

ZEB Program

Charging Infrastructure & Electric Bus Procurements

Introduction

Mission:

Transition to Zero Emission Bus Operations by 2030 in accordance with July 2017 Metro Board Motion 2017-0524

Background:

Three Phase Approach has been developed

- Phase 1 – Electrify BRT's
- Phase 2 – Electrify Divisions without space impacts
- Phase 3 – Electrify All Remaining Divisions

Considerations:

- Implementation requires approval of multi-year programmatic strategy & funding
- Current LRTP & SRTP include CNG replacement, however Battery Electric Bus procurement Charging infrastructure are excluded

Recommendations

- A. Approve Life of Project (LOP) budget of \$50M commencing FY22 for Phase 1 for the Charging Infrastructure Program for the Silver Line
- B. Approve FY22 Budget amendment for charging Infrastructure
- C. Consider that authorization of the use of alternative delivery methods, pursuant to PUC Code Section 130242, will achieve integration of design, project works, and other components in an efficient manner at Metro bus facilities

Approval of the above recommendations ensures the ZEB Program:

- 2030 Resolution remains a priority
- Focus on completing the Phase 1 Charging Infrastructure
- Allows for the addition of \$34M in FY22 funding for this program
- Metro may use this procurement to explore alternative delivery approaches

Phase 1: BRT Conversion Status

Orange (G) Line:

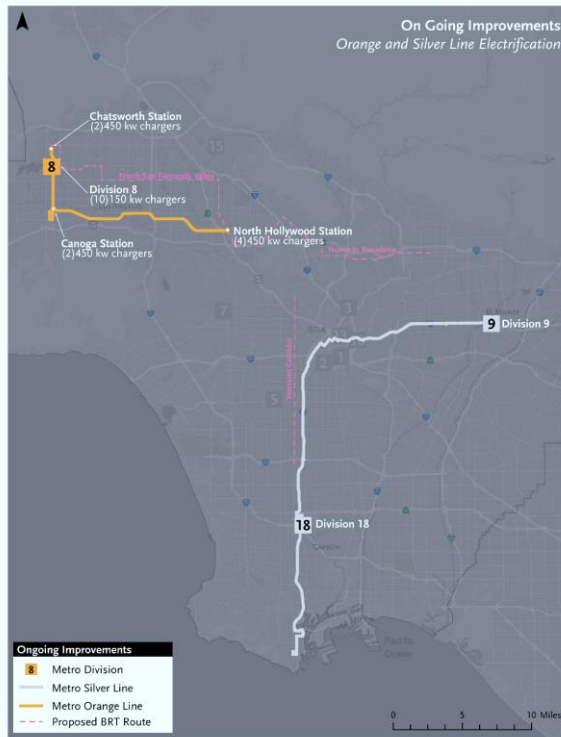
- Complete

Silver (J) Line:

- Contract executed for sixty (60) battery electric buses
- Board approved change order to BTD for Division 9 depot chargers
- Board approved SCE contract to upgrade utilities
- Still Required:
 - Complete design from 30%
 - Construction contract for Division 9 Depot charger installations
 - Construction contracts for en-route chargers and Installations at El Monte and Harbor Gateway Transit Centers

Transition Phasing

Phase 1



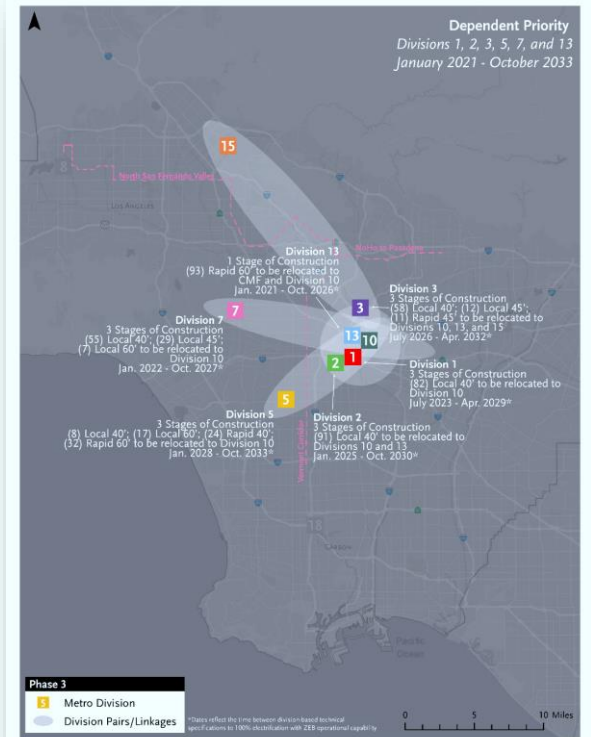
Orange & Silver Lines
Divisions: 8,9,18

Phase 2



Independent Divisions
Divisions: 8, 9, 10, 15, 18

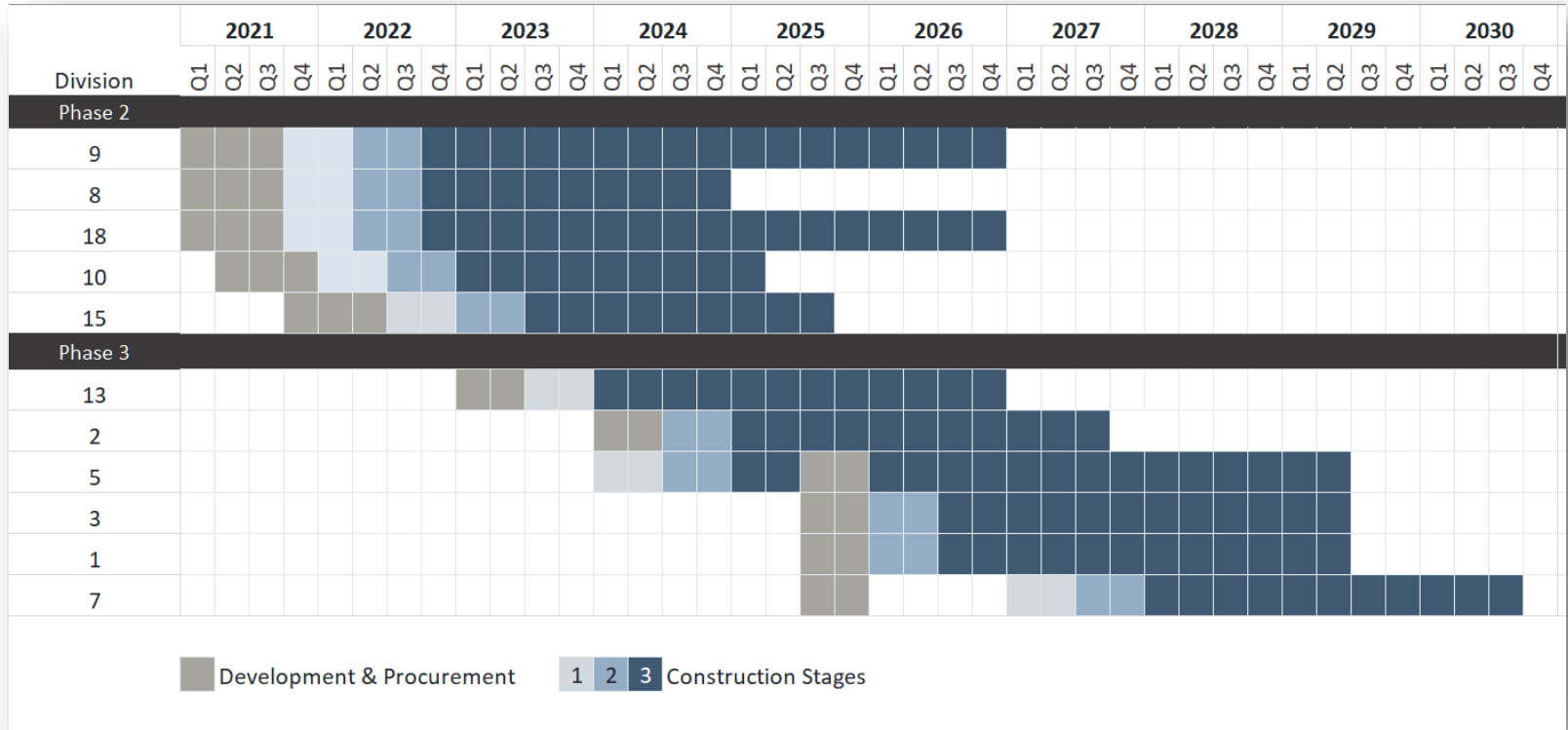
Phase 3



Dependent Divisions
Divisions: 1, 2, 3, 5, 7, 13

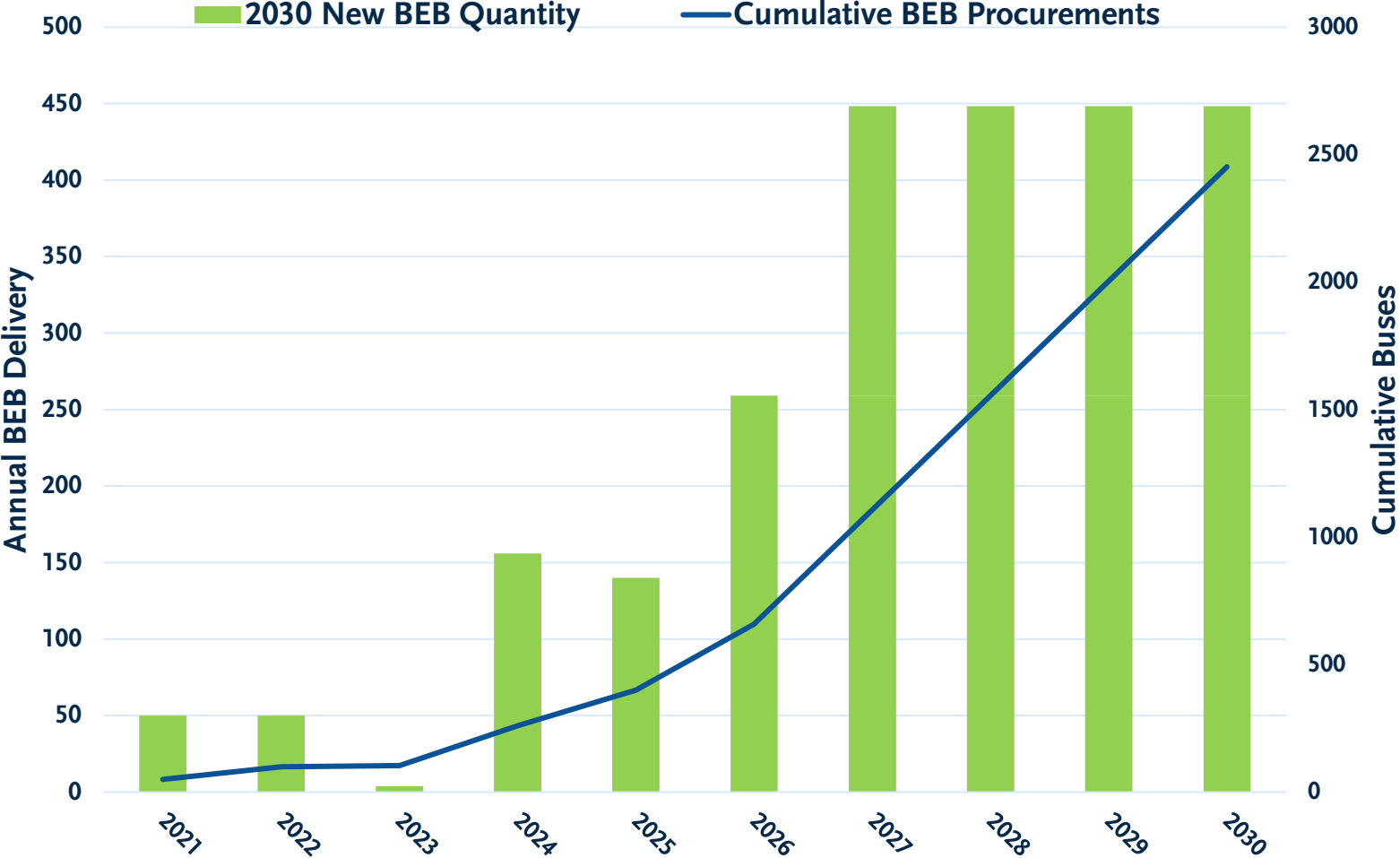
Infrastructure Phasing Schedule 2030

Division Modification and En-route Charger Installation Schedule



Bus deliveries are timed with completion of construction stages and en-route charging installations.

Bus Delivery Schedule 2030

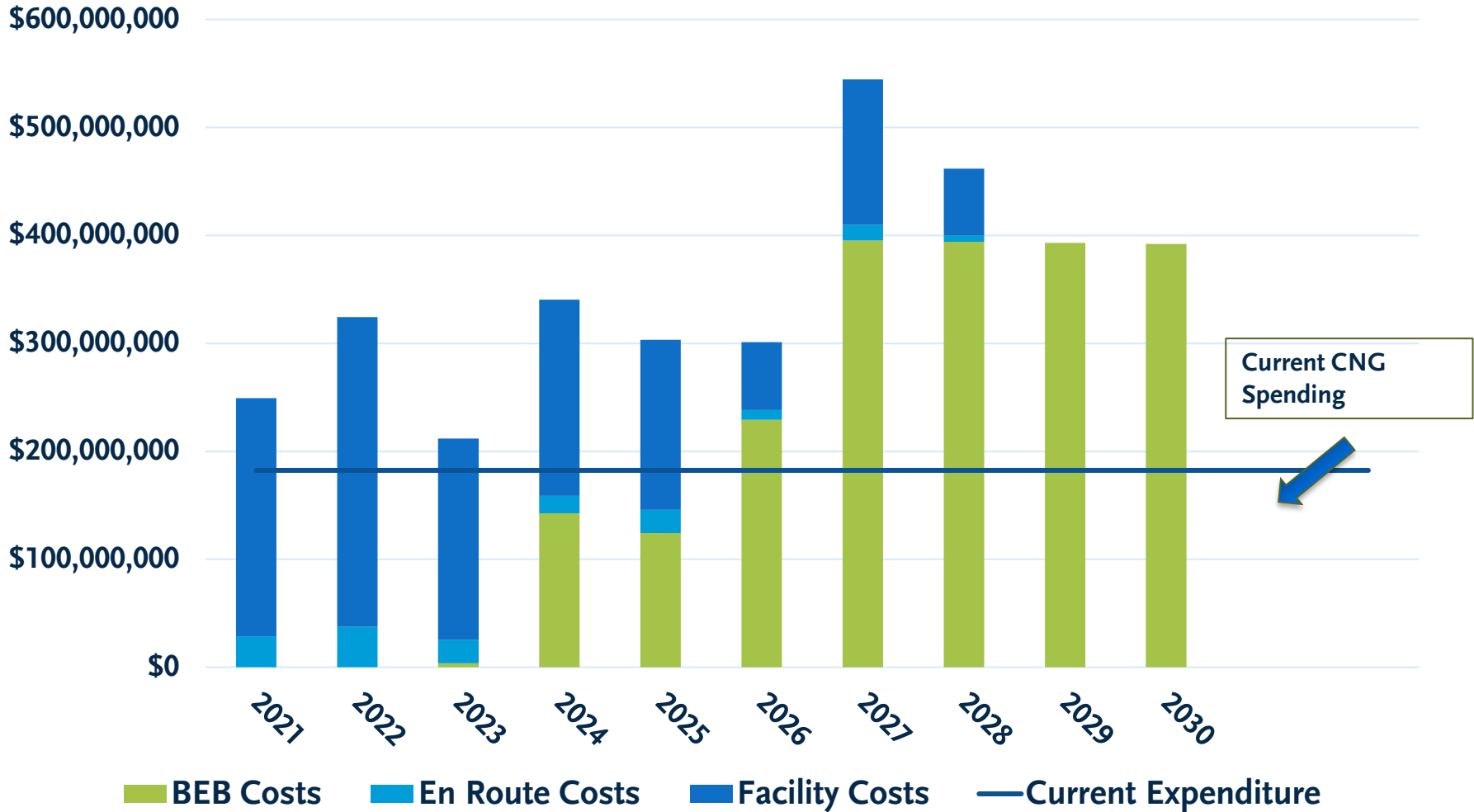


Costs by Division

Division	Bus Qty	Infrastructure		En-Route	Buses	Total ²
		Min ¹	Max ²			
1	171	\$70.9M	\$100.1M	\$14.2M	\$150.8M	\$265.1M
2	169	\$67.3M	\$95.1M	\$16.8M	\$149.0M	\$261.0M
3	151	\$62.6M	\$88.4M	\$13.0M	\$133.2M	\$234.6M
5	167	\$66.5M	\$94.0M	\$8.4M	\$147.3M	\$249.6M
7	240	\$101.4M	\$143.3M	\$11.1M	\$211.6M	\$366.1M
8	358	\$134.0M	\$189.3M	\$16.7M	\$315.7M	\$521.7M
9	176	\$65.9M	\$93.1M	\$17.8M	\$155.2M	\$266.1M
10	175	\$65.5M	\$92.5M	\$4.5M	\$154.3M	\$251.4M
13	316	\$123.4M	\$174.3M	\$7.1M	\$278.7M	\$460.1M
15	245	\$93.7M	\$132.3M	\$17.6M	\$216.0M	\$366.0M
18	185	\$70.7M	\$99.9M	\$27.4M	\$163.1M	\$290.4M
Totals	2,353	\$921.9M	\$1.30B	\$154.7M	\$2.07B	\$3.53B

1. Baseline BEB Infrastructure Only
2. Baseline Infrastructure + On-Site Storage + Solar

Annual Cashflow vs. Current Spending



Phase 1: Orange Line

OEM	Length	Base Order (Option)	Battery Capacity (kW-hr)	Budget	Charging Strategy	
					Depot	En-Route
New Flyer	60'	40 (65)	320	\$80,003,282	J1772 CCS1 (150 kW)	SAE 3105-1 (450 -600 kW)
BYD	60'	5	610	\$8,109,500		



Metro

Phase 1: Silver Line

- Staff has identified an optimum charging strategy
- May 2021 Metro Board approved contract with SCE to upgrade service at D9 & El Monte Transit Center
- May 2021 Metro Board approved change order with BYD for depot chargers
- Testing five of sixty (60) base order 40' BYD pilot buses for Silver only; production to start upon proof of design
- June 2021- Request Board approval for \$50M LOP to complete electrification of Silver Line:
 - Complete construction design
 - Install depot chargers
 - Procure and install en-route chargers



Next Steps

- June 2021 - Request for Board approval of LOP for \$50M to complete electrification of the Silver Line
 - Commence specification updates and advanced conceptual design efforts to produce solicitation documents for the charging infrastructure program for the Silver Line
- June 2021 - Report outlines the approach to convert Metro's CNG bus operations to zero emission by 2030
 - Continue to pursue competitive grants, identify additional funding sources, and incorporate the 2030 Zero Emissions Bus program in the SRTP and LRTP