

# Zero Emission Non-Revenue Vehicle Transition Plan



## ZENRV Transition Overview

AC Transit is advancing toward a 100% Zero Emission Vehicle fleet across all operational areas, including its 146-unit non-revenue vehicle fleet. This initiative supports California's Executive Order N-79-20 and aligns with AC Transit's Transit Asset Management (TAM) Plan and Zero Emission Bus Transition Plan. The current plan aims to fully transition the non-revenue fleet to zero emission vehicles by 2040, contingent on infrastructure readiness, vehicle availability, and financial resources.

The District operates 146 active non-revenue vehicles—including cars, trucks, vans, and SUVs—supporting key operational and administrative functions. These vehicles are distributed throughout the District according to service needs that include:

- Road supervision and emergency response
- Maintenance and parts delivery
- Operator relief and facilities services
- Administrative transportation, mail delivery, and meetings

## ZENRV Objectives

The AC Transit Zero Emission Non-Revenue Vehicle Transition (ZENRV) Plan considers current state, federal, and local regulations, along with available technology and the District's operational needs. This aligns with the Zero Emission Bus Transition Plan and the Transit Asset Management (TAM) Plan. The TAM committee and internal stakeholders define criteria for assessing vehicle replacement, infrastructure, and the energy requirements needed to achieve the goal of a 100% transition.

The ZENRV transition plan will align the non-revenue vehicle fleet with our zero emission buses, incorporating similar guiding principles that can be found in the Zero Emission Bus (ZEB) Transition Plan:

1. Replace the vehicles per the Federal Transit Administration (FTA) mandated Transit Asset Management (TAM) Plan Performance Targets
2. Meet California Advanced Clean Fleets (ACF) Regulations when purchasing vehicles over 8,500 lbs. gross vehicle weight rating (GVWR)
3. Procure ZENRVs based on funding/vehicle availability, infrastructure technology capabilities, and duty cycle
4. Deploy ZENRV technology that is the most efficient and sustainable to operate

## ZENRV Transition Schedule

AC Transit maintains a fleet of 146 active non-revenue vehicles—including sedans, trucks, vans, and SUVs—strategically deployed across the District to support vital operational and administrative functions. These vehicles play a critical role in enabling field supervision, parts delivery, emergency road response, facility and bus stop maintenance, operator shuttling, mail service, and interdepartmental coordination.

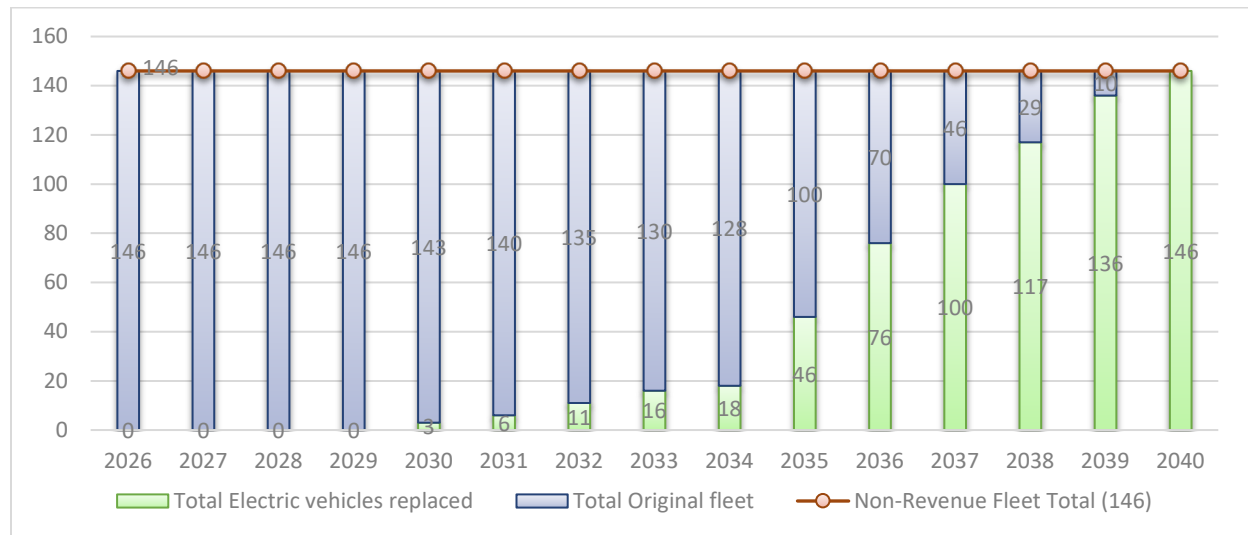
Figure 1: Future ZENRV fleet by asset type

Technology	Asset Type	Qty	%
Battery Electric	Car	52	36%
	Truck	40	27%
	Van	28	19%
	SUV	26	18%
Total		146	100%

In alignment with the District's Zero Emission Non-Revenue Vehicle (ZENRV) objectives and Transit Asset Management (TAM) Plan, AC Transit is advancing a full transition to a 100% zero emission non-revenue fleet by 2040. Key transition assumptions include:

- **Fleet Baseline:** A no-growth scenario is maintained, holding the fleet size at 146 vehicles through 2040.
- **Technology Strategy:** The transition strategy focuses exclusively on Battery Electric Vehicles (BEVs), as hydrogen-powered options are currently not supported by state contracts through the Department of General Services (DGS).
- **Implementation Timeline:** Starting in 2035, 20% of the fleet will be replaced with BEVs annually as vehicles reach the end of their service life.
- **Energy Planning:** Electricity demand projections are calculated using gasoline-equivalent conversion factors from U.S. National Laboratories and AC Transit's cost metrics.

Figure 2: Baseline transition to Zero Emission Vehicles by year



This zero-emission transition supports state and federal clean air mandates while reinforcing AC Transit's environmental leadership and long-term sustainability goals. Energy infrastructure planning and lifecycle alignment will be essential to the successful execution of this initiative.

## ZENRV Estimated Cost

AC Transit's transition to a 100% Zero Emission Non-Revenue Vehicle (ZENRV) fleet will be supported through procurement via the California Department of General Services (DGS), based on vehicle cost,

technology availability, and configuration options. Given the current unavailability of hydrogen fuel cell vehicles through DGS contracts, the District's transition strategy will focus exclusively on Battery Electric Vehicles (BEVs). This approach may be revised once hydrogen vehicle options become accessible. The table below provides ZENRV pricing ranges.

Figure 3: DGS ZENRV Pricing

	Low	High	Avg
Car	\$44,797	\$47,853	\$46,325
Truck	\$48,817	\$75,300	\$62,059
SUV	\$44,199	\$58,300	\$51,250
Van	\$44,043	\$57,796	\$50,920

To enable successful deployment, the ZENRV transition will require infrastructure enhancements similar to AC Transit's Division 3 and Division 4 employee vehicle charging equipment, including facility upgrades and installation of supporting equipment. A 25% capital cost factor has been applied to account for these infrastructure needs. Additionally, a 3% annual cost escalation accounts for inflationary pressures and potential engineering modifications.

The estimated total investment to convert 146 non-revenue vehicles, including both vehicle procurement and infrastructure, is \$12.8 million. This estimate is based on DGS pricing and projected in 5-year increments through 2040 in the table below.

Figure 4: Transition Funding Need

Time Period	ZENRV Qty	Estimated Vehicle Cost (Million)	Charger Qty	Estimated Infrastructure Upgrade Cost (Million)
2026-2030	3	0.2	2	\$0.05
2031-2035	43	3.0	21	\$0.754
2036-2040	100	7.0	52	\$1.8
	146	\$10.2	75	\$2.6

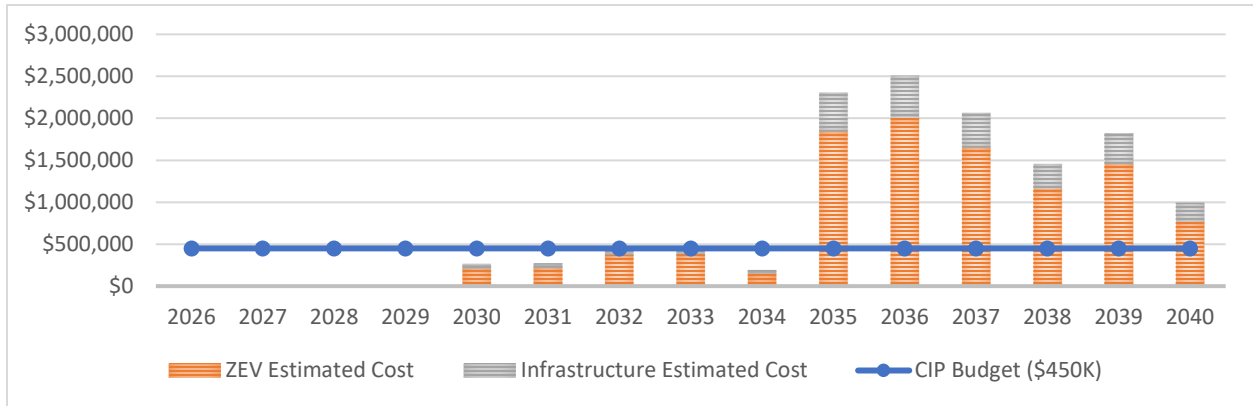
While the District's Capital Improvement Program (CIP) currently allocates \$450,000 annually for vehicle replacements, adjustments will be necessary beginning in 2035, when California Air Resources Board (CARB) regulations will mandate that only zero emission vehicles be procured.

Future considerations include:

- Solar integration to offset charging costs;
- Potential adoption of hydrogen vehicles and associated infrastructure;
- Decommissioning of legacy fueling systems and underground tanks;
- Ongoing operational costs for electricity (including peak/off-peak rates), maintenance (anticipated to decline), and increases in taxes, registration, and insurance.

Strategic alignment of capital and operational resources will be essential to ensuring a cost-effective and regulatory-compliant transition to a fully zero-emission support fleet.

Figure 5: ZENRV Transition Cost Estimates by Year



## Energy Requirements

As part of AC Transit’s Zero Emission Non-Revenue Vehicle (ZENRV) transition strategy, the District has conducted an energy usage and cost analysis to estimate the impact of shifting from gasoline to battery electric technology. Using U.S. National Laboratory conversion factors and District-specific energy pricing, gasoline consumption served as the baseline to project electric energy requirements.

Figure 6: Usage and Cost Conversion Factors

	Gasoline (Gal)	Electricity (kWh)
Equivalent Rate	1	33.4
Cost per Unit	\$3.90	\$0.22

The full electrification of the 146 non-revenue vehicles is expected to require approximately 2.2 million kWh of electricity annually. Based on current market rates, this shift will increase the District’s annual energy expenditure from \$358,000 (gasoline) to an estimated \$489,000 (electric).

Figure 7: Annual Energy Baseline (Gasoline)

Metric	CMF	D-2	D-3	D-4	D-6	Total
Gallons	17,019	24,051	14,386	24,003	12,003	91,462
Cost	\$66,181	\$94,532	\$59,315	\$94,044	\$44,218	\$358,289

Figure 8: ZENRV Energy Conversion

Electricity	Metric	CMF	D-2	D-3	D-4	D-6	Total
	kWh	568,435	538,213	321,930	537,139	268,603	2,234,320
	Cost	\$124,487	\$117,869	\$70,503	\$117,633	\$58,824	\$489,316

While initial energy costs are projected to rise, this increase is expected to stabilize or decline over time as electric technologies evolve, grid infrastructure strengthens, and utility markets adapt. Continuous monitoring of energy pricing and strategic engagement with utility providers will be critical to long-term cost optimization and operational efficiency.