



A Cost / Impact Analysis of Greenhouse Gas Reduction Strategies



OFFICE OF
SUSTAINABILITY

CITY OF AUSTIN

Today's Topics

Inform stakeholders and set the context for discussions and decisions on climate action in Austin

Conclusions

Community Climate Plan

Cost / Impact Prioritization

Transportation Sector Modeling

Recommendations

Draft



Analysis Conclusions

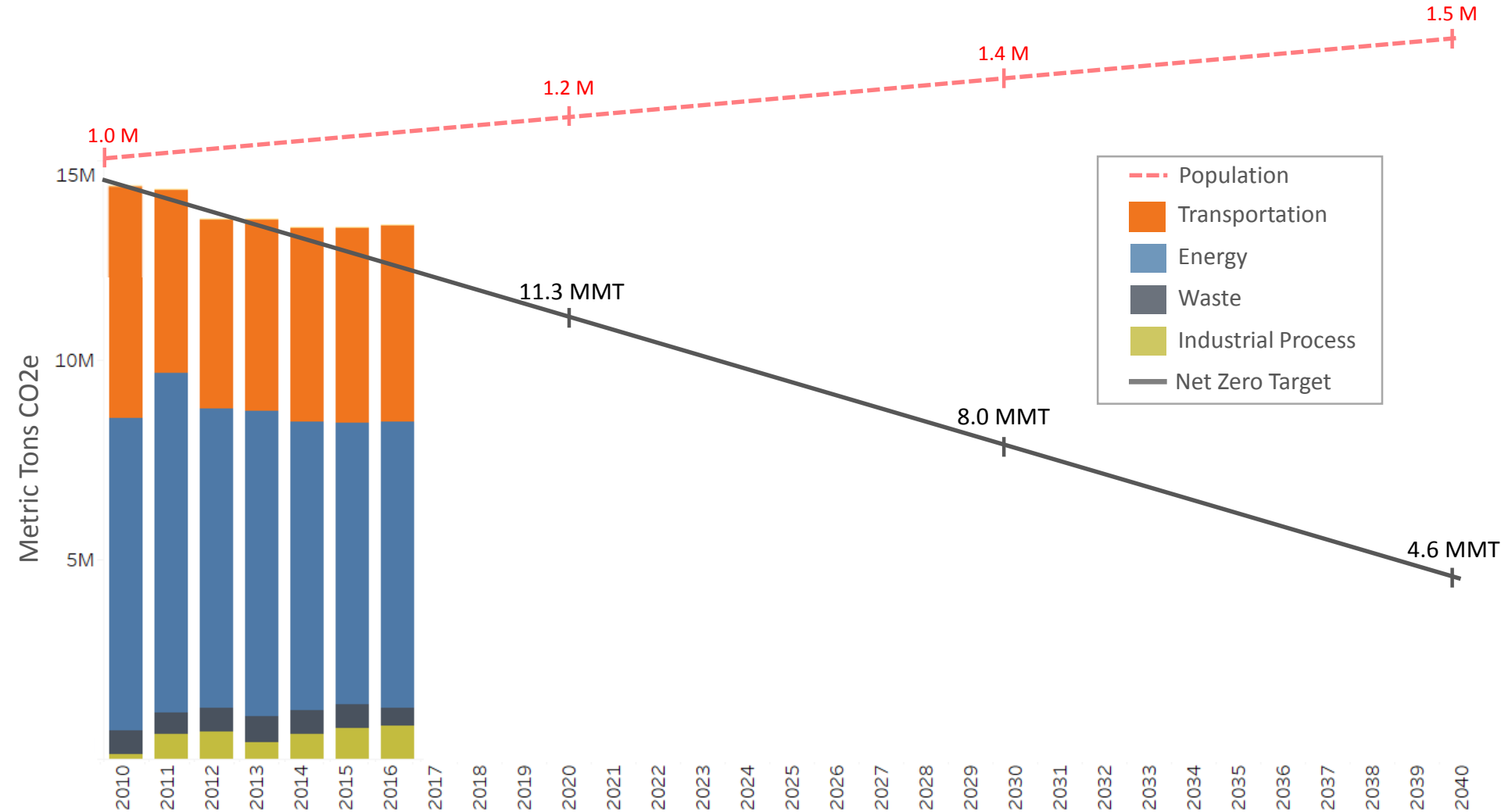


Implementation of the recently adopted Austin Energy Generation Plan has us on track to reach our interim 2020 & 2030 GHG emission targets.

By 2020, Transportation will be the largest emission sector and it must become our primary focus for GHG reduction.

Transformation to a Net Zero Community is an enormous challenge, but it can be cost effective and create health and safety benefits.

Travis County Projected Emissions & Population Trends



Cost / Impact Analysis

19 Major Actions were analyzed to:

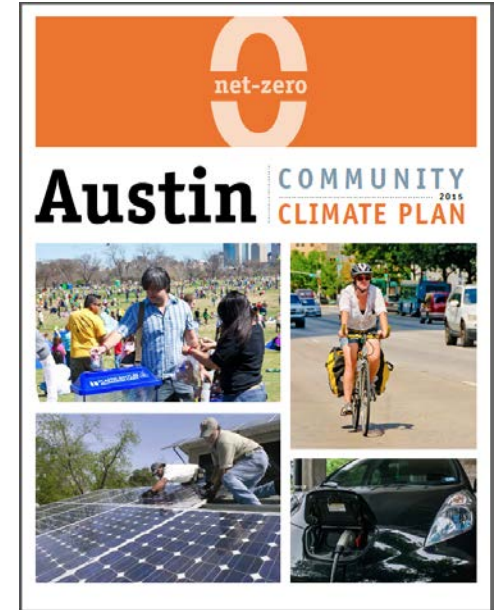
- Prioritize Implementation
- Determine if we can meet our 2020 and 2030 interim GHG Targets

Methodology:

- Cumulative GHG reductions over 13 years
- Costs and Savings

GHG reduction is only ONE lens

Draft

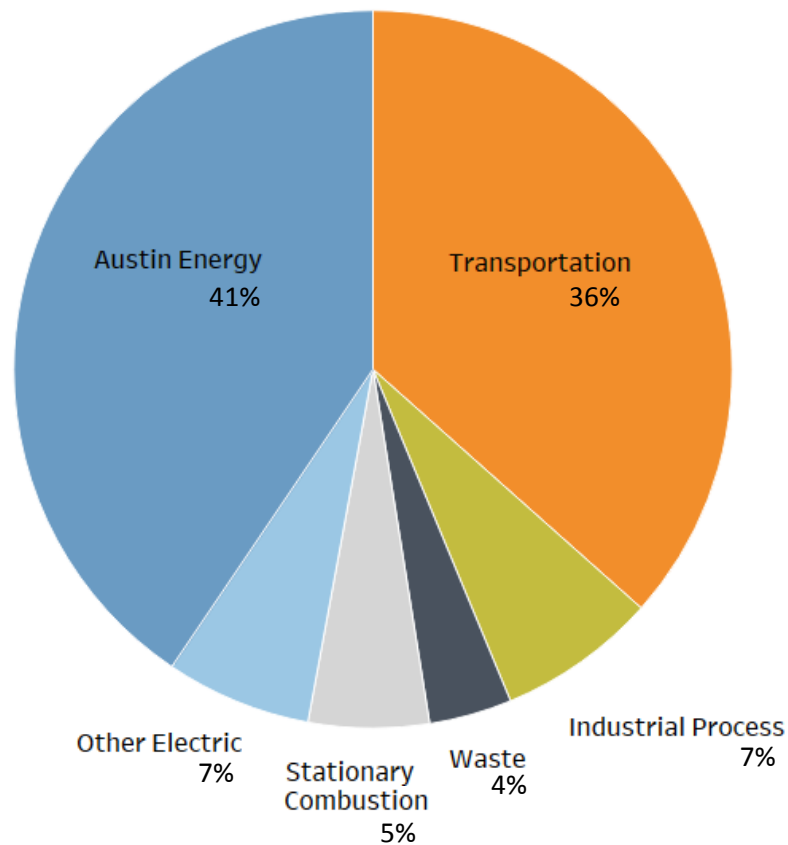


AUSTIN TRANSPORTATION DEPARTMENT



Austin Community GHG Inventory

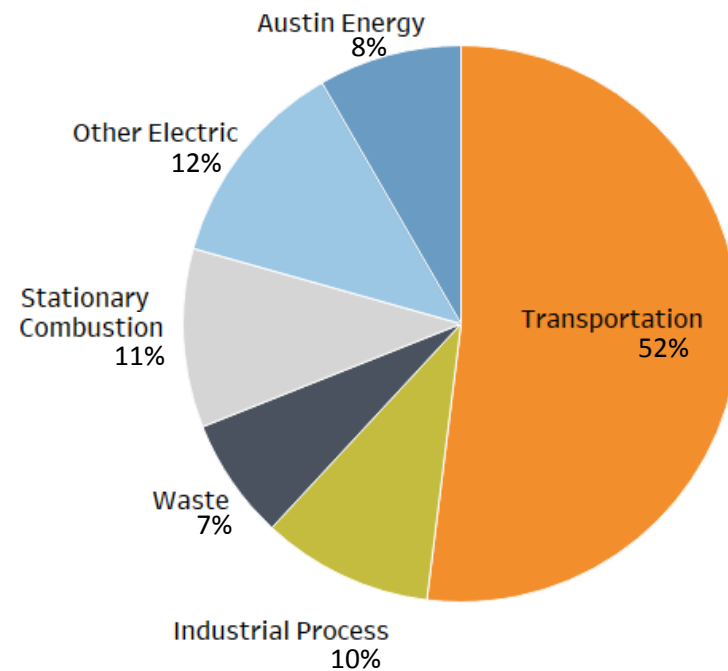
2016



13.5 MMT CO₂e

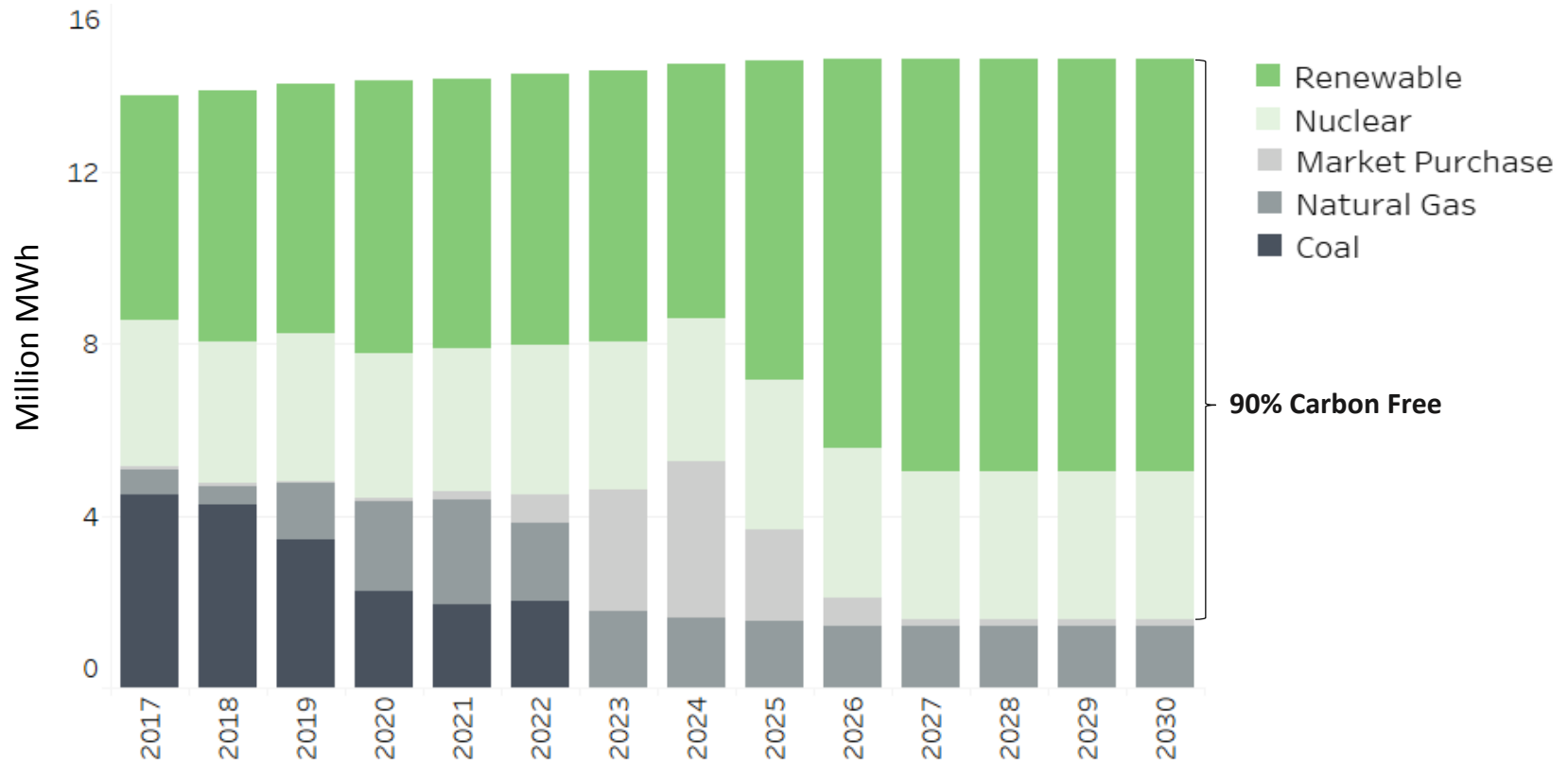


2030



8.0 MMT CO₂e

Projected AE Load and Offset by City Generation Resources

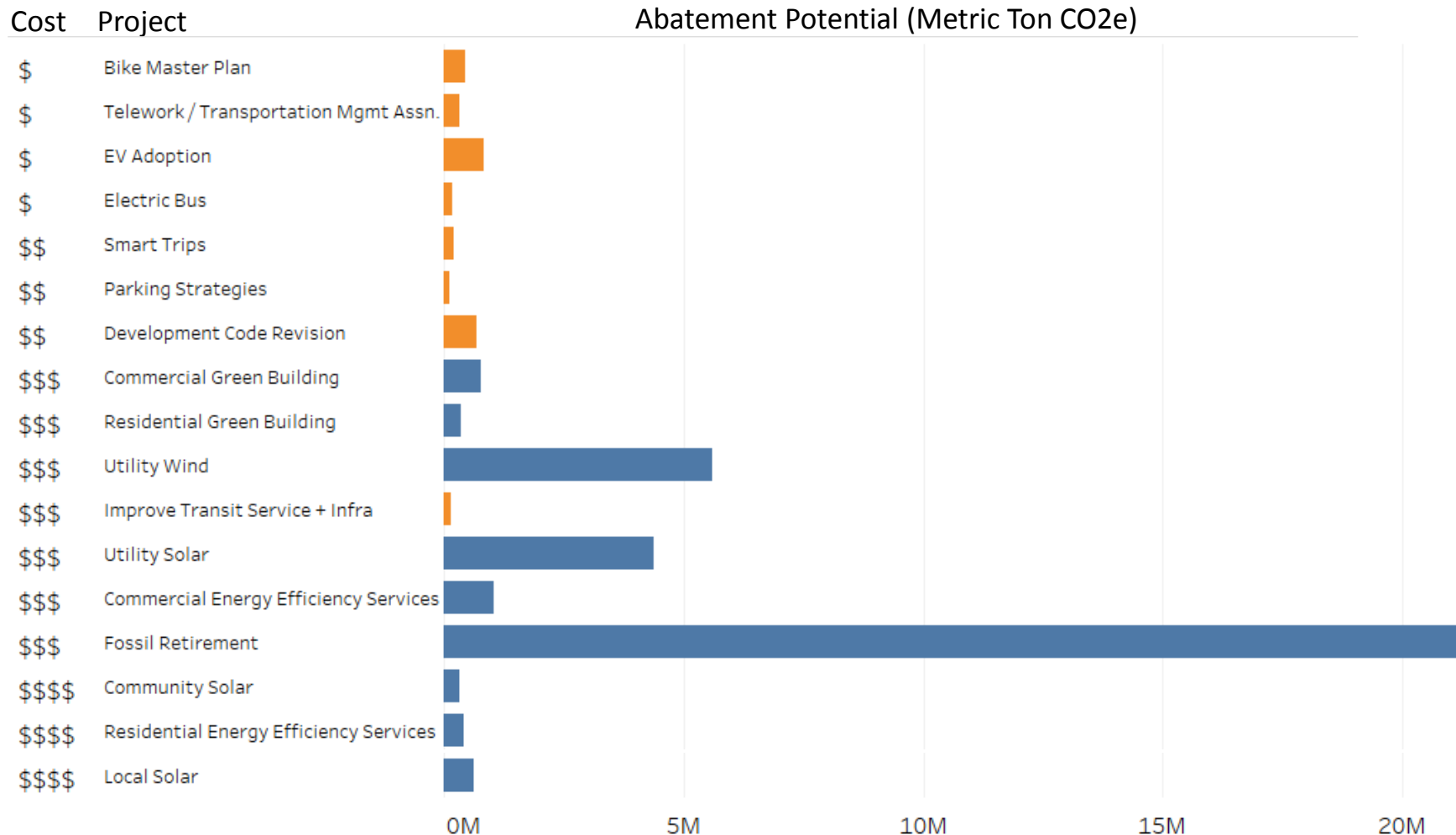


2017 Council Adopted Austin Energy Generation Plan Highlights

- Reach 65% renewable energy by 2027
- Target retirement of selected Decker units in 2020 – 2021
- Target retirement of Fayette Power Project beginning in 2022

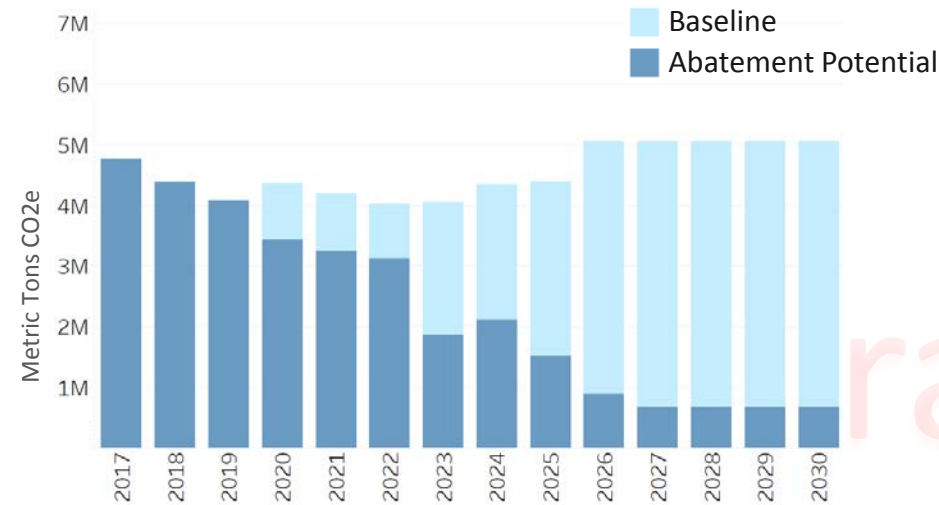
Cost Impact Analysis Results

Direct Economic Cost / Ton CO2e vs. Abatement Potential 2017 - 2030

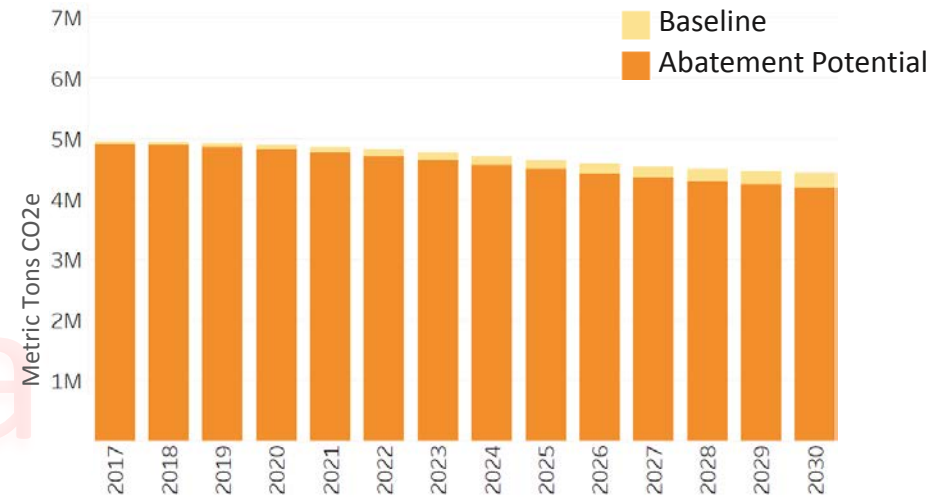


Abatement Potential Takeaways

AE Load Carbon Emissions



On Road Transportation Carbon Emissions



- Current generation plan reaches 90% carbon free power by 2027
- Further reductions to AE load carbon emissions will be challenging to meet within affordability limits
- Transportation overtakes energy as the highest emitting sector in 2020
- Modeling transportation emissions is complex
- There are many decisions still to be made and we have to start making progress now to reach scale in 2030

New Analysis

Analysis Considerations

Mechanisms For Behavior Change in Transportation



Scenarios

Trend – Enacting currently planned or funded projects

Moderate – Modifying inputs to exceed currently planned or funded levels

Aggressive – Modifying inputs to maximize reductions within the bounds of reality

Transportation GHG Reduction Strategies

Mode Shift and Trip Elimination

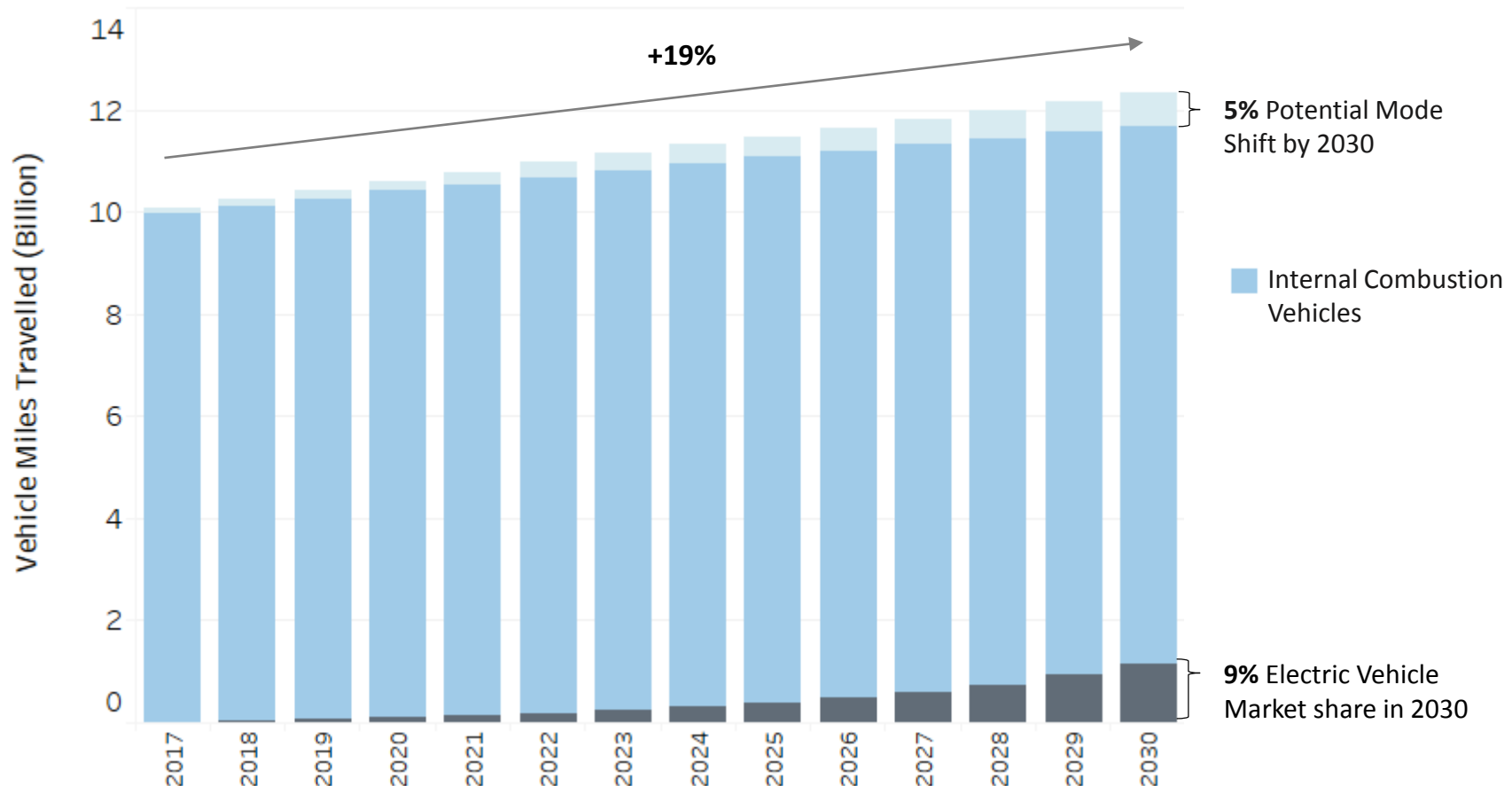
- Bike Master Plan
- Improve Transit Service + Infrastructure
- Revise Development Code
- Transportation Demand Management Programs
- Parking Strategies

Tailpipe Emissions Reduction

- Electric Vehicles
- Electric Buses



Projected Travis County Vehicle Miles Travelled (VMT)

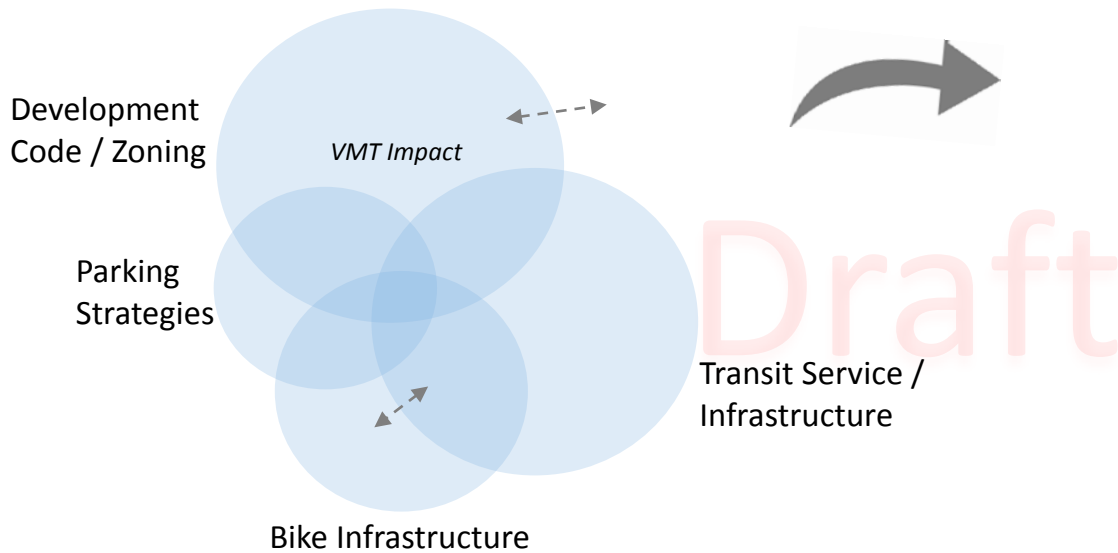


Source: Texas Transportation Institute

Reduce VMT Through Mode Shift

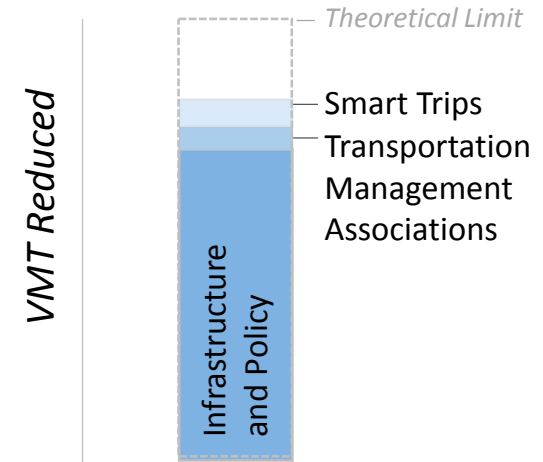
Project / Program Groups

Infrastructure and Policy



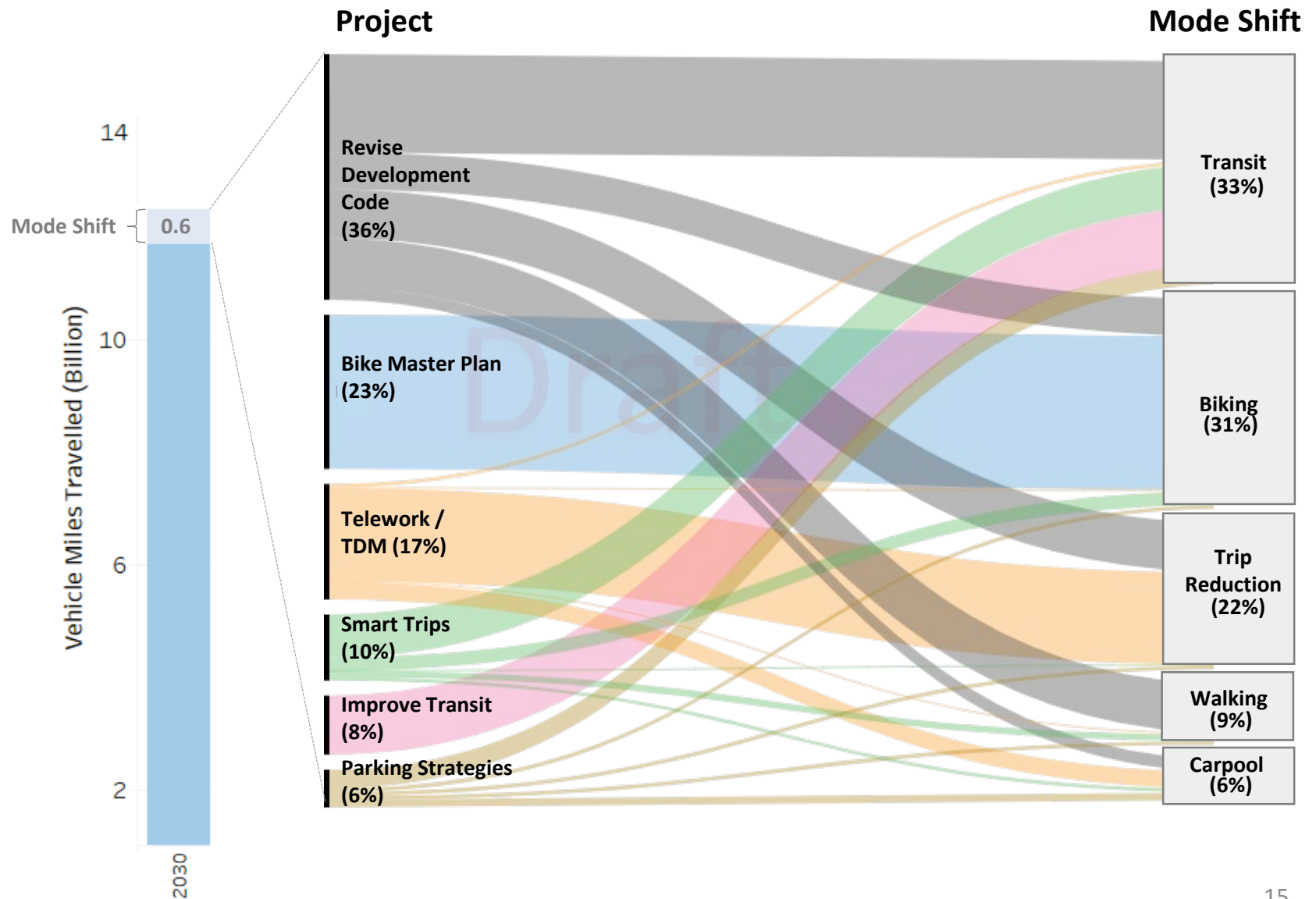
Determine potential of
VMT reduction

Transportation Demand Management Programs



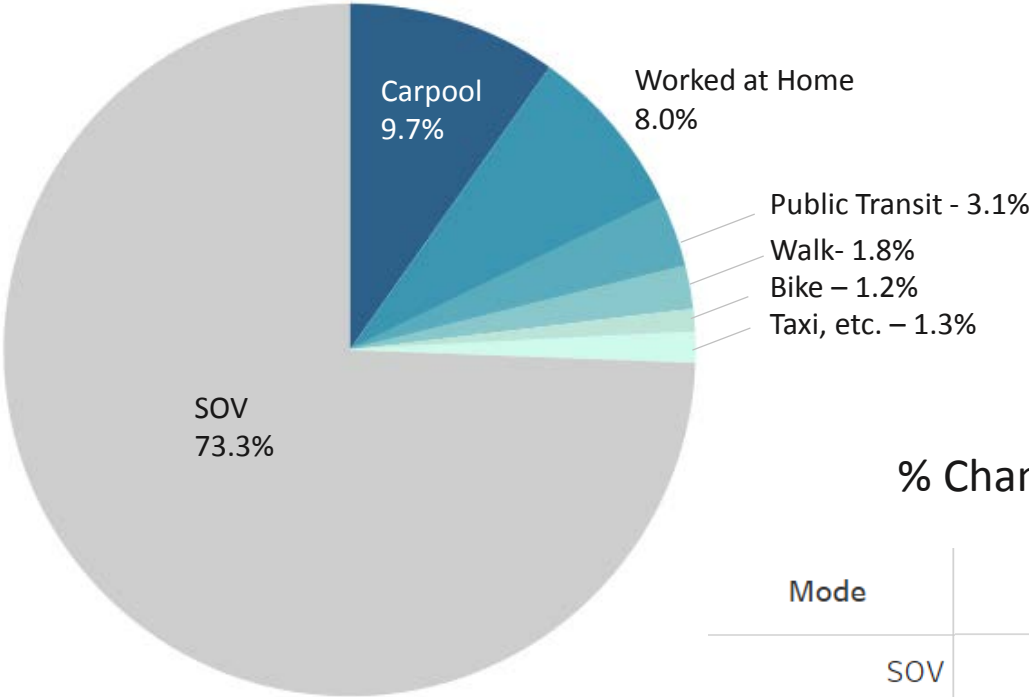
Fulfill potential VMT
reduction

Mode Shift by Project



Projected Commuter Mode Shift

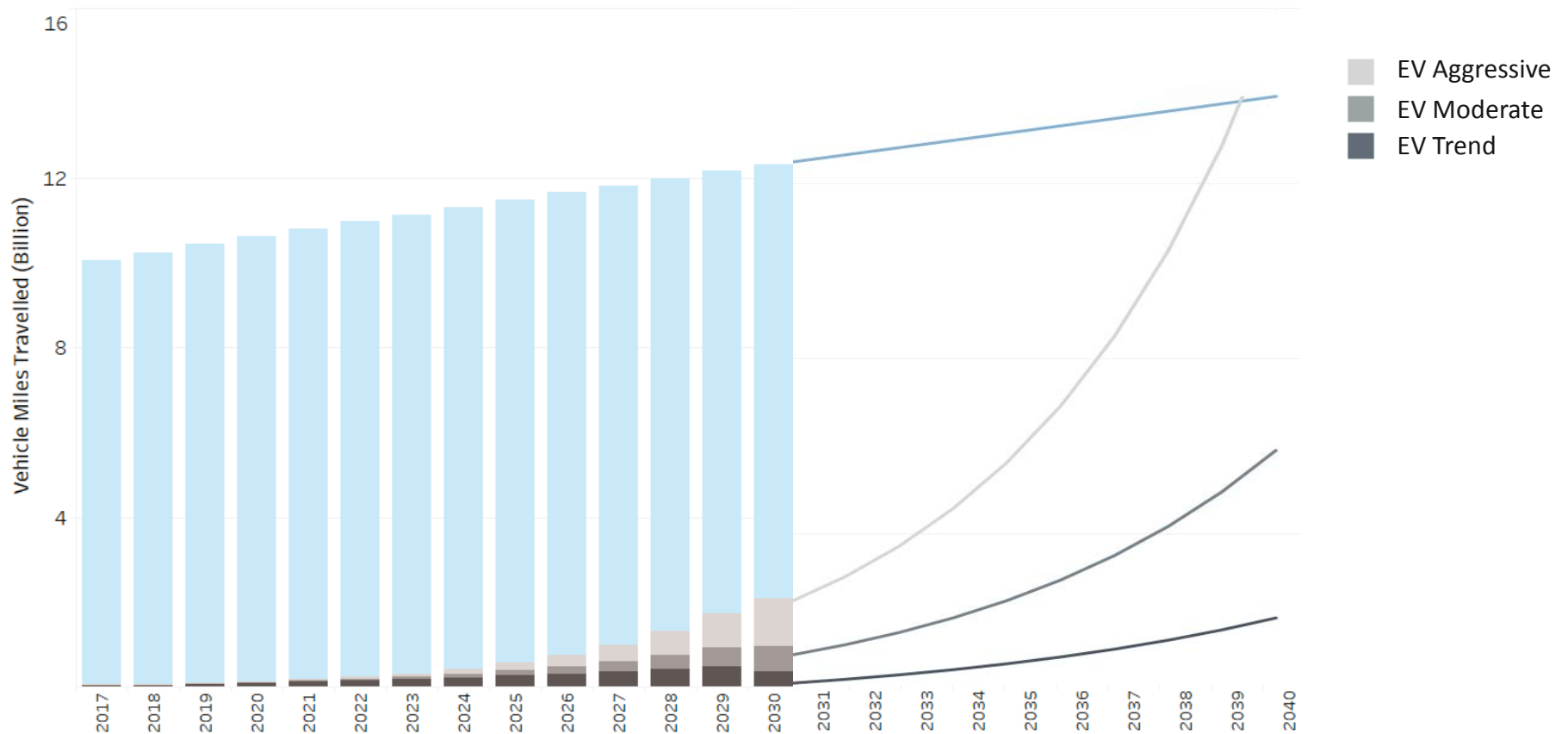
Current Mode Split



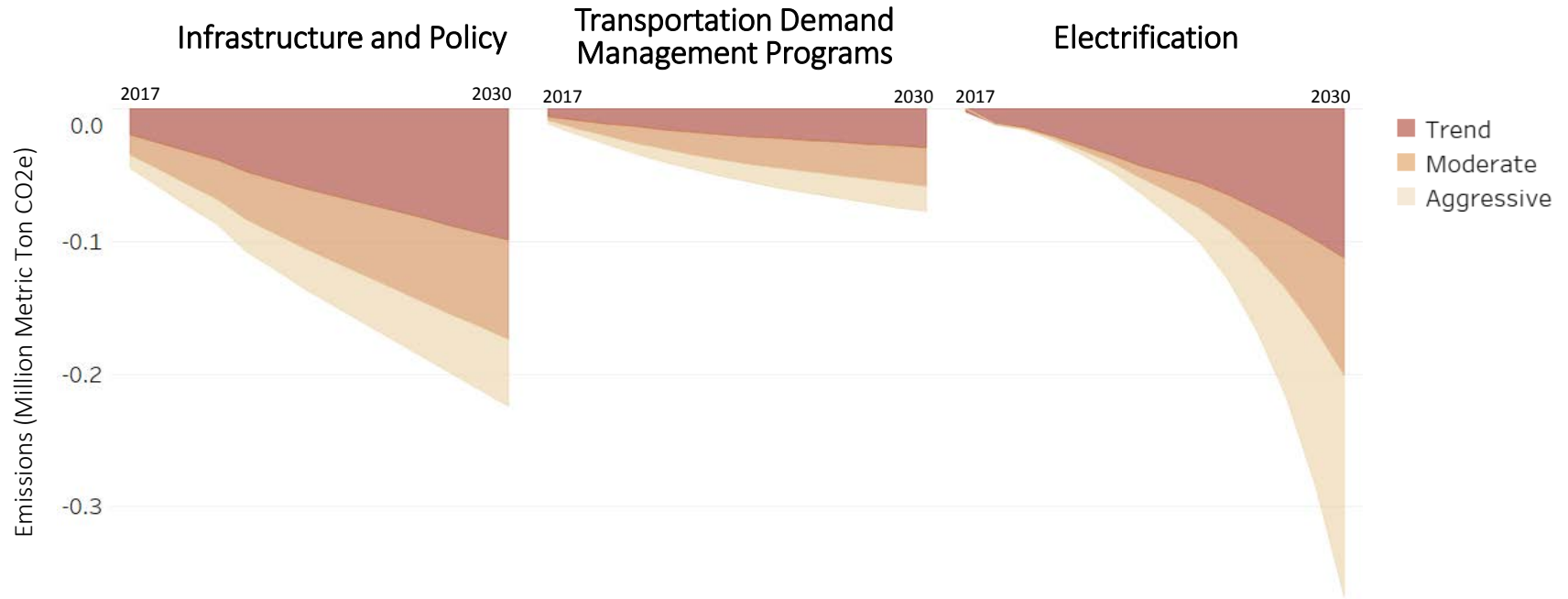
% Change From Current Mode Split in 2030

Mode	Trend	Moderate	Aggressive
SOV	-2.6%	-5.2%	-7.4%
Public Transit	1.0%	2.0%	2.9%
Bicycle	0.6%	1.1%	1.6%
Carpool	0.5%	1.0%	1.4%
Worked at Home	0.4%	0.8%	1.1%
Walked	0.2%	0.3%	0.5%
Taxi, etc	0.0%	0.0%	0.0%

Projected Electric Vehicle Miles Traveled



Projected Abatement Potential



Development Code Revision

- New housing units citywide **108K → 215K**
- New housing units within 1/2 mile of transit **14K → 60K**
- Housing units <80% MFI In 2030 **7K → 60K**
- Reduce parking requirements from the **Existing Code → CodeNext Draft 3**

Bike Master Plan

- Implement remaining projects **0 → 100%**

Improve Transit Service + Infrastructure

- Implement Connections 2025 and Project Connect to increase 2030 unlinked trips by **22M → 64M**

Smart Trips

- Increase outreach from **1 → 4** neighborhoods / year

Transportation Management Associations

- Expand employee participation from **11K → 109K** by 2030
- Add **34K → 70K** telecommuters by 2030

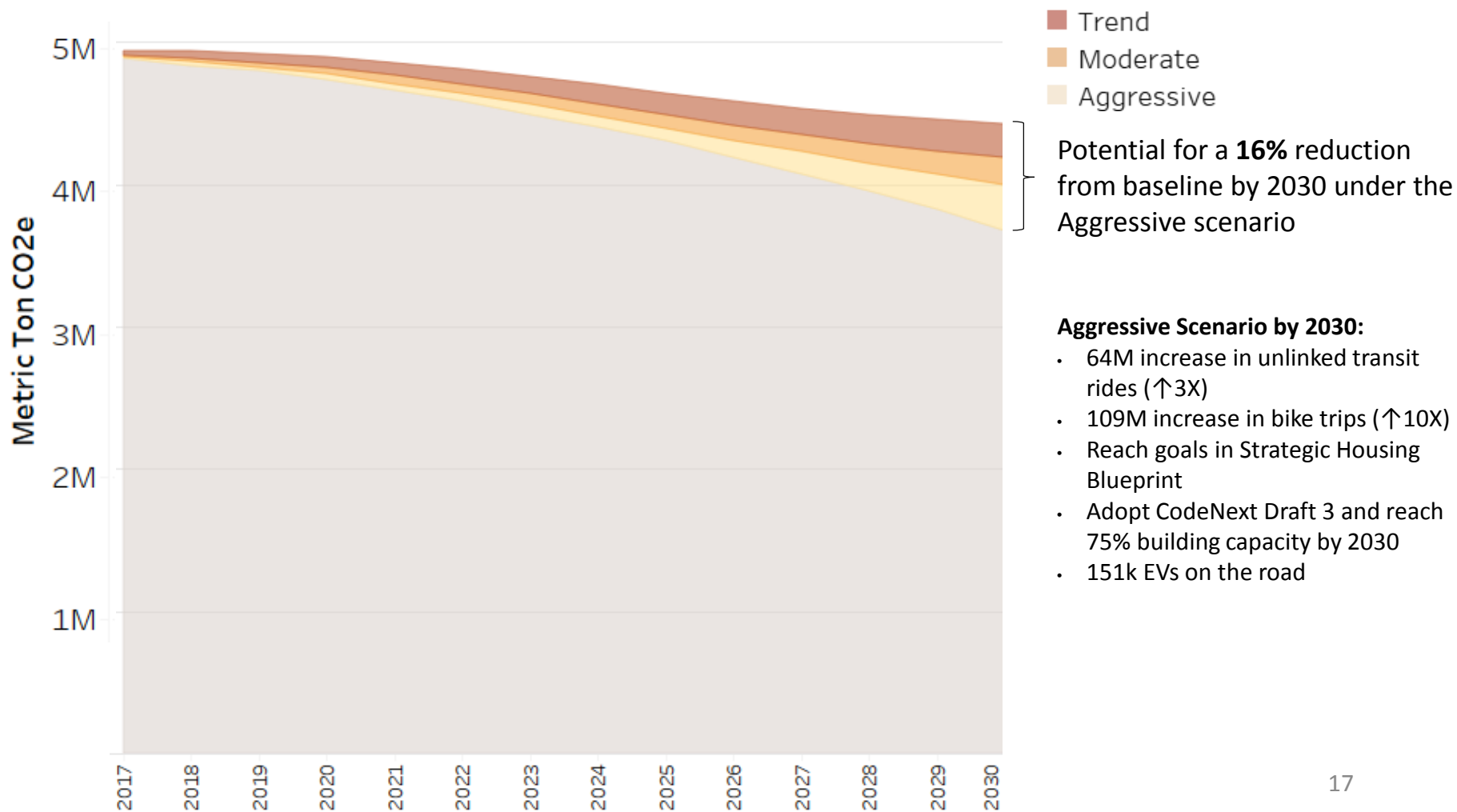
Electric Vehicle Adoption

- Increase registered EV's in Travis Co. to **37K → 151K** by 2030

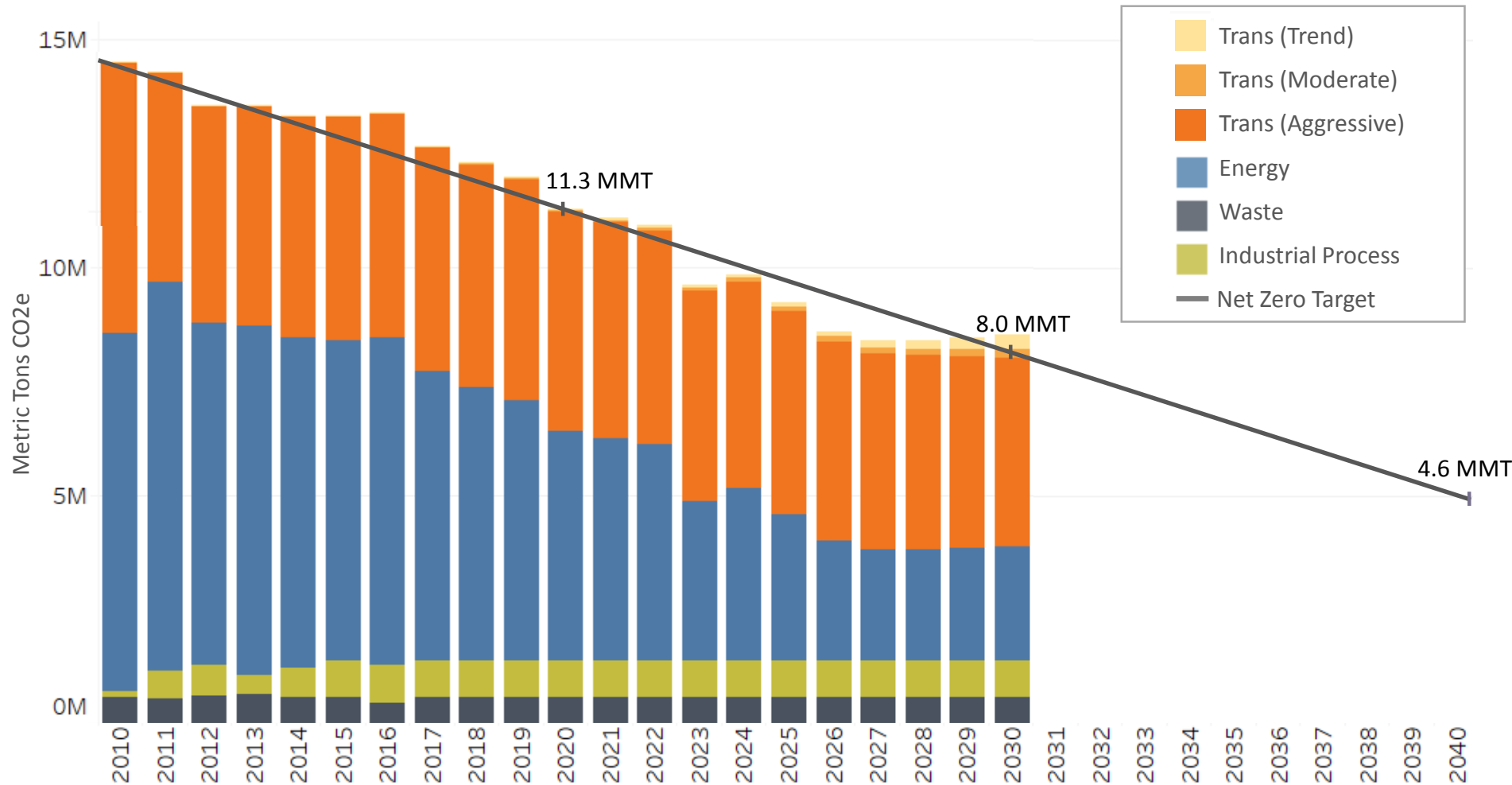
Electric Bus Adoption

- Replace **27** diesel buses with electric buses annually through expected turnover

Projected Transportation GHG Emissions



Austin Community GHG Emissions



Recommendations



Support cost effective implementation of the Austin Energy 2027 Generation Plan

Support City Efforts that reduce single occupancy vehicle trips

- Austin Strategic Mobility Plan (In Development)
- Bike Master Plan
- More Housing Opportunity + Transit + Parking Policies in CodeNEXT
- Transportation Demand Management Programs

Draft

Maximize Support for Electric Vehicles and a shared autonomous future

Support Regional collaboration to reduce vehicle miles traveled and emissions

Explore partnerships to reduce emissions in Semiconductor and Natural Gas Sectors

Analysis Conclusions



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