

Securing Funding for ZEBs



Alison Smyth

Lead Engineering Consultant
Center for Transportation & the Environment



About CTE



WHO WE ARE

501(c)(3) nonprofit engineering and planning firm



OUR MISSION

Improve the health of our climate and communities by bringing people together to develop and commercialize clean, efficient, and sustainable transportation technologies



PORTFOLIO

\$800+ million

- *Research, demonstration, deployment*
- *96 Active Projects totaling over \$302 million*



OUR FOCUS

Zero-Emission Transportation Technologies



NATIONAL PRESENCE

Atlanta, Berkeley, Los Angeles, St. Paul



Our Four Service Areas



Prototype Development & Demonstration

We support technology providers through technology research, development, and demonstration.



Smart Deployment

We support early adopters by providing the best technical solutions for initial deployments.



Fleet Transition

We help fleet operators implement strategic plans for full electrification.



Education & Outreach

We help organizations of all shapes and sizes stay ahead of the technology curve.

Proposal and Grant Writing

We respond to federal and state opportunities to advance the zero-emission vehicle industry.
Supported over 50 transit agencies in requesting funding from the FTA's Low-No program in 2022

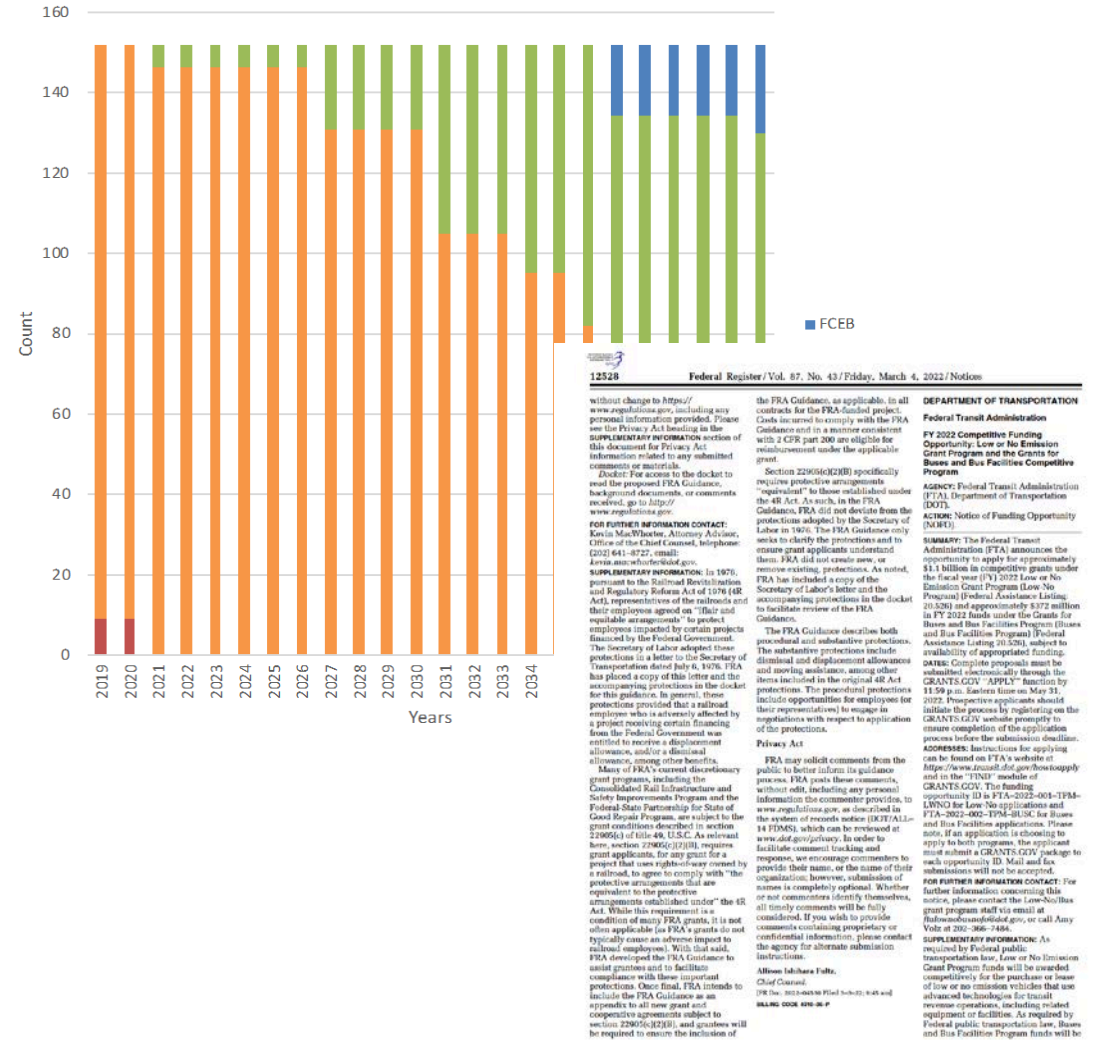
CTE wrote proposals for and managed multiple FTA funded National Fuel Cell Bus Program projects to develop and commercialize fuel cell electric buses in the United States.

CTE has applied for and been awarded funding under CARB, CEC, DOD, DOE, DOI, EPA, and FTA programs.

CTE and its project partners have secured over \$800 million dollars in public funding for zero-emission bus projects.

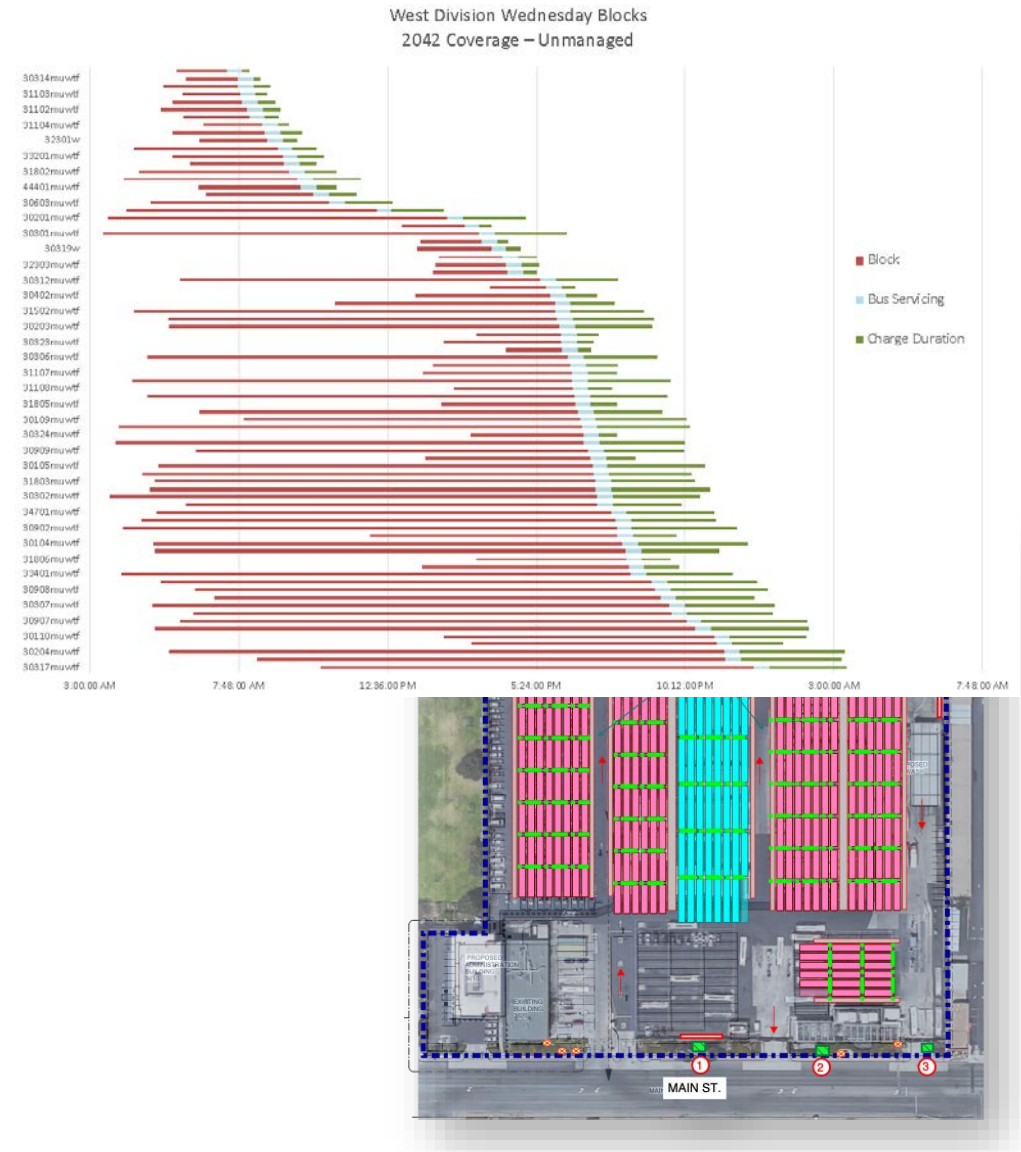
Plan your project early

- Developing a zero-emission vehicle deployment strategy takes time
- Many funding opportunities are announced before the solicitation is released



ZEB Planning

- Understand vehicle capabilities
 - Power requirements and limitations
 - Energy consumption under different topography, speed, and weather conditions
- Commuter bus and cutaway markets are not as far along the commercialization pathway as low-floor transit buses and cars
- Know infrastructure requirements



CARB Innovative Clean Transit Regulation

100% ZEB Fleet by 2040 is not a mandate, but a goal
There is only a *purchasing* mandate:

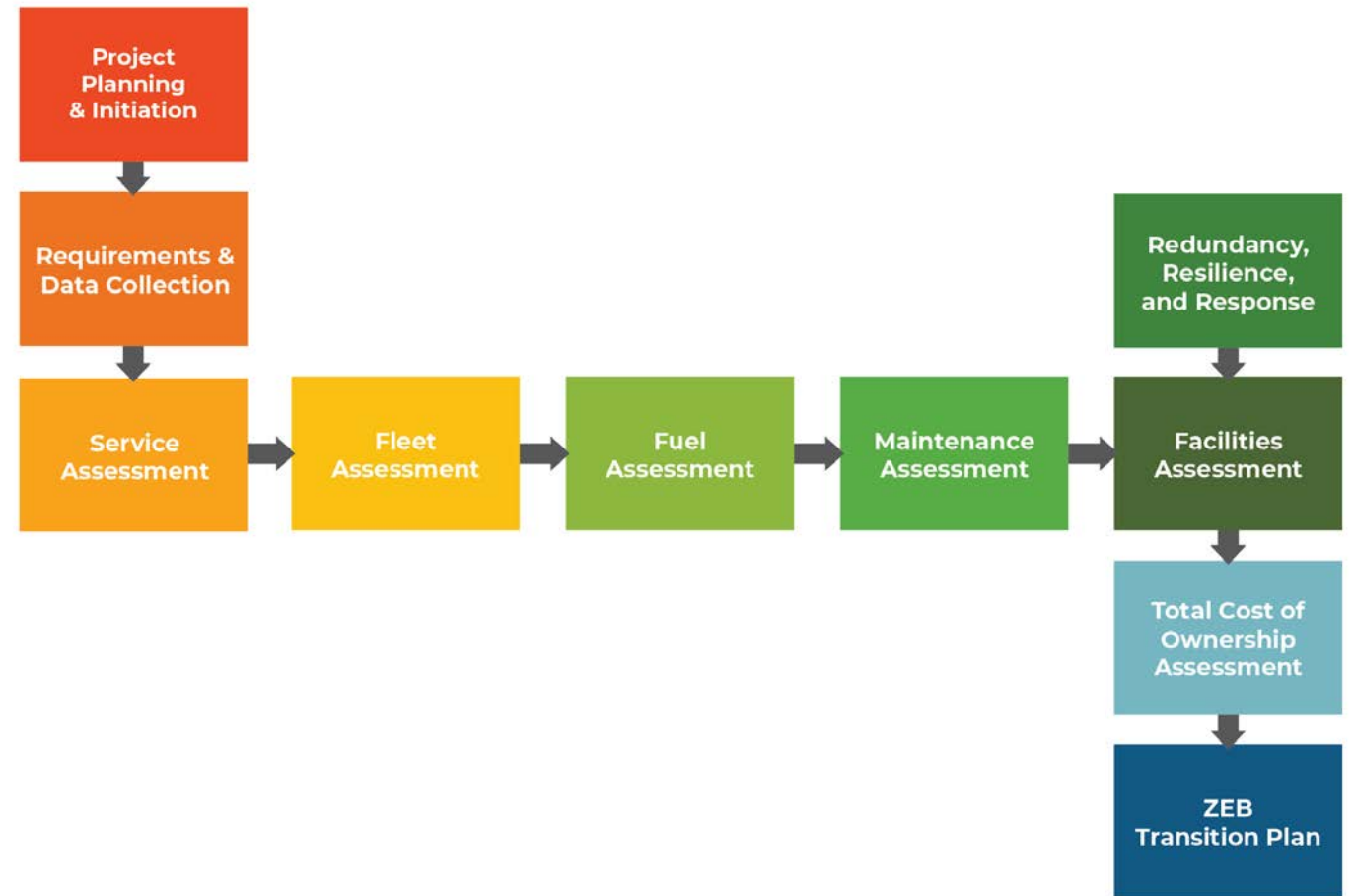
ZEB Purchase Requirements – Small Agencies

Starting January 1	ZEB Percentage of Total New Bus Purchases
2026	25%
2027	25%
2028	25%
2029	100%

- Small CA Transit Agencies (<100 buses) are required to submit a board-approved ZEB Rollout Plan by **July 1, 2023**.
- Agencies may request exemption from ZEB purchase requirements
- Cutaway buses, motor coaches, and articulated buses will be excluded until January 1, 2026 or the applicable bus type has passed and obtained a Altoona bus testing report

Transition Planning

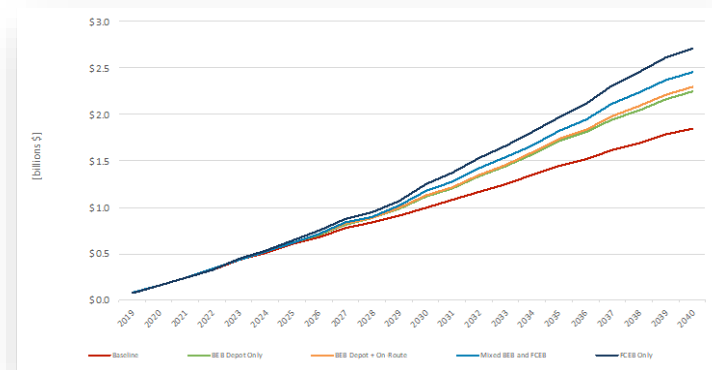
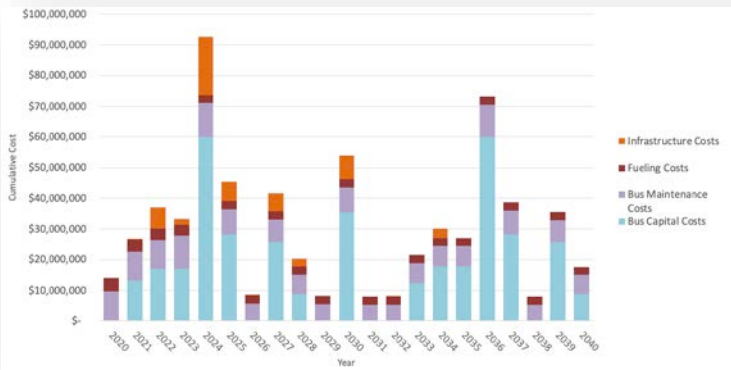
- ICT rule implementation
- Required for applying for Low-No funds
- Nine months to develop comprehensive plan
- Planning is critical for understanding costs and funding needs



ZEB Transition Analysis

Total Cost of Ownership Assessment

- Total Cost of Ownership (TCO) summarizes lifecycle costs of major capital and operating cost components on an annualized basis over the transition period.
- Includes bus procurements, fuel, maintenance, and equipment, infrastructure, facility upgrades, and design, construction and installation services.



Funding opportunities

- Block Grants
 - CEC EnerglIZE program
- Capital programs
 - FTA's Low or No Emission Vehicle Program
- Rebates
 - PG&E EV Fleet Program
- Voucher programs
 - HVIP

Thank You!

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