AUSTIN CLIMATE EQUITY PLAN

Achieving Austin's Climate Equity Goals through Fleet Electrification

A Strategic Plan for Transitioning to Battery Electric Vehicles

Fleet Mobility Services

Emerging Technology

Rick Harland | Assistant Director | Fleet Mobility Services

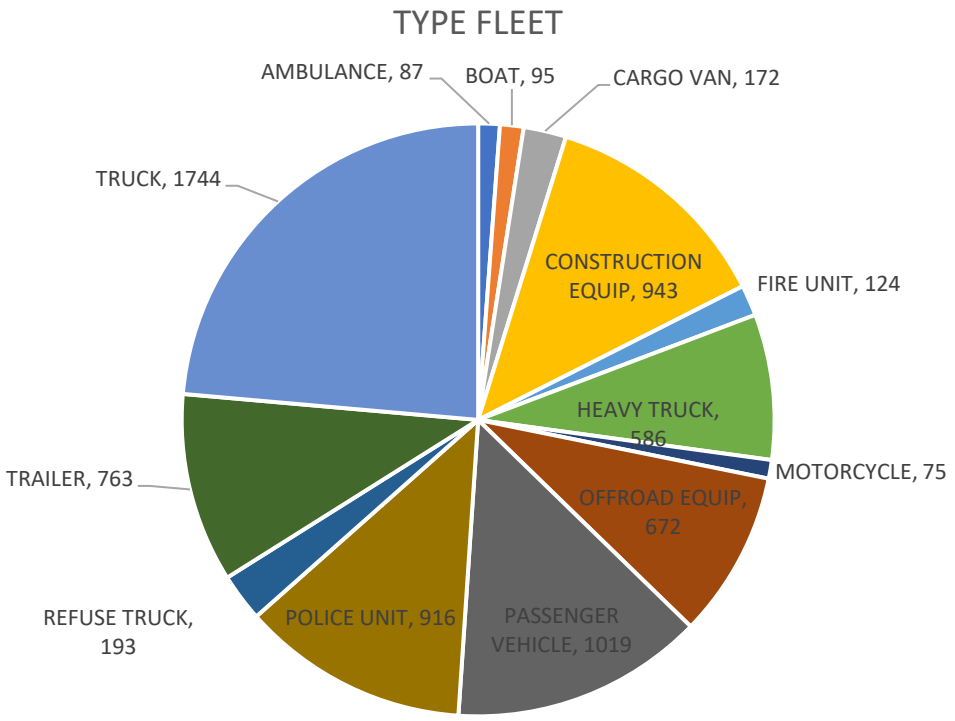
Date: March 27th, 2024

Austin Climate Equity Plan:

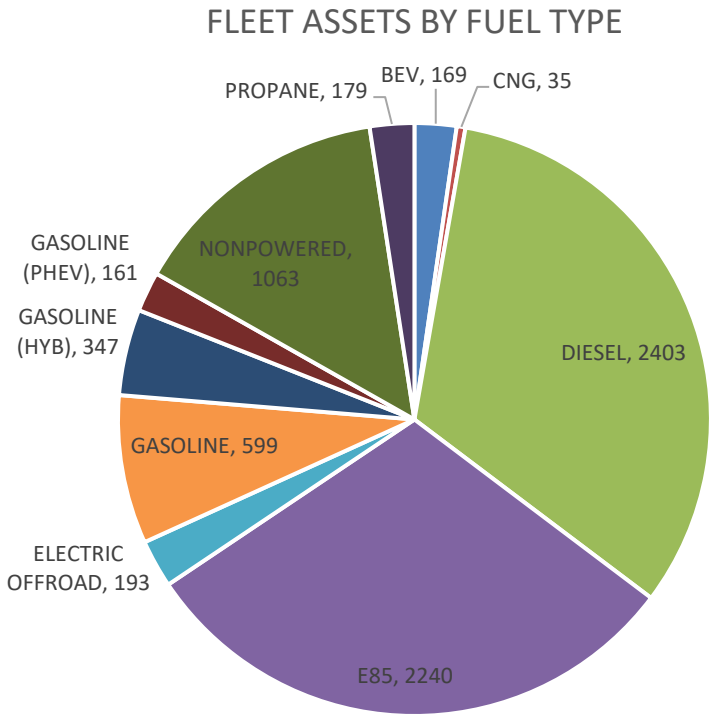
The Austin Climate Equity Plan, adopted by the City Council in September 2021, sets forth an ambitious goal of equitably reaching net-zero community-wide greenhouse gas emissions by 2040, with a strong emphasis on cutting emissions by 2030. To achieve this, the plan outlines specific strategies across various focus areas, including transportation.

2030 Goals:	**Community wide goal of 40% of total vehicle miles traveled in Austin are electrified, indicating that BEVs will play a significant role in the city's transportation system.**
	Charging Infrastructure: Austin aims to have an equitably distributed mix of level 1, level 2, and DC fast-charging stations to support the growing number of electric vehicles on the road.

A Complex and Diversified Fleet



- Our fleet comprises 7389 assets, spanning a diverse range of vehicles and equipment for operational compatibility



- Our fleet utilizes a diverse array of fuel sources to ensure optimal performance and sustainability

Strategic Approach to Transitioning to BEVs

Ensuring operational soundness during transition

Selecting BEVs that meet service duty requirements

Priority on converting light-duty fleet initially

Evaluating and Testing new BEV technology

Setting transition timing goals to align with charging infrastructure development and battery technology advancements

Driving Towards Sustainability: Austin's Fleet Path to 40% Electrified Miles

Our fleet consisting of 5147 on-road assets, travels a total distance of 45,008,577 miles annually.

Our goal here today is to demonstrate how to meet the target of having 40% of total vehicle miles traveled with a BEV equating to approximately 18,000,000 miles annually

Identified Vehicle Category for BEV Adoption

CLASS VEHICLE	QTY	MILEAGE	% TOTAL MILES
PICKUP	1193	8,061,112	17.9%
MED VEH 10,001-19,500	752	7,419,745	16.5%
SUV	521	3,336,302	7.4%
VAN	217	808,334	1.8%
SEDAN	88	458,986	1.0%
SHUTTLE BUS	30	94,769	0.2%
MOTORCYCLE	4	3,189	0.0%
Grand Total	**2805**	**20,182,437**	**44.8%**

Excludes Public Safety Front Line

Battery Electric Vehicle Adoption Rate Forecast - 2040

"Current Glide Path"

2040 BEV Forecast

2040 BEV Adaption Rate:

- 2,171 Purchases over 17 years
- $162.8M in Spending over 17 years
- **14% Average Increase in BEVs each year over 17 years**
- 18,006,512 or 40% total miles driven in 17 years
- **Average 3% increase utilization each year per unit**
- Charging Infrastructure: $11.3M
- **Current Glide Path**
- **Assumptions: Mfg. product diversification and production**

2,171

FLEET PURCHASES

Number of BEV Purchases over 6 Years

45.3M

ANNUAL MILES DRIVEN

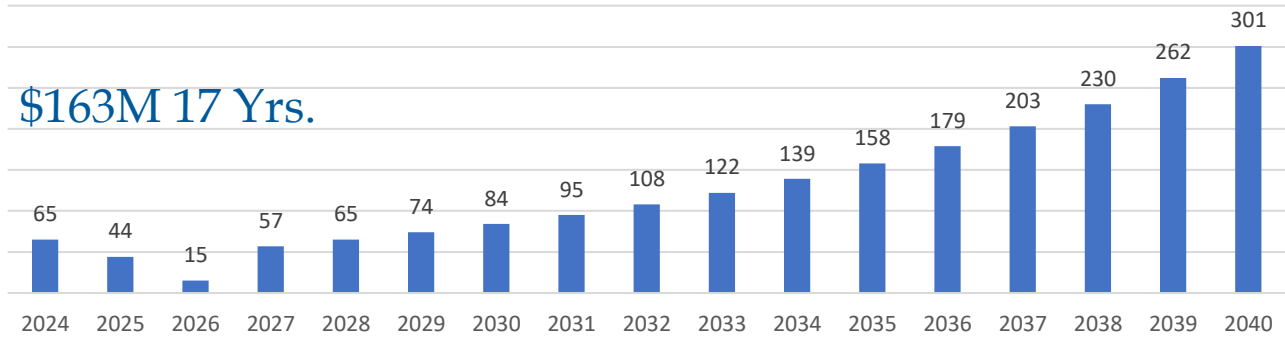
Annual Miles Traveled: Target 40% or 18M Miles Traveled

11.3M

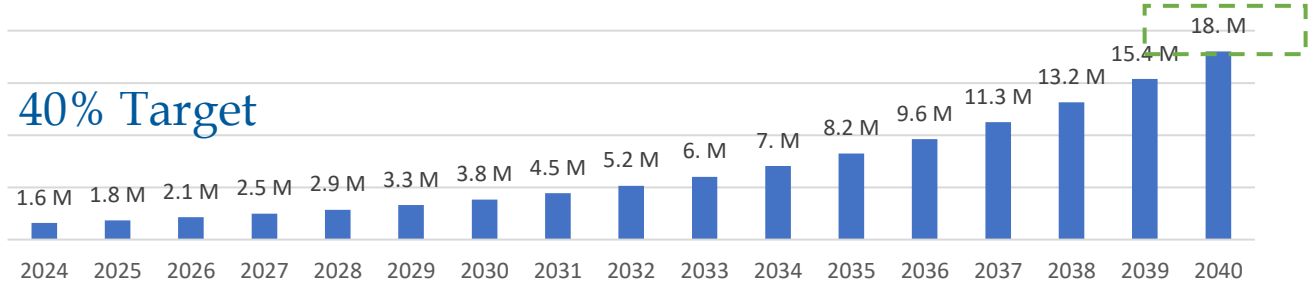
CHARGING INFRASTRUCTURE

Charging Infrastructure over 6 Years

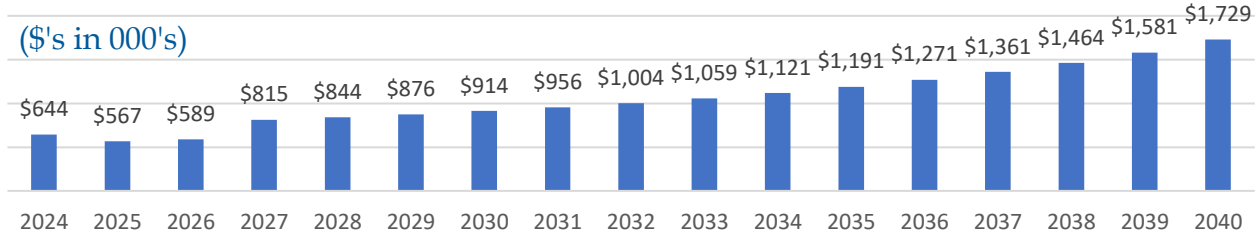
BEV Purchases



Vehicle Miles Traveled



Fuel Transactions



Battery Electric Vehicle Adoption Rate Forecast - 2030

"Higher Risk Option"

2030 BEV Forecast

2030 BEV Adaption Rate:

- 2,171 Purchases over 6 years
- $162.8M in Spending over 6 years
- **40% Average Increase in BEVs each year over 6 years**
- 18,202,711 or 40% total miles driven in 6 years
- **Average 7% increase utilization each year per unit**
- Charging Infrastructure: $11.3M
- **Higher Risk:**
- **Assumptions: Mfg. product diversification and production**

2,171

FLEET PURCHASES

Number of BEV Purchases over 6 Years

45.3M

ANNUAL MILES DRIVEN

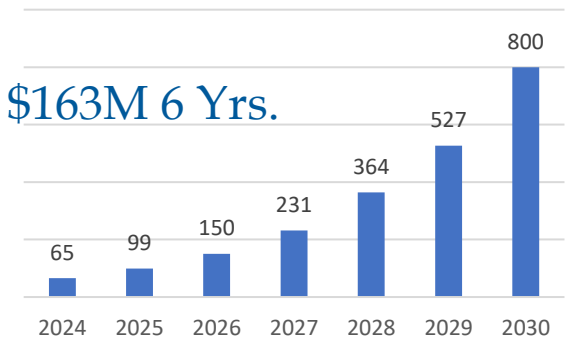
Annual Miles Traveled: Target 40% or 18M Miles Traveled

$11.3M

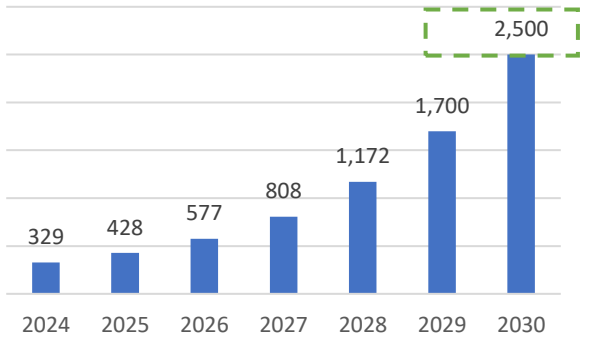
CHARGING INFRASTRUCTURE

Charging Infrastructure over 6 Years

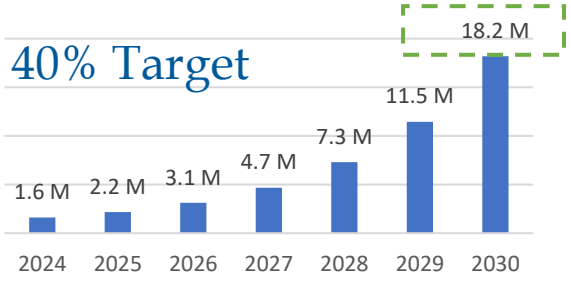
BEV Purchases



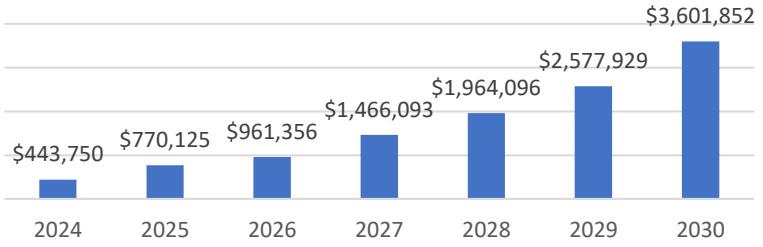
BEV Unit Count



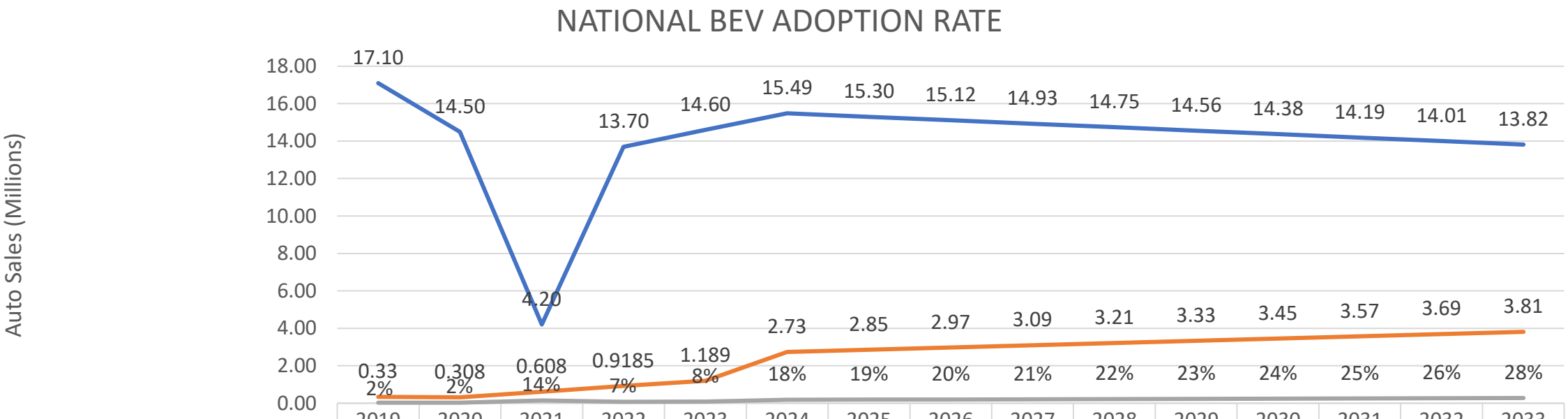
Vehicle Miles Traveled



Charging Infrastructure



Reassessing National BEV Adoption Rate



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Forecasted Sales (Millions)	17.10	14.50	4.20	13.70	14.60	15.49	15.30	15.12	14.93	14.75	14.56	14.38	14.19	14.01	13.82
Forecasted BEV Sales (Millions)	0.33	0.308	0.608	0.9185	1.189	2.73	2.85	2.97	3.09	3.21	3.33	3.45	3.57	3.69	3.81
BEV Sales Percent	2%	2%	14%	7%	8%	18%	19%	20%	21%	22%	23%	24%	25%	26%	28%

- **Issue:** While BEV sales have shown significant year-over-year growth, long-term planning (10 years) necessitates reevaluation
- **Key Drivers:** Market dynamics, consumer preferences, and technological advancements evolve
- **Recommendation:** Regularly reassess adoption rates, considering factors like infrastructure development, policy changes, and consumer behavior are required

Environmental Impact

The transportation sector accounts for over a quarter of total U.S. greenhouse gas (GHG) emissions. Because of this, many organizations now recognize the important role that they play in minimizing the harmful effects of climate change.

42,291

METRIC TONS CARBON SAVINGS

2030 Forecast 42.2 Metric Tons Life to Date CO2 Savings on 2500 EVs
(Thousands)

93,308

METRIC TONS CARBON SAVINGS

2040 Forecast 93.3 Metric Tons Life to Date CO2 Savings on 2500 EVs
(Thousands)

Police Pursuit BEV Opportunity Roadmap Timeline

Timeline Based on Clear Technology Evolution and Change Management Best Practices

Phase 1 (Now - Q1 2024)

Pre-Order Preparation:
Gather Information on Blazer EV PPV specifications. Monitor Chevrolet's announcements for pricing details. Establish communication channels with Chevrolet representatives. Develop a preliminary budget for the pilot program.

Phase 2 (Q1 2024)

Purchase Order:
Place a purchase order (DO) as soon as pricing and order bank open. Confirm order details, including customization options. Initiate discussions for potential early delivery considerations.

Phase 3 (Q1 2024 – Q3 2024)

Charging Infrastructure:
Design dedicated DC Fast charging infrastructure for the pilot. Obtain necessary permits for construction. Begin construction of charging stations. Coordinate with relevant stakeholders for successful implementation.

Phase 4 (Q1 2024)

Vehicle Production:
Monitor Chevrolet's production schedule. Ensure timely updates on the production status. Prepare for the delivery and onboarding process.

Phase 5 (Q4 2024)

Vehicle Arrival and Onboarding:
Receive and inspect the delivered Blazer EV PPVs. Conduct initial training sessions for designated users. Integrate law enforcement equipment and conduct compatibility tests. Set up a system for user feedback and data collection.

Phase 6 (Q1 2025 –Q4 2025)

Pilot Testing:
Execute operational tests in various scenarios. Evaluate performance, acceleration, and handling. Monitor range, battery efficiency, and charging infrastructure compatibility. Assess durability, reliability, and adaptation to different terrains and weather. Collect user feedback and address any issues promptly.

Phase 7 (Q4 2025)

Post-Pilot Evaluation:
Analyze data collected during the pilot period. Conduct a comprehensive evaluation based on predefined criteria. Assess overall cost of ownership, including operational and maintenance costs. Review environmental impact and regulatory compliance. Consider user feedback and warranty/support experiences.

Phase 8 (Q1 2026)

Decision on Full Adoption:
Evaluate the pilot results and make a decision on the full adoption of the Blazer EV PPV. Determine the quantity for a full fleet adoption. Initiate procurement processes for the additional units if applicable.

Phase 9

Operational Go Forward:

Battery Electric Vehicle Transition Flexibility

Battery Electric Vehicle Challenges

Macroeconomic Realities

Impact of economic conditions on funding availability

Cost of Capital, interest rates, inflation

Challenges in rapid BEV adoption due to financial constraints

Expanding DC Fast Charge Infrastructure

Insufficient fast-charging stations hindering BEV adoption

Implications of long charging times

Prioritizing expansion of fast-charging networks

Transitioning Battery Technology

Ongoing transition from lithium-ion to solid-state batteries

Implications of improved range and faster charging

Vehicle Manufacturers' Challenges

Some vehicle manufacturers are pulling back on BEV production goals due to supply chain disruptions, resource scarcity, and market uncertainties.

Diversifying BEV Market

The current BEV market lacks diversity in terms of vehicle types (e.g., sedans, SUVs, trucks) and price points

Addressing Supply Chain Challenges

The global supply chain for critical BEV components (e.g., lithium, cobalt, rare earth metals) faces challenges.

Implications of resource scarcity and geopolitical factors

Conclusion:

- Austin's commitment to achieving 40% of on-road vehicle miles as battery electric by 2030 underscores our dedication to environmental sustainability and equity. Our strategic transition plan, prioritizing vehicle conversion based on manufacturer availability, ensures a methodical approach to reducing emissions. Despite challenges like infrastructure development and supply chain constraints, our flexibility in planning allows us to adapt to evolving conditions and market dynamics.

- Operational soundness remains paramount throughout the transition process. By carefully selecting battery electric vehicles that meet service duty requirements, we ensure continued performance and efficiency. We prioritize the conversion of light-duty fleet vehicles initially, while simultaneously evaluating and testing new BEV technology to optimize our fleet's composition.

- While Austin's Fleet Mobility Services currently aim to achieve a 40% reduction in total miles driven by 2040, we remain dedicated to the objectives outlined in the 2030 Climate Equity Plan. Our acquisition procedures and strategy incorporate a revised annual 5-year forecast, ensuring that our transition timing goals synchronize with the development of charging infrastructure and advancements in battery technology.

Fleet Mobility Services

Thank You

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