<b>Telephone Number:</b> (213) 922-6603

**A. Procurement Background**

This Board Action is to approve Contract Modification No. 2 issued in support of Metro's bus fleet replacement plan to exercise a Contract Option to procure 40 additional 40' low floor Zero Emission (ZE) buses.

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

On July 27, 2017, the Board awarded Contract No.: OP28367-002 to BYD Coach & Bus, LLC (BYD) for the manufacture and delivery of the 60 units of 40' ZE transit buses base buy in the Not-To-Exceed amount of \$47,774,723 for a period of performance of 100 weeks.

**B. Cost/Price Analysis**

The recommended price has been determined to be fair and reasonable based upon adequate competition performed at the time that the Contract Options were awarded. The Contract Option price and quantities were evaluated as part of the



Best Value determination for the Base and Options Contract award. Furthermore, staff performed market survey, price analysis, technical evaluation, fact finding, and negotiations of the Option prices prior to Contract award.

The proposed Option price per bus reflects the basic unit price without any Contract escalation that is entitled under the Contract. Metro's ICE and Negotiated Price includes the Contract's price adjustment based on the Producer Price Index (PPI) that is defined in the Contract. That PPI is capped in the Contract at 4% per annum. The NTE price per bus is based on the escalated unit rate price per bus, plus all Contract Modifications

<b>Proposal Amount Per Bus</b>	<b>Metro ICE per Bus</b>	<b>Negotiated Amount per Bus</b>	<b>Estimated Tax per Bus</b>
\$650,000	\$703,040	<b>\$703,040</b>	<b>\$68,546</b>

## CONTRACT MODIFICATION/CHANGE ORDER LOG

BYD COACH & BUS, LLC - 40' LOW FLOOR ZE BUS PROCUREMENT/  
OP28367-002

<b>Mod. no.</b>	<b>Description</b>	<b>Status (approved or pending)</b>	<b>Date</b>	<b>\$ Amount</b>
1	Modify Contract Provisions	Approved	1/9/19	\$0
6	<b>Exercise Option to procure 40 option buses</b>	<b>Pending</b>	<b>09/20/19</b>	<b>\$30,863,440</b>
	<b>Modification Total:</b>			<b>\$30,863,440</b>
	<b>Original Contract:</b>			<b>\$47,774,723</b>
	<b>Total:</b>			<b>\$78,638,163</b>

## DEOD SUMMARY

BYD COACH & BUS, LLC - 40' LOW FLOOR ZE BUS PROCUREMENT/  
OP28367-002**A. Small Business Participation**

BYD Coach & Bus, LLC is a Transit Vehicle Manufacturer (TVM) and is on the Federal Transit Administration's (FTA) list of eligible TVMs. BYD Coach & Bus, LLC reported that it submitted its overall Disadvantaged Business Enterprise (DBE) goal of 4.00% to FTA for FY19, 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 / Service Contract Worker Retention Policy is not applicable to this modification.

**C. Prevailing Wage Applicability**

Prevailing wage is not applicable to this modification.

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

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

**E. Local Employment Plan**

Local Employment Plan Program is applicable on this contract. Staff will monitor progress on all LEP commitments, including the contractual commitments in creating employment opportunities in the State of California and the 10% commitment to hire disadvantaged workers.

**Funding and Expenditure Plan  
40' ZE Transit Buses (Part I)  
CP201077**

In Thousands	Expenses Through FY19	FY20	FY21	FY22	FY23	FY24	Total LOP	% of Total
<b>Uses of Funds</b>								
Vehicles & Charging Infrastructure	\$ -	\$ 5,000	\$ 34,034	\$ 80,082	\$ -	\$ -	\$ 119,116	92.4%
Spare Parts, Optional Features, Training Aids	\$ -	\$ 1	\$ 2,450	\$ 2,450	\$ -	\$ -	\$ 4,901	3.8%
Labor	\$ 218	\$ 682	\$ 916	\$ 1,320	\$ 673	\$ 690	\$ 4,500	3.5%
Travel/Administration	\$ 58	\$ 188	\$ 218	\$ -	\$ -	\$ -	\$ 465	0.4%
<b>Total Project Costs</b>	<b>\$ 277</b>	<b>\$ 5,872</b>	<b>\$ 37,619</b>	<b>\$ 83,852</b>	<b>\$ 673</b>	<b>\$ 690</b>	<b>\$ 128,982</b>	<b>100.0%</b>

In Thousands	Expenses Through FY19	FY20	FY21	FY22	FY23	FY24	Total LOP	% of Total
<b>Sources of Funds</b>								
Federal (CMAQ/STBGP/5307)		\$ -	\$ -	\$ 46,051	\$ -	\$ -	\$ 46,051	35.7%
State (STIP/MSRC)		\$ -	\$ 37,619	\$ -	\$ -	\$ -	\$ 37,619	29.2%
Local (Prop C/Measure R/TDA/Green Fund)		\$ 5,872	\$ -	\$ 37,801	\$ 673	\$ 690	\$ 45,036	34.9%
<b>Total Project Funding</b>	<b>\$ 277</b>	<b>\$ 5,872</b>	<b>\$ 37,619</b>	<b>\$ 83,852</b>	<b>\$ 673</b>	<b>\$ 690</b>	<b>\$ 128,982</b>	<b>100.0%</b>

# **Electric Bus Program Update**

# Current Background & Timeline

- **January 2019**
  - ✓ Provided Preliminary update to Board Staff to demonstrate need for procurement actions
- **July 2019**
  - ✓ Provided Metro Board with a Zero Emission Bus (ZEB) Master Plan update
  - ✓ Evaluated opportunities to expedite transition
    - Bundle division conversions to single procurements
    - Acquire or lease additional operating space
- **September 2019**
  - ✓ Refined cost estimates, infrastructure phasing schedule, and procurement strategies
  - ✓ Procurement Decision (exercising select contract Options)
- **Spring 2020**
  - Provide Metro Board with a ZEB Master Plan update
  - New Bus Procurement Decision – Fleet Mix TBD
    - Delivery beginning in 2023



**Metro**

# Transition to ZEB Operations – 2017 Guiding Principles

- **Continue to replace aging bus fleet (~200 Buses per Year)**
  - **Status: 465 buses ordered in 2017 and 350 buses to be delivered in 2019**
- **Upgrade current CNG buses to “Near-Zero” Low NOx engines**
  - **Status: On target, 223 buses upgraded to-date at Mid-life**
- **Maintain existing bus fleet in a State of Good Repair**
  - **Status: Fleet age is increasing**
    - **Need to replace additional 369 buses by 2022**
- **Improve Service Quality and Reliability**
  - **Status: New Buses placed into service in 2019**
- **Transition Metro Orange Line to Zero-Emission by 2020**
  - **Status: On Target for Completion**
- **Transition Metro Silver Line to Zero-Emission by ~2021**
  - **Status: On Target for Completion**
- **Goal of 100% Zero-Emission Bus Fleet by 2030**
  - **Status: Master Plan addresses implementation roadmap**

# Bus Fleet Requirements & Availability

## Metro Bus Fleet Age & Spare Ratio Forecasts

### Fleet Planning Parameters

#### Peak Vehicle Requirement

2,300+ buses (scheduled service + spares)  
1,900+ buses (scheduled service only)

1,900+ buses (scheduled service only)

#### Spare Ratio

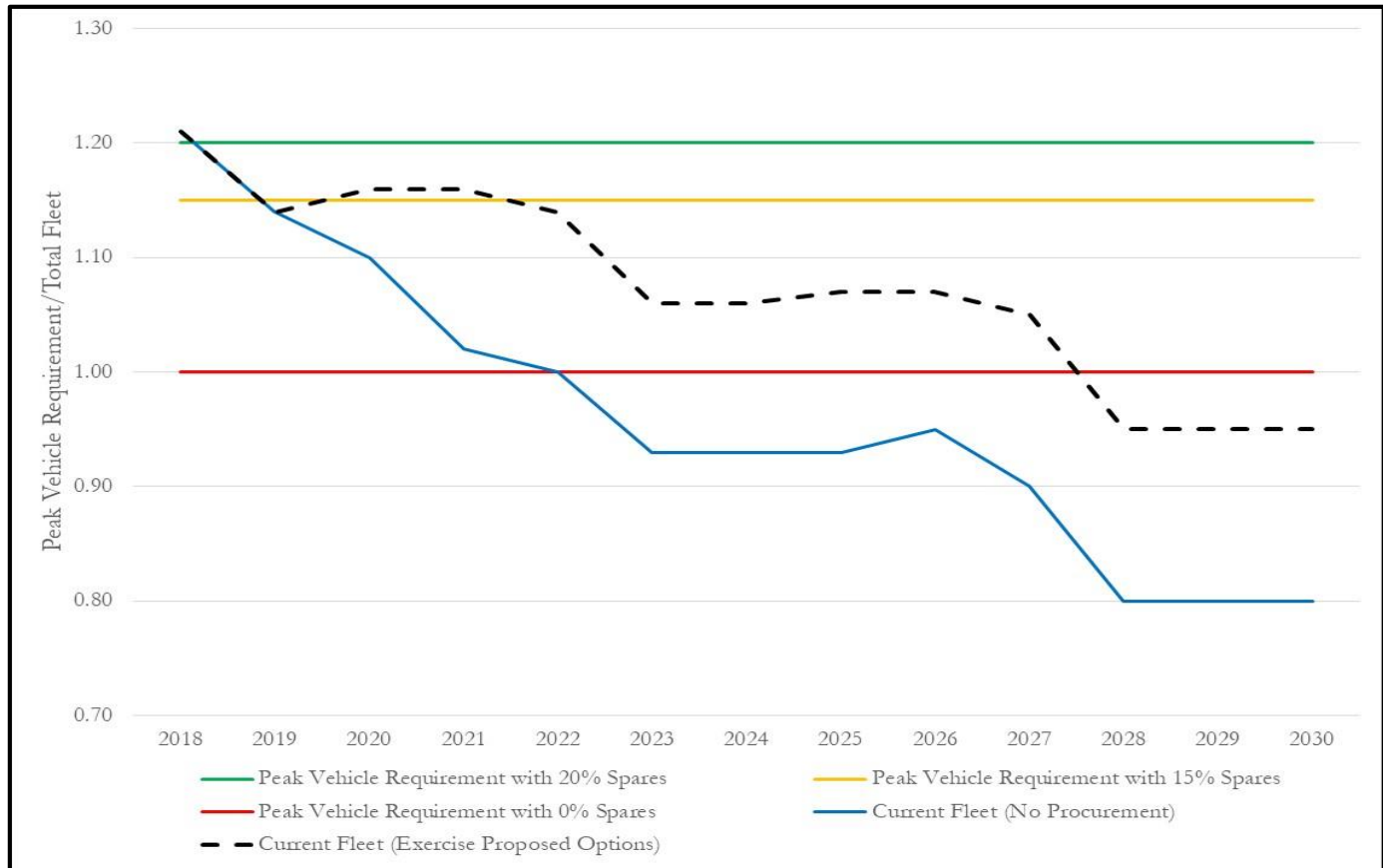
FTA requirement:  $\leq 20\%$

Metro policy: 15% - 20%

#### Bus Retirement Age

FTA requirement: 12 years

Metro Policy: 15-18 years



- 834 additional buses needed by 2022 to meet current service levels with exceeding FTA spare ratio and age requirements
- 465 buses on order (~350 buses to be delivered in 2019)
- 369 Options Buses to Exercise



# Bus Procurement Approach

## Background

- **New CNGs operate cleaner than existing fleet**
  - ~98% Reduction in NOx, ~50% reduction in PM, ~55% reduction in CO vs. oldest fleet
- **New CNG are more reliable than existing fleet**
  - Newest fleet is 3 times more mechanically reliable than older fleet
- **Metro's 60 ft. Electric Bus has a range of 50-60 miles**
  - Requires En-Route Charging or larger battery pack to deploy
  - Review by Spring 2020 if option buses and route lengths can be configured for optimum operations
- **Zero Emission Bus deployment requires charging infrastructure**
  - Division 9 and 8 have only 40 ft. buses remaining to be electrified
    - 40 ft. option buses can be deployed at 8 and 9
    - Deployment will be based on availability of charging infrastructure

## Recommendation

- **Metro staff recommends to exercise the following options:**
  1. Exercise Option for 259 CNG 40 ft. Buses from Eldorado
  2. Exercise Option for 70 CNG 60 ft. Buses from New Flyer
  3. Exercise Option for 40 Electric 40 ft. Buses from BYD

# ZEB Master Plan – Infrastructure Overview

- Key Limitation to Electric Bus Deployment is Charging Infrastructure and Space

## 1. Charging Infrastructure

- Limited grid capacity at divisions
  - Limits number of ZEBs that can be assigned
  - Long lead times for utilities to implement necessary grid upgrades
  - Working with SCE & LADWP to optimize schedule
- Fleet Mix impacts Division needs
  - CNG vs. Battery:  
CNG facility unable to be de-commissioned with CNG buses in operation
  - 40 ft. vs. 60 ft. bus  
Impacts Facility design; Charging Interface would have to accommodate different length buses
- Battery and Charging Technology is still evolving

## 2. Space

- Minimize service impacts while electrifying divisions
- More Space allows for quicker solution
- Mitigations:
  - Utilize En-Route Charging – less infrastructure at divisions
  - Optimize Existing Parking Layouts
  - Temporary parking space



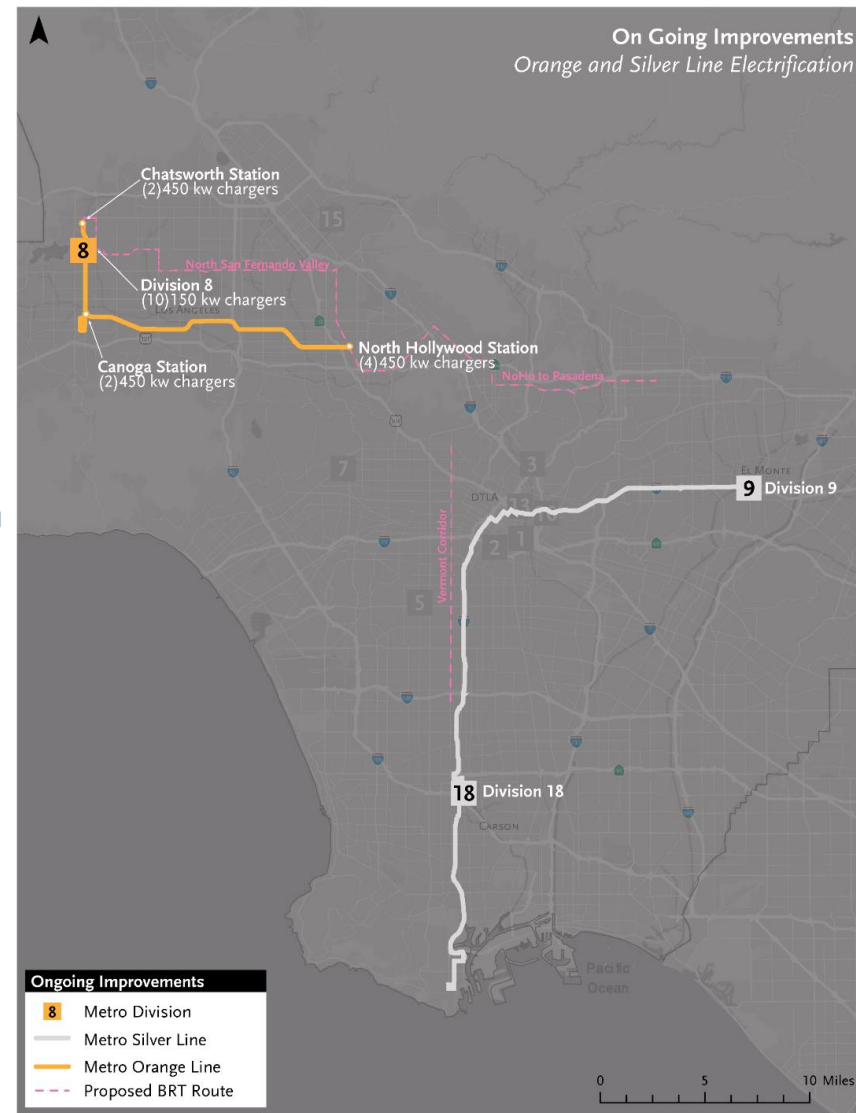
# ZEB Master Plan - Phases

## Phase 1: Near-Term Activities (2020 – 2021)

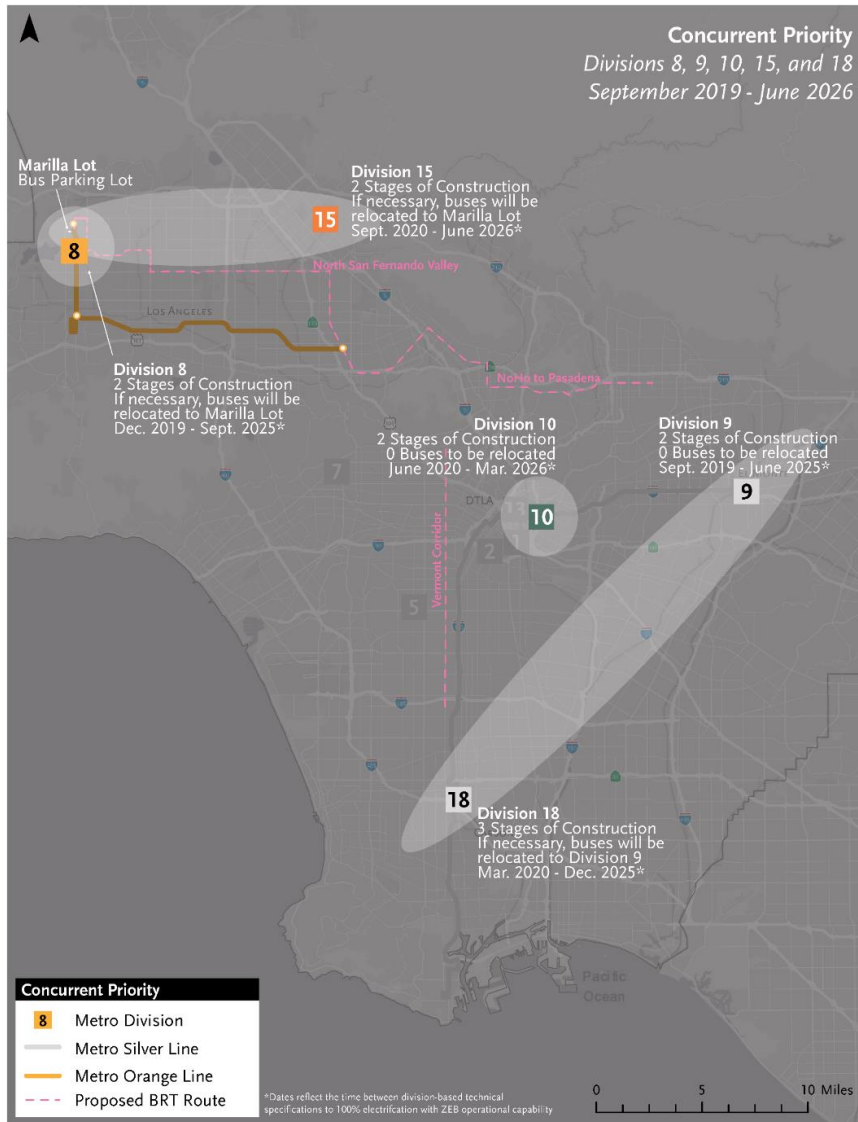
- ✓ Orange Line Electrification
  - Charging Infrastructure & Vehicles
- ✓ Silver Line Electrification
  - Charging Infrastructure & Vehicles
- ✓ Upgrade Near-Zero CNG Engines to RCNG at mid-life
- ✓ Refine & Develop Master Plan Details
  - Division Operations and Parking Patterns
  - Fleet Mix (40 ft vs. 60 ft, CNG vs. Battery)
  - En-Route Charging Analysis & Optimization
  - Space Optimization
  - Refine DAC (Disadvantage Community) Options

## Phases 2/3: Long-Term Activities (2022 – 2030+)

- Conversion of Divisions from CNG to Battery Charging
- Procurement of Vehicles



# ZEB Master Plan – Phasing Maps

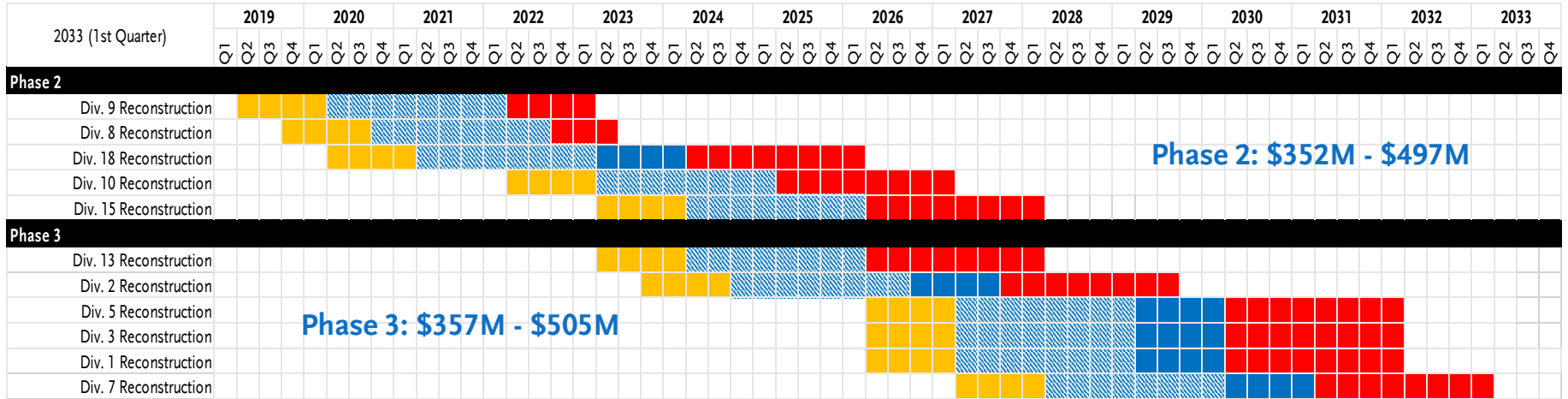


**Phase 2: Independent divisions**

**Phase 3: Dependent divisions**

# ZEB Master Plan - Phasing Schedule

Construction Completed in Q4 2031; Electrification Completed in Q1 2033



- Spec. Development & Procurement (12 Months)
- Division Electrification (Staged Construction) (24 – 36 Months)
- Design and Utility Agreements/Approval (24 Months)
- Utility Upgrades and Construction (24 Months)



# ZEB Master Plan – Costs & Funding

- **Capital Expenditures**
  - Preliminary Capital Cost Estimates (\$1.1 Billion – \$1.5 Billion more than CNG)
    - ~\$700 Million to ~\$1 Billion in Infrastructure costs
    - ~\$400 Million in additional vehicle costs
- **Operating Expenditures**
  - Utility Rates and resulting costs are under revision
  - Design Impacts
    - Battery Life & Maintenance
    - Maintenance Activities
    - CMF: Re-purposing from CNG to ZEB
    - Workforce (Training, Job Descriptions)
- **Funding Challenge**
  - Need of \$1.1 - \$1.5 Billion vs. Funding Available
  - Funding Opportunities
    - SCE Charge Ready Transport
    - California HVIP Program
    - VW Mitigation Trust
    - Public-Private Partnership (P3) for buses and/or charging equipment