

# CAPITAL PROJECTS UPDATE

## WITH A FOCUS ON THE ZERO EMISSION BUS PROGRAM

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# AGENDA

1. Capital Improvement Plan
2. Zero Emission Bus Fleet
3. Zero Emission Bus Infrastructure
4. Funding the Zero Emission Program
5. Legislative Advocacy for Zero Emission Program
6. Branding Concepts for ZEBs



# CAPITAL IMPROVEMENT PLAN

The Capital Improvement Plan (CIP) is the primary mechanism that authorizes Capital Projects and Capital Purchases per Board Policy 314.

- 5-year plan updated every two years
- Ensures alignment with other Board approved plans
- Confirmed annually in the Capital Budget
- Developed by the Capital Programming Committee
- Reviewed by the General Manager
- Adopted by the Board of Directors



# CAPITAL IMPROVEMENT PLAN

Staff uses the Capital Improvement Plan (CIP) to

- Identify Capital Projects
- Identify Equipment Purchases
- Provides a Planning Schedule
- Identifies Funding Sources

All Projects and Purchases must be included in the CIP and approved in the Capital Budget before they begin.



# ZERO EMISSION BUS FLEET

## TRANSITION GUIDING PRINCIPLES

- Replace the fleet per Federal Transit Administration (FTA) mandated Transit Asset Management (TAM) Plan Performance Targets
- Prioritize ZEB deployment per the AC Transit Board adopted Clean Corridors Plan
- Procure ZEBs based on vehicle and infrastructure technology capabilities to meet service requirements
- Deploy ZEB technology that is most efficient and sustainable to operate
- Meet the 2040 Innovative Clean Transit (ICT) Goal



# ZERO EMISSION BUS FLEET

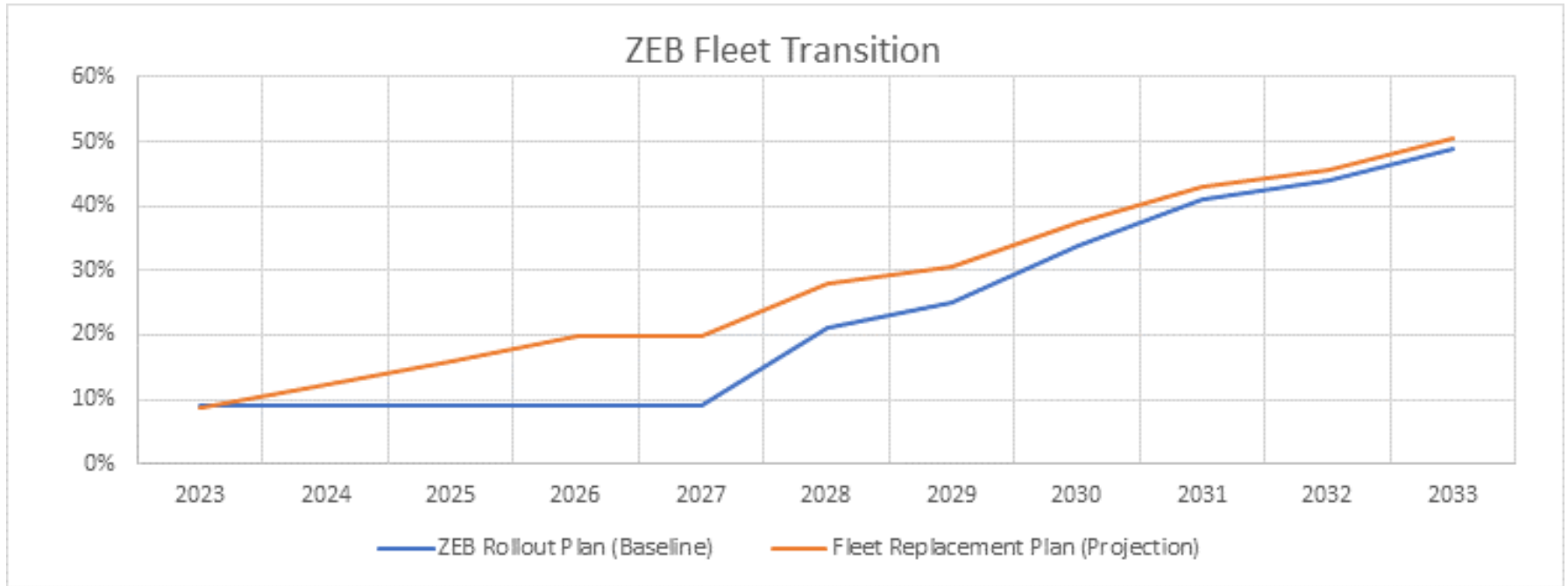
## CURRENT ACTIVE BUS ORDERS

- (2) Gillig 40' Battery Electric
- (36) Motor Coach Industries 45' Diesel
- (20) New Flyer 40' Fuel Cell
- (21) Gillig 40' Battery Electric
- (50) Gillig 40' Diesel



# ZERO EMISSION BUS FLEET

## PROJECTED BUS REPLACEMENT



# ZEB INFRASTRUCTURE

## EXISTING ZERO EMISSION BUS INFRASTRUCTURE

### D4 – Oakland Infrastructure

#### – Battery Electric Bus Infrastructure

- Six (6) Bus Capacity - Commissioned in March, 2020
- 62.5 kw per charger combinable to 125 kw for faster charging

#### – Hydrogen Fuel Cell Bus Infrastructure

- 13 Bus Capacity – Commissioned in October, 2014
- Liquid Hydrogen Supply
- Gaseous compression system with two dispensers





# ZEB INFRASTRUCTURE

## EXISTING ZERO EMISSION BUS INFRASTRUCTURE

### D2 - Emeryville

- Hydrogen Fuel Cell Bus Infrastructure
  - 65 Bus Capacity – Commissioned in December, 2019
  - Liquid Hydrogen Supply
  - Cryogenic liquid pump system with two dispensers



# ZEB INFRASTRUCTURE

## FUNDED PROJECTS IN PROCESS

### D2 - Emeryville

- Battery Electric Bus Charging Infrastructure
  - 16-22 Bus Capacity Planned
  - Providing for Expansion of 10 Additional Buses
  - Current Status – 75% complete with the Detailed Design
  - Charging equipment out to bid now
  - Completion Planned End of March 2022
  - Resiliency – Battery Electric Storage System (BESS)



# ZEB INFRASTRUCTURE

## FUNDED PROJECTS IN PROCESS

### D4 - Oakland

- Battery Electric Bus Charging Infrastructure
  - 25 Bus Capacity Planned
  - Providing for Expansion of 25 Additional Buses
  - Overhead Trellis with drop down plug ins
  - Current Status – 50% complete with Preliminary Design
  - Project includes a new parking lot and sound wall at 66th
  - Completion Planned for End of December 2022
  - Resiliency – Battery Electric Storage System (BESS)



# ZEB INFRASTRUCTURE

## FUTURE PROJECTS

### Future Projects Listed in the CIP

- D4 Hydrogen Upgrade (*Partially Funded*)
  - 65 to 130 Bus Capacity Planned
  - Cryogenic liquid pump system conversion
  - Resiliency is key
  - Completion Planned for Mid 2023
- Training & Education Center Modernization (*Unfunded*)
  - \$17M Rough Order Of Magnitude Estimate



# ZEB INFRASTRUCTURE

## CAPACITY FROM EXISTING AND CURRENT PROJECTS

<b>Hydrogen Fuel Cell Bus Capacity</b>	<b>Emeryville</b>	<b>Oakland</b>
Existing Capacity	65 Buses	13 Buses
Capacity in Development	0 Buses	0 Buses
Planned Capacity at 2022-12-31	65 Buses	13 Buses

<b>Battery Electric Bus Capacity</b>	<b>Emeryville</b>	<b>Oakland</b>
Existing Capacity	0 Buses	6 Buses
Capacity in Development	22 Buses	25 Buses
Planned Capacity at 2022-12-31	22 Buses	31 Buses



# COMPARISON

## ZEB ROLLOUT PLAN MILESTONES TO CURRENT PLAN

Facility	Type of Infrastructure	Capacity	ZEB Roll Out Plan Milestone	Current Milestone	Status
Division 2	BEB Plug Ins	20	2020-2021	2021-2022	Delay
Division 2	BEB Overhead Chargers Hydrogen Station	180	2025-2030	2026-2030	On Track
Division 3	BEB Plug Ins	5-10	2023-2025	2024-2026	Delay
Division 3	BEB Overhead Chargers Hydrogen Station	100	2032-2035	2032-2035	On Track
Division 4	BEB Overhead Chargers	25-50	2022-2023	2022-2023	On Track
Division 4	BEB Overhead Chargers Hydrogen Station	200-250	2023-2028	2026-2028 2022-2025	On Track Ahead of Schedule
Division 6	BEB Plug in or Overhead Chargers	10-20	2023-2025	2025-2027	Delay
Division 6	Hydrogen Station	180	2035-2038	2035-2038	On Track



# CAPITAL PLAN UPDATE

## CURRENT FUNDED ZERO EMISSION PROJECTS

Project Title	Funding (\$millions)	Project Year
Purchase 40 Zero Emission Buses (20 Fuel Cell, 20 BEB)	\$ 46.0	2021 - 2022
Purchase 3 Battery Electric Buses (AHSC funded)	\$ 3.3	2021 - 2022
D2 Battery Electric Bus Charging Infrastructure	\$ 3.6	2021 - 2022
D4 Battery Electric Bus Charging Facility	\$ 12.3	2021 - 2022
ZEB Data Integration, Management, Analytics Platform	\$ 0.8	2021 - 2025



# CAPITAL PLAN UPDATE

## FUTURE ZERO EMISSION PROJECTS WITH SECURED OR PENDING FUNDING

Project Title	Funding Amount (\$millions)	Project Year
Division 4 Hydrogen Station Upgrade	\$ 4.6 (pending) \$ 8.0 (pending)	2022 - 2025
Purchase (9) 60-foot Fuel Cell buses	\$10.4 (secured) \$ 3.6 (pending)	2022 - 2023





# CAPITAL PLAN UPDATE

## FUTURE ZERO EMISSION PROJECTS

### PENDING FUNDING APPLICATIONS

Project Title	Funding Amount	Potential Start Year
<b><u>Facilities Projects</u></b>		
TEC Modernization	\$ 17.0 million	2022
CMF Pre-Delivery Inspection Shop - Hydrogen Maintenance Bay	\$ 2.0 million	2024
<b><u>Bus Purchases</u></b>		
Purchase (17) 40-foot Battery Electric Buses	\$ 19.2 million	2022 - 2023
Purchase (25) 40-foot Fuel Cell Electric Buses	\$ 31.6 million	2022 - 2023
Purchase (23) 60-foot Fuel Cell Electric Buses	\$ 37.5 million	2023 - 2024
Purchase (25) 40-foot Fuel Cell Electric Buses	\$ 32.8 million	2024 - 2025



# CAPITAL PLAN UPDATE

## OVERVIEW OF ALL PLANNED BUS PURCHASES 2020-2025

Fuel Type	Bus Types	Number of Buses	Funding Amount (\$millions)
Diesel Buses	MCI Coaches	50	\$ 160
	Double Decker	5	
	40-foot	190	
	30-foot	10	
Battery Electric Buses	40-foot	40	\$ 42
Fuel Cell Buses	40-foot	70	\$ 140
	60-foot articulated	32	

Note: Of the buses listed above, two BEBs and one MCI Coach have been delivered at this time.



# LEGISLATIVE ADVOCACY

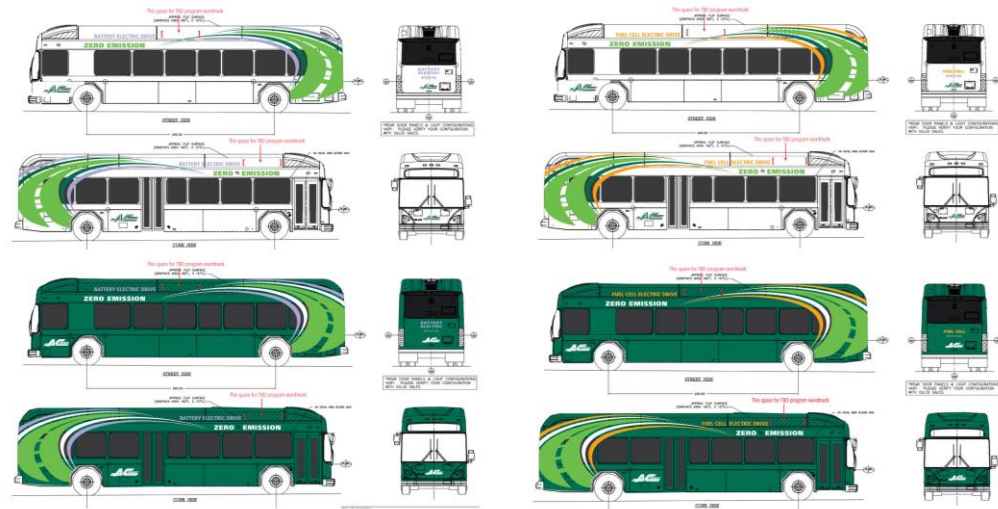
## FOR ZERO EMISSION PROGRAM

- Earmarks: Successfully advocated for federal earmarks (\$2M each from Rep. Lee and Senator Padilla) and submitted state earmark requests.
- Workforce Training: Advocated for funding of Training and Education Center upgrades and curriculum development
- ZEB Deployments: Successfully advocated for \$100 million set aside for funding zero emission deployments for transit agencies
- Tours: Hosted state legislators at D4 for a tour of zero emission infrastructure



# BRANDING AND MARKETING FOR ZEBs

- AC Transit will amplify the visibility of District's ZEB initiatives through marketing, communications and branding
- ZEB will be promoted through assets like digital communications, collateral production, new naming infrastructure and partnership and co-marketing opportunities
- To start, an eye-catching new livery paint scheme designed to capture the essence of the District's visionary leadership with ZEB by leveraging the existing ZEB livery combined with the upcoming rebranding look will roll out by the end of the year.



# CAPITAL PROJECTS UPDATE

WITH A FOCUS ON THE ZERO EMISSION BUS PROGRAM

*Thank you for your attention*

*Questions are Appreciated*

