



SFMTA

Zero-Emission Bus Rollout Plan

SFMTA Board
March 16, 2021

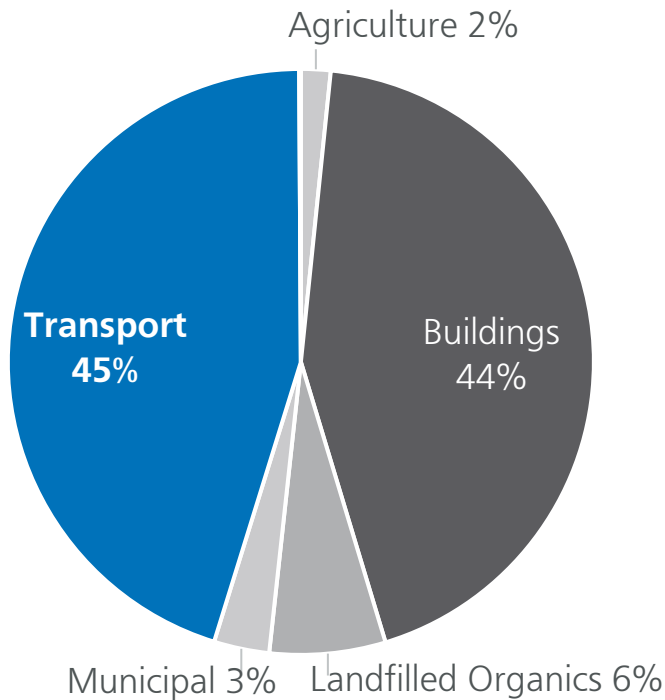
Introduction

- **2018:** SFMTA adopts **Zero-Emission Vehicle Policy**
- **2019:** California Air Resources Board (CARB) implemented the **Innovative Clean Transit (ICT)** regulation
 - Requires a board approved ZEB Rollout Plan to be submitted to CARB by March 31, 2021
- **2019 – 2021:** SFMTA contracts with WSP USA, Inc. to produce the **SFMTA's Rollout Plan** which includes:
 - A schedule for fleet purchase and facilities infrastructure upgrades
 - Identification of potential funding sources
 - Identification of start-up and scaling challenges

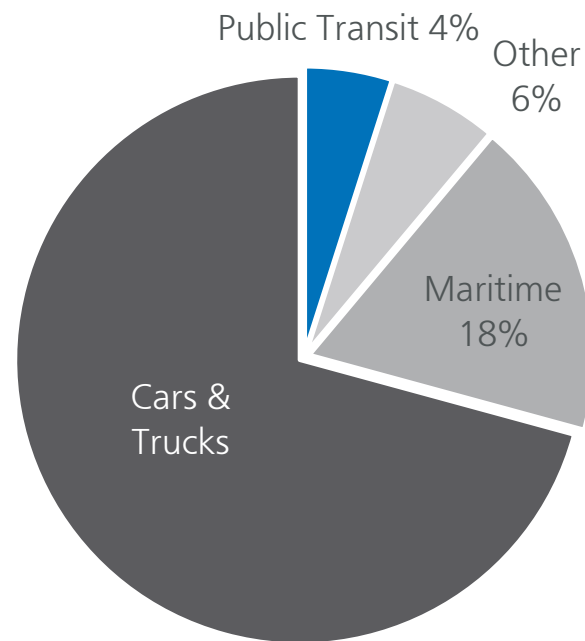
Climate Action at SFMTA

- SFMTA is committed to mitigating the impacts of climate change and addressing transportation sector greenhouse gas (GHG) emissions
- SFMTA is a national leader in reduced or zero emission transit vehicles

San Francisco Greenhouse Gas Emissions (2018)



Citywide



Transportation Sector

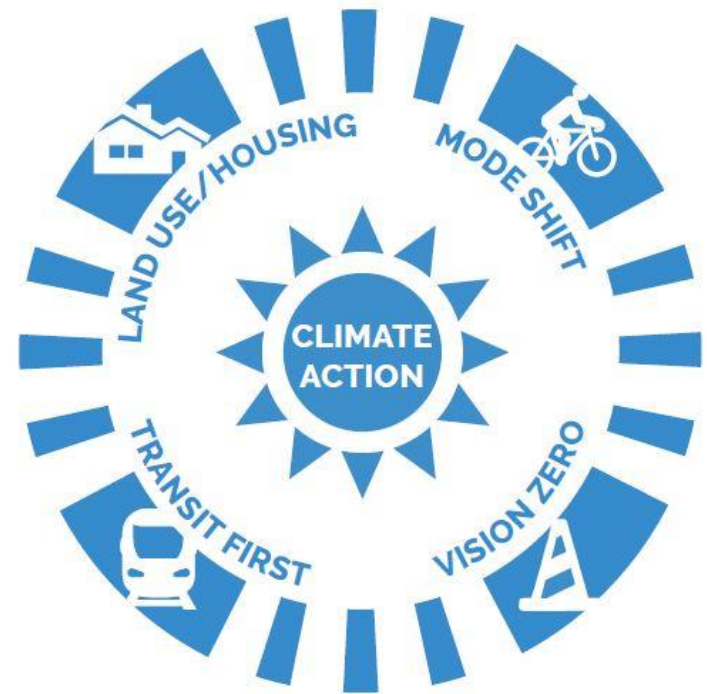
.01% of citywide emissions are attributable to Muni fleet

Climate Action at SFMTA

SFMTA is committed to procurement of Battery Electric Buses as per our Zero Emission Vehicle Policy

Our approach to mitigating climate impacts and reducing transportation sector emissions must include diverse and holistic multimodal strategies

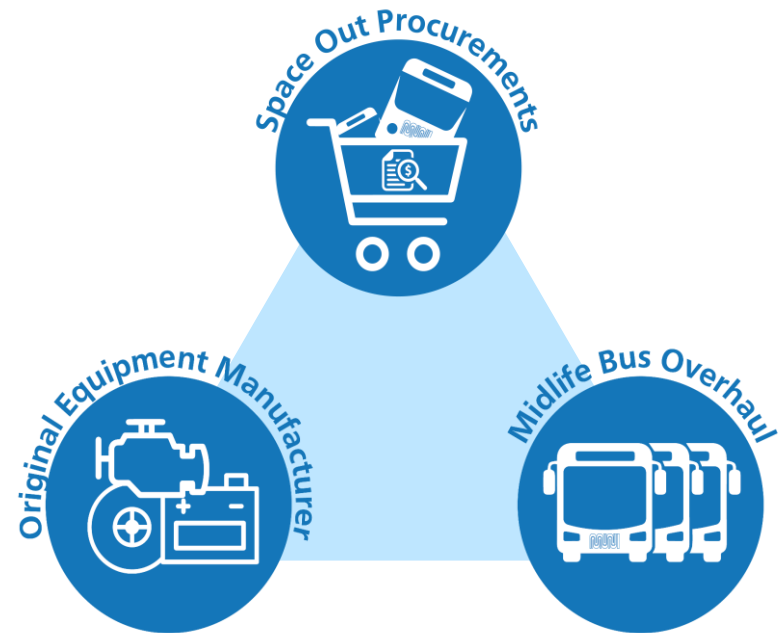
In addition to making progress towards a zero-emission transit system, providing quality and reliable service will be critical for Muni to enable mode shift from private auto use



SFMTA's Approach to Fleet Management

Guiding Principles

- Maintain consistent fleet average age
- Performance-based procurements
- Develop robust maintenance standards
- Align with City's sustainability goals
- Anticipate and accommodate growth
- Maintain a spare ratio of 20%



SFMTA's Zero-Emission Vehicle (ZEV) Policy

- As of May 8, 2018:
- Outlines path to reduce emissions and incorporate sustainable, Battery Electric Buses into revenue service.
- Sets goal for:
 - (1) Battery Electric Bus purchase starting in 2025
 - (2) 100% battery electric bus fleet by 2035.

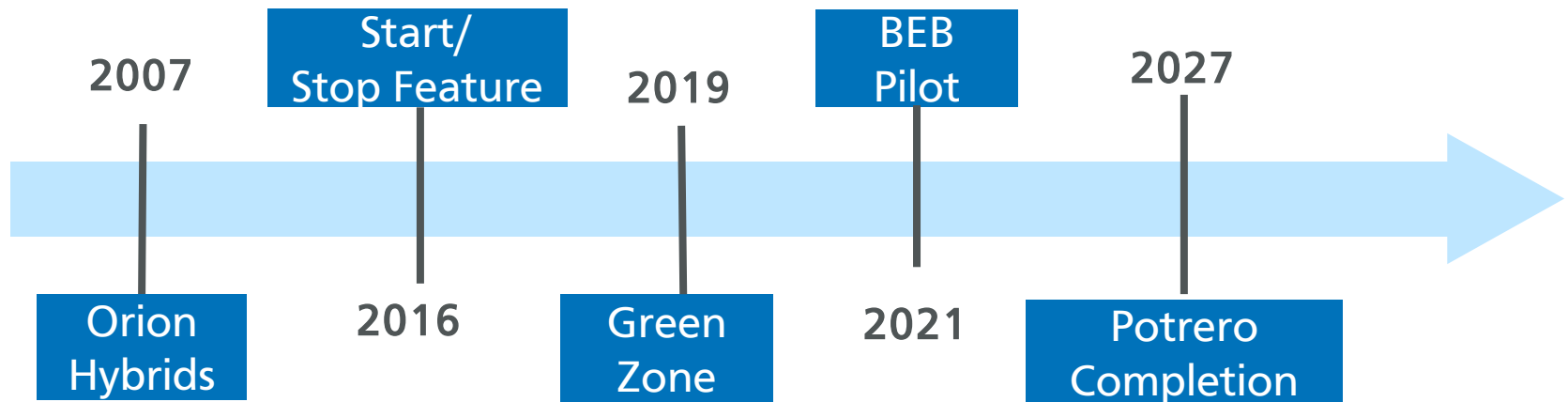
CARB Innovative Clean Transit (ICT) Regulation

- Set goal for all CA public transit fleets to be zero-emission by 2040.
- Establishes ZEV purchase milestones:
 - Jan '23: 25%
 - Jan '26: 50%
 - Jan '29: 100%
- Requires a board approved ZEB Rollout Plan outlining agency transition strategy
- Bonus credits offered for early adoption of ZE vehicles, including trolley buses.

Progress Towards Zero-Emission Policy

Recent Accomplishments

- Launched a 40' Pilot program to test Battery Electric Bus (BEB) – first buses arrive this spring, planning to request adding fourth manufacturer
- Initiated construction of scalable charging infrastructure for the BEB pilot program at Woods Division
- Completed the Design Criteria Document and Request for Qualifications Process for the Potrero Yard Modernization Project, the SFMTA's first purpose-build BEB facility



Alignment between SFMTA's Policy and ICT Regulation

- With robust planning and investment, SFMTA will be compliant with the ICT regulation
- Despite strong progress, SFMTA is not currently on track to deliver on the more ambitious SFMTA Zero-Emission Vehicle Policy
- Over the next 6-9 months, staff will be evaluating the feasibility of meeting Zero Emission Policy's timeframe.

Proposed Procurement Schedule

Roll Out Plan's Bus Procurement Schedule

- **2021:** 30 x 30' Replacement Hybrid Electric Buses
- **2025:** 112 x 40' Replacement Hybrid Electric Buses
 - The SFMTA may utilize 30 bonus credits: 18 from our existing trolley buses and 9-12 for our planned electric bus pilot to meet the ICT regulation.
 - The SFMTA needs next 6-9 months to evaluate the feasibility of meeting the ZEV policy.
- **2027 and onward:** 100% zero-emissions buses

Proposed Facility Transition Schedule

	Current Fleet Capacity & Type	Project Timeline	Comments
Potrero	93 – 60ft Trolleys 53 – 40ft Trolleys	2024-2027	Rebuild to 213 capacity
Kirkland	91– 40ft Hybrids	2024-2027	Likely Retrofit (under analysis)
Flynn	119 – 60ft Hybrids	2025-2028	Retrofit
Presidio	132 – 40ft Trolleys	2028-2031	Rebuild to 225 capacity
Islais Creek	105 - 60ft Hybrids 10 - 30ft Hybrid	2030-2033	Retrofit
Woods	221- 40ft Hybrids 20 - 30ft Hybrids	2034-2037	Likely Rebuild (under analysis)

Challenges

Ongoing Fiscal
Uncertainty

Timing

Complexity

COVID 19 Impacts and
Future Resiliency

Challenges

Ongoing Fiscal Uncertainty

- Initial cost estimate for vehicles is \$1.4B and for facilities upgrades/rebuild is in the range of \$2 - 3B (rebuild + conversion)
- The Facilities and Fleet Plan (currently in development) will provide comprehensive cost estimates, including:
 - facility retrofits, code compliance upgrades (SGR)
 - utility work required by PG&E, or
 - facilities already programmed for full rebuild with e-bus as a component
- These additional costs could easily triple the facility cost
- The SFMTA's budget crisis means we have a funding gap for a ZE transition starting in 2025

Challenges

Timing of Facility Upgrades

- Charging infrastructure must be in place in advance of procuring BEBs
- Facility capital projects have long lead times – 3-5 years for retrofit, and 6-10 years for full rebuild projects
- Potrero will be the first purpose-built BEB facility and is planned to be completed in 2026; planning phase began in 2017
- Transitioning of all facilities is a complex process that relies on delivery efficiency and related project phasing

Challenges

Complexity

- BEBs require extensive power above existing power capacity at our facilities.
- Provision of new electrical service and any associated grid improvements are beyond the SFMTA's control. This is dependent on PG&E's commitment to deliver the required power upgrades in a timely manner.
- Significant coordination and collaboration with PG&E.
- Facility rebuilds requires significant logistical planning to ensure transition minimizes disruption to service.

Challenges

COVID 19 Impacts and Future Resiliency

- The pilot program has been delayed, minimizing our experience to date with the BEBs.
- Covid-19 has highlighted the importance of fleet and facility resiliency and has emphasized the need to be prepared for uncertainty and the ability to act nimbly.
- The ZEV Policy and the ICT regulation does not address emergency/contingency fleet needs.
- The industry needs more time to evaluate the performance of BEBs in emergency response roles.

Next Steps

- SFMTA staff will lead a 6 - 9 month policy discussion on the path to future of zero-emissions bus fleet
 - Conduct stakeholder engagement, including environmental groups, policy makers and labor unions
 - Bring forth manufacturer for eBus pilot to SFMTA Board for consideration
 - Evaluate potential to accelerate Kirkland retrofit
 - Continue to engage with PG&E and SFPUC to ensure needed power is available
 - Continue pursuing funding strategies
- Update ZEB Rollout Plan in 2022 to reflect our findings and further refine our path forward



Thank you

