



What Would it Take?

Transportation and Climate Change in the National Capital Region

Draft Results

January 20, 2010

Presentation to TPB

Monica Bansal

Daivamani Sivasailam

Erin Morrow

Why “What Would it Take”?



purpose

baseline

analysis

results

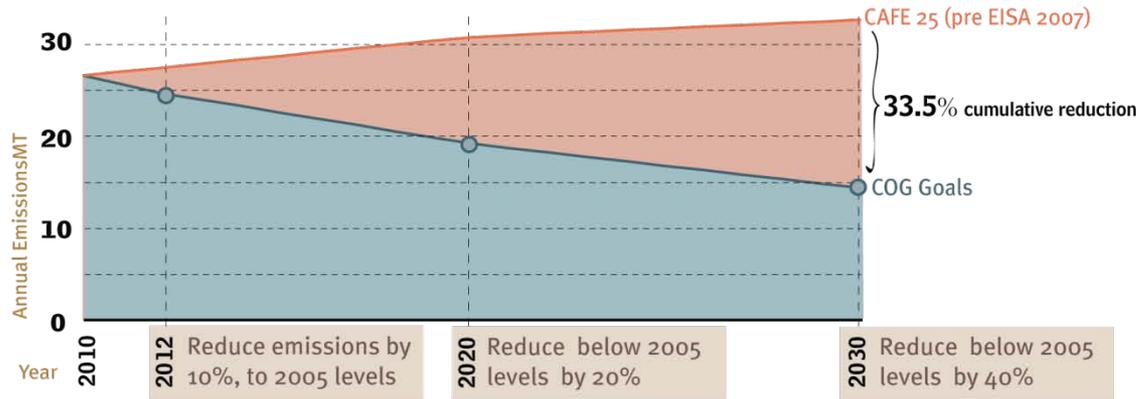
conclusions

1



Build off regional climate action momentum

2



To see how we can meet these goals in transportation

3

Support local jurisdictions by identifying **effective, cost-effective, and feasible** strategies to adopt

What's Our GHG Baseline?



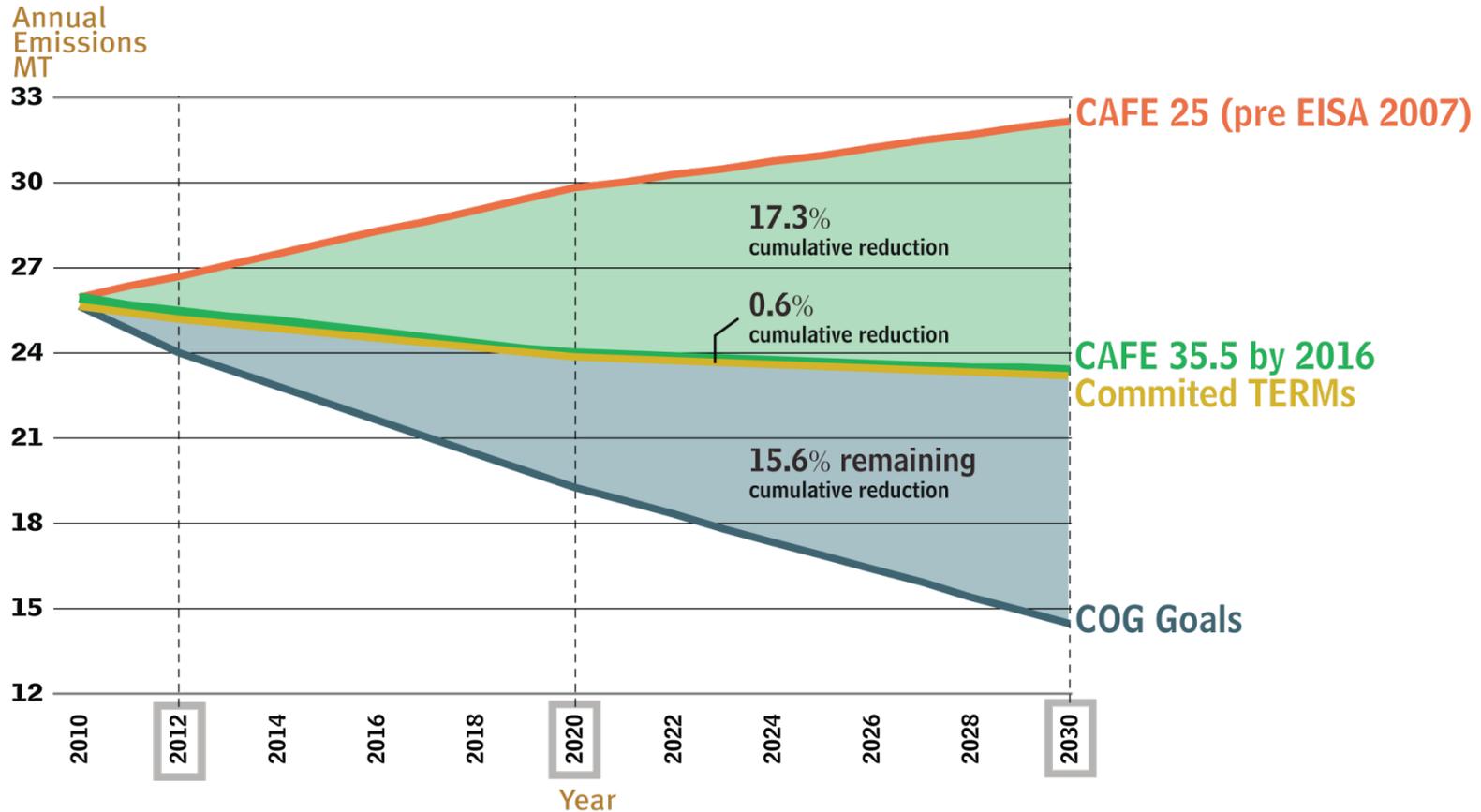
purpose

baseline

analysis

results

conclusions



Committed TERMS refers to the full TERM Tracking Sheet, including: Access and service improvements to transit, bike/ped projects, rideshare assistance programs, telecommute programs, traffic improvements, engine technology programs

What are the Emissions Sources?



purpose

baseline

analysis

results

conclusions

There are **3** major areas affecting transportation emissions

1



The composition of the fleet

fuel efficiency, heavy/light duty split

2



The fuel we put in our fleet

gasoline, diesel, alternative fuels (electricity, ethanol, biofuels)

3



How we use our fleet

trip lengths, purpose, and mode, vehicle occupancy, congestion

What Does Our Fleet Look Like?



purpose

baseline

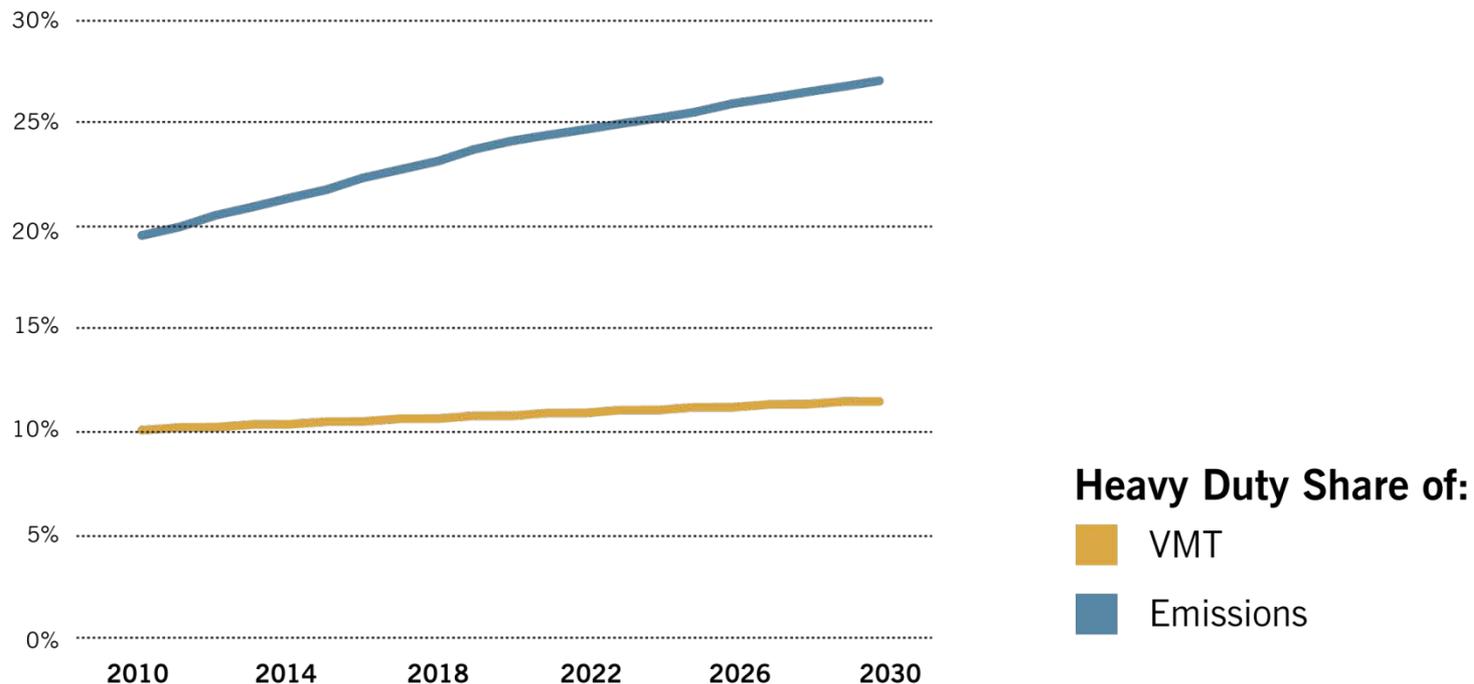
analysis

results

conclusions

Trucks account for a growing share of CO₂ emissions

Heavy Duty Share of Total VMT and CO₂ Emissions



What's Our Fuel Mix?



purpose

baseline

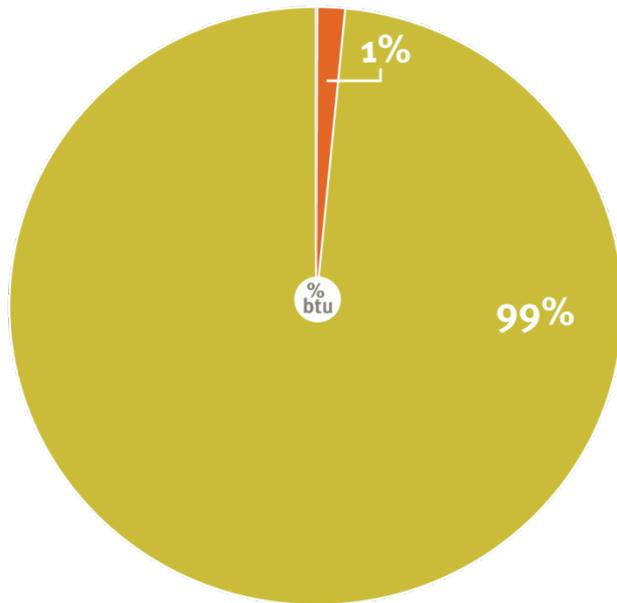
analysis

results

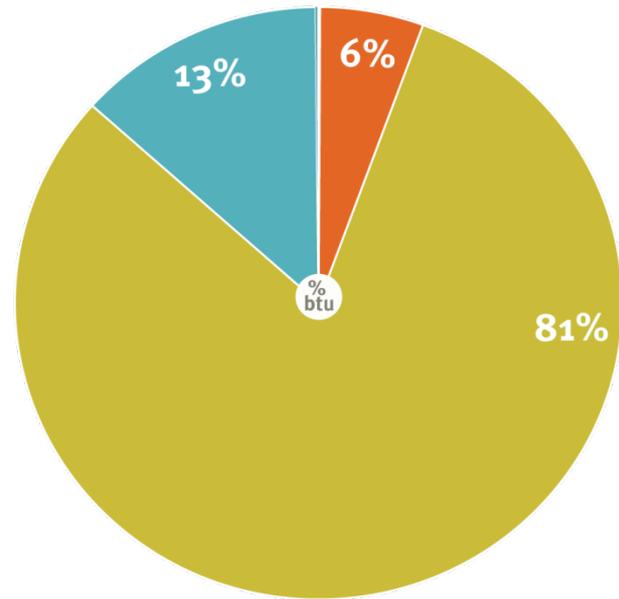
conclusions

There is a lot of room for increasing alternative fuel use
National Light Duty Fuel Mix

Existing, 2009



DOE Forecast, 2030



- Gasoline
- Diesel
- Ethanol

Source: US DOE, EIA,
Annual Energy
Outlook (AEO) 2009

How Do We Use The Fleet?



purpose

baseline

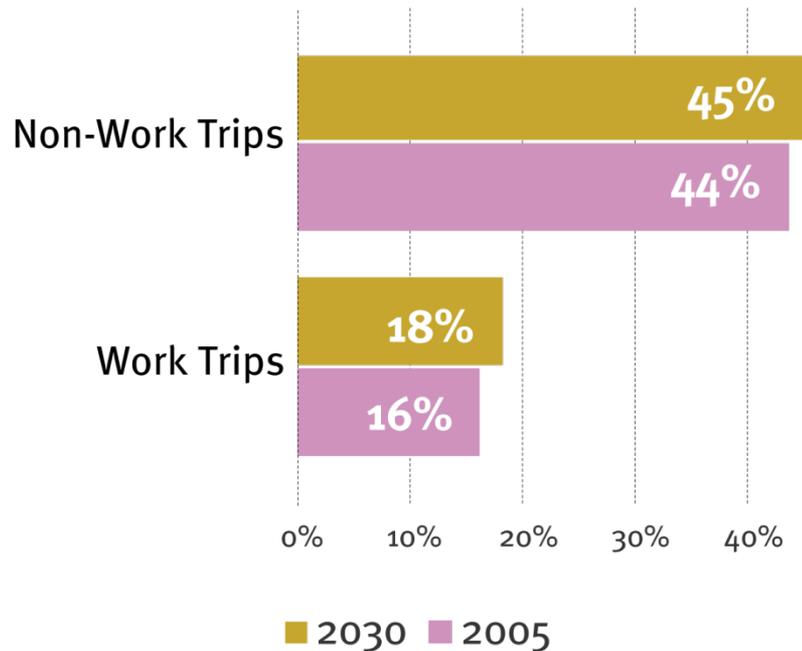
analysis

results

conclusions

Many of our trips are short.

% of Auto Trips < 3 miles



Shifting 10% of these auto trips to non-polluting modes now, gets us 4% closer to the 2030 goal (shifting 50% gets us 18% closer)

How Do We Use The Fleet?



purpose

baseline

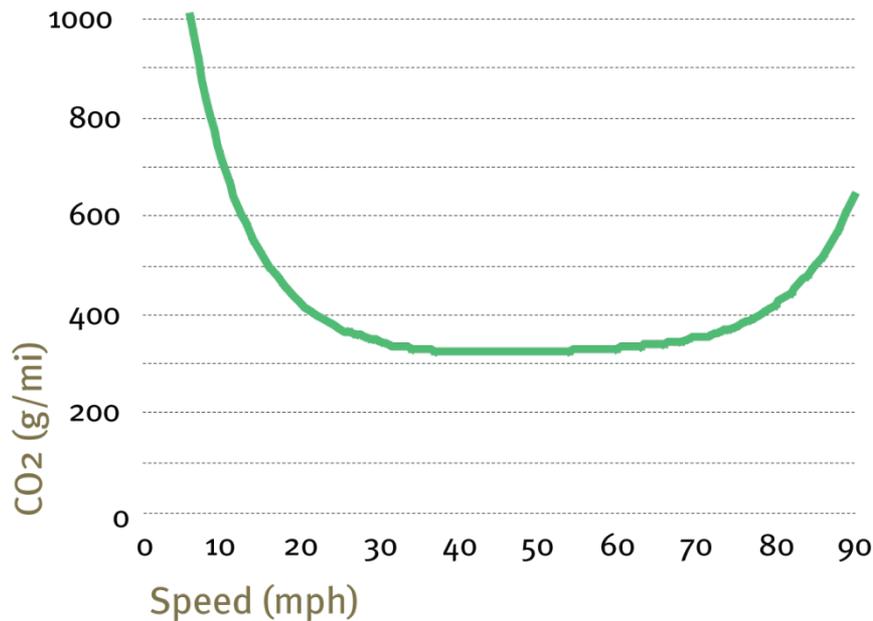
analysis

results

conclusions

Congestion affects CO₂ emissions and is widespread.

CO₂ Emissions Rates by Speed



Source: UC Riverside

Forecast Congestion, 2030



— Congested Flow
[average speed 30-50 mph]

— Stop and Go Conditions
[average speed <30 mph]

How Can We Reduce CO₂?



purpose

baseline

analysis

results

conclusions

1 fuel efficiency



Enhanced CAFE
HDV CAFE
Local tax incentives
Cash for Clunkers

2 alternative fuel



DOE Forecasts:
Current regulation
High price case

3 travel efficiency



Telecommuting
Bike/ped facilities
Improved transit
Eco-driving
Pricing
Incident Management
Signal optimization
Bike and Car-sharing
Commuter services

Grouping Strategies



purpose

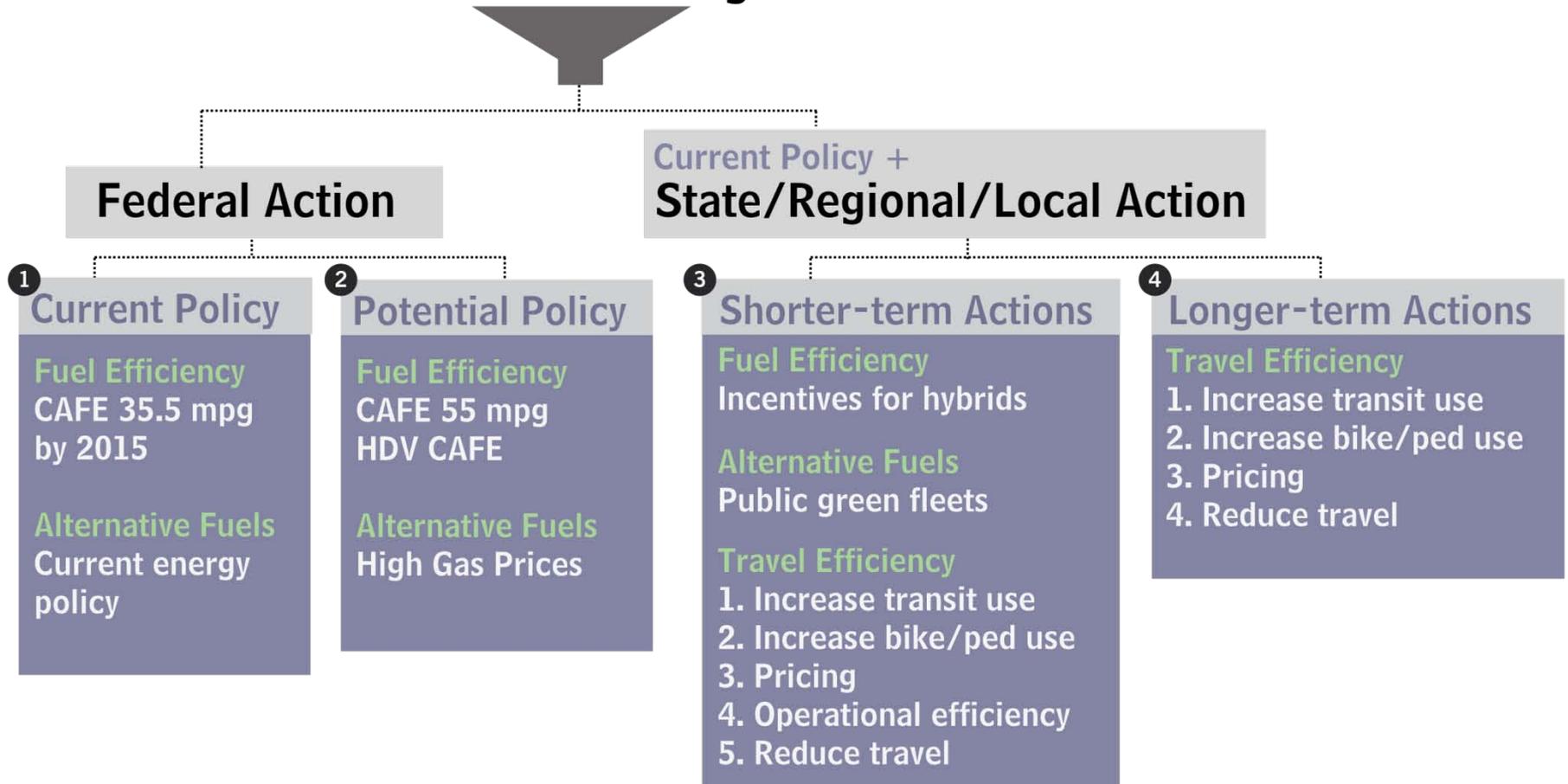
baseline

analysis

results

conclusions

Individual Strategies



All groups combine additive strategies to the full extent currently possible.

The Baseline



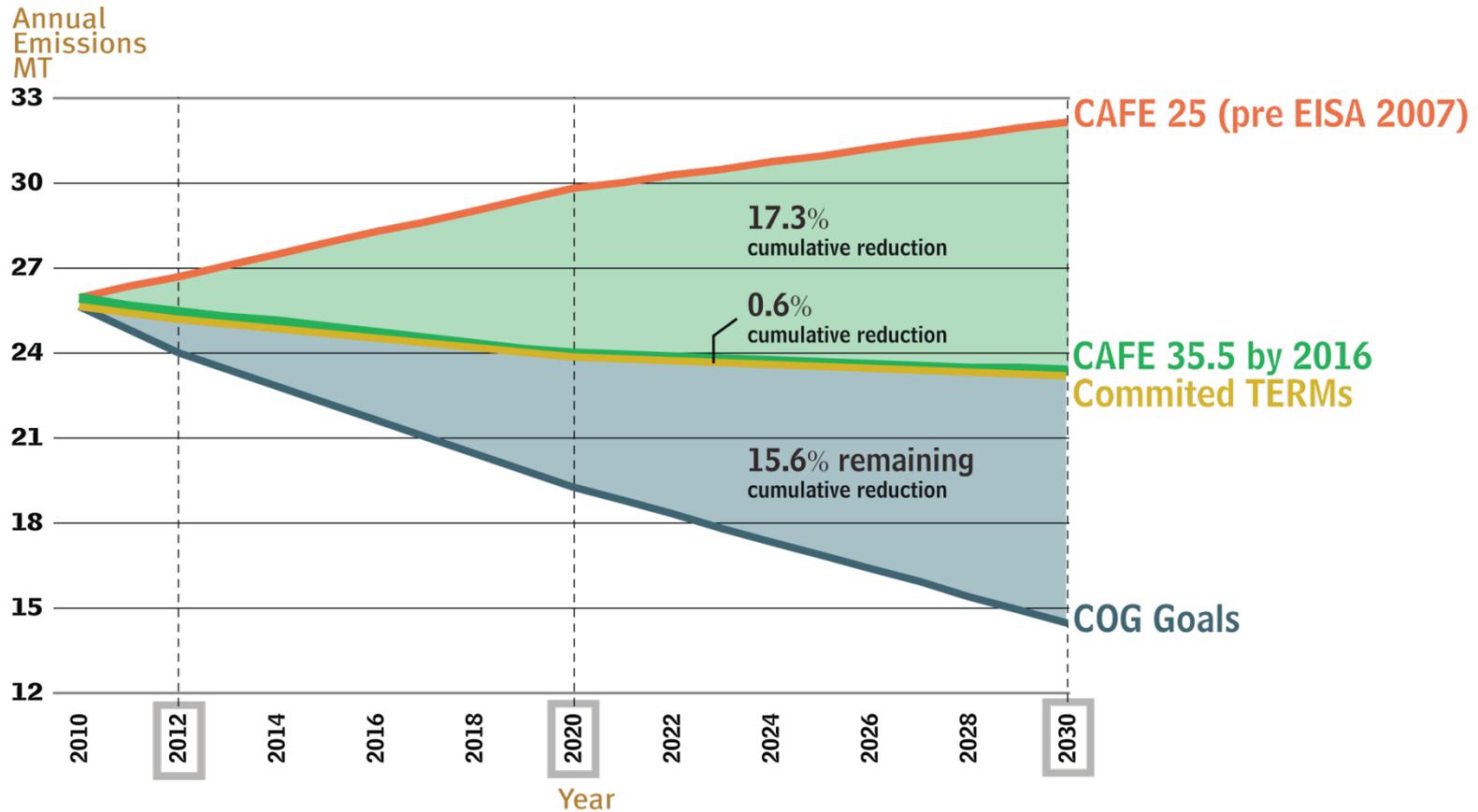
purpose

baseline

analysis

results

conclusions



No Further Federal/Local Action



purpose

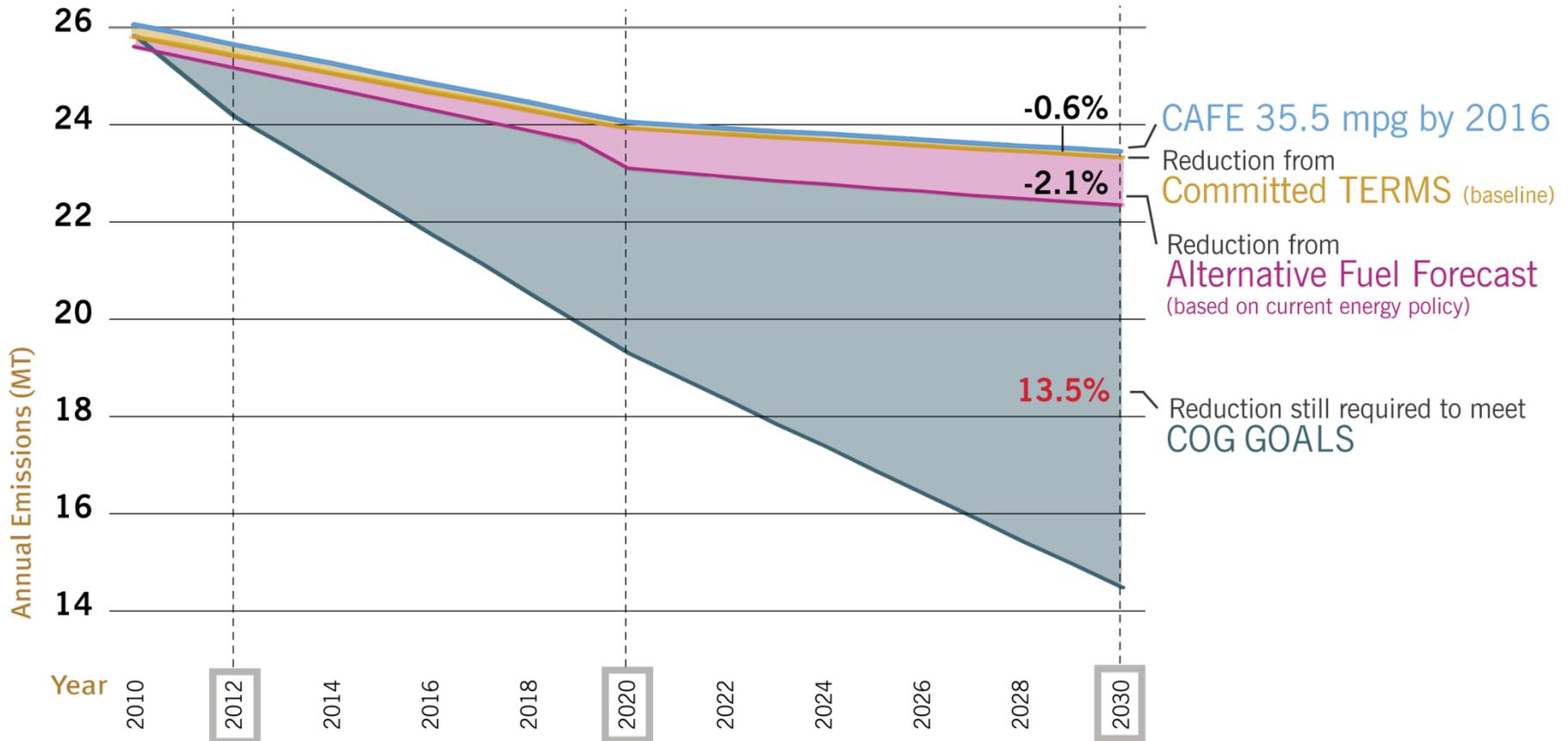
baseline

analysis

results

conclusions

We still have a long way to go based on current action.

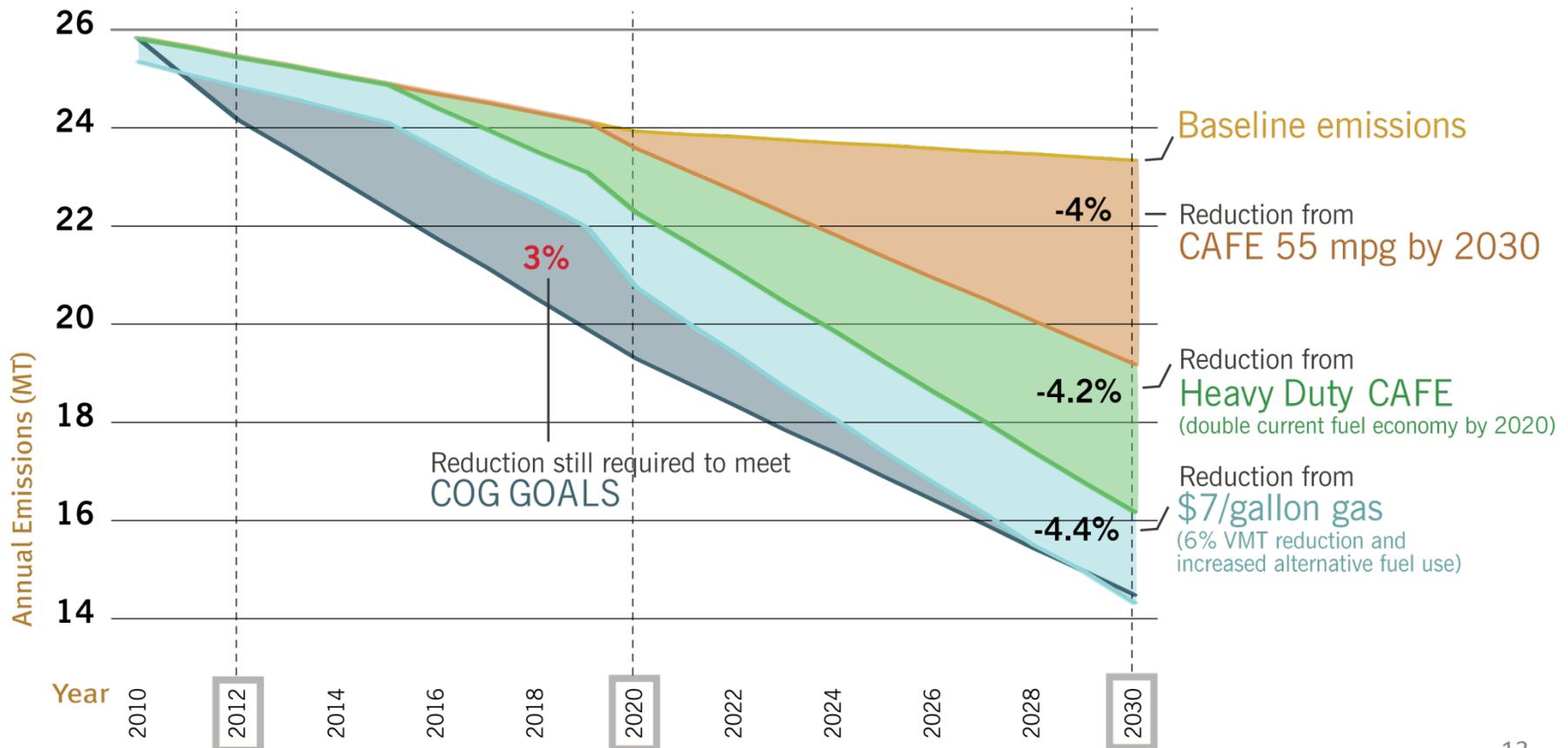


Higher Federal Role



- purpose
- baseline
- analysis
- results**
- conclusions

Significant measures in all 3 categories almost get us there

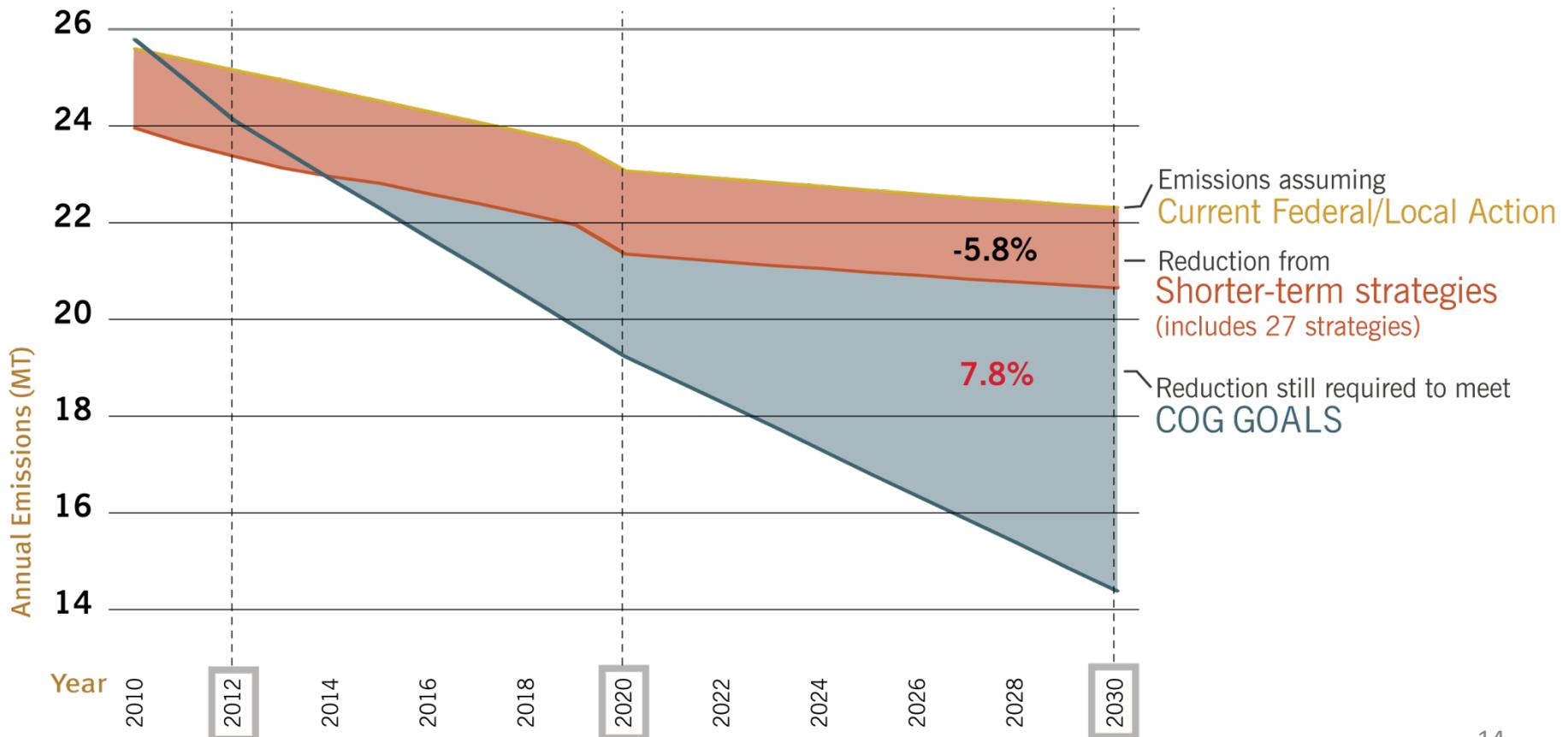


Shorter-term Strategies



- purpose
- baseline
- analysis
- results**
- conclusions

Many strategies can be done soon, meeting the 2012 goal



Longer-term Strategies



purpose

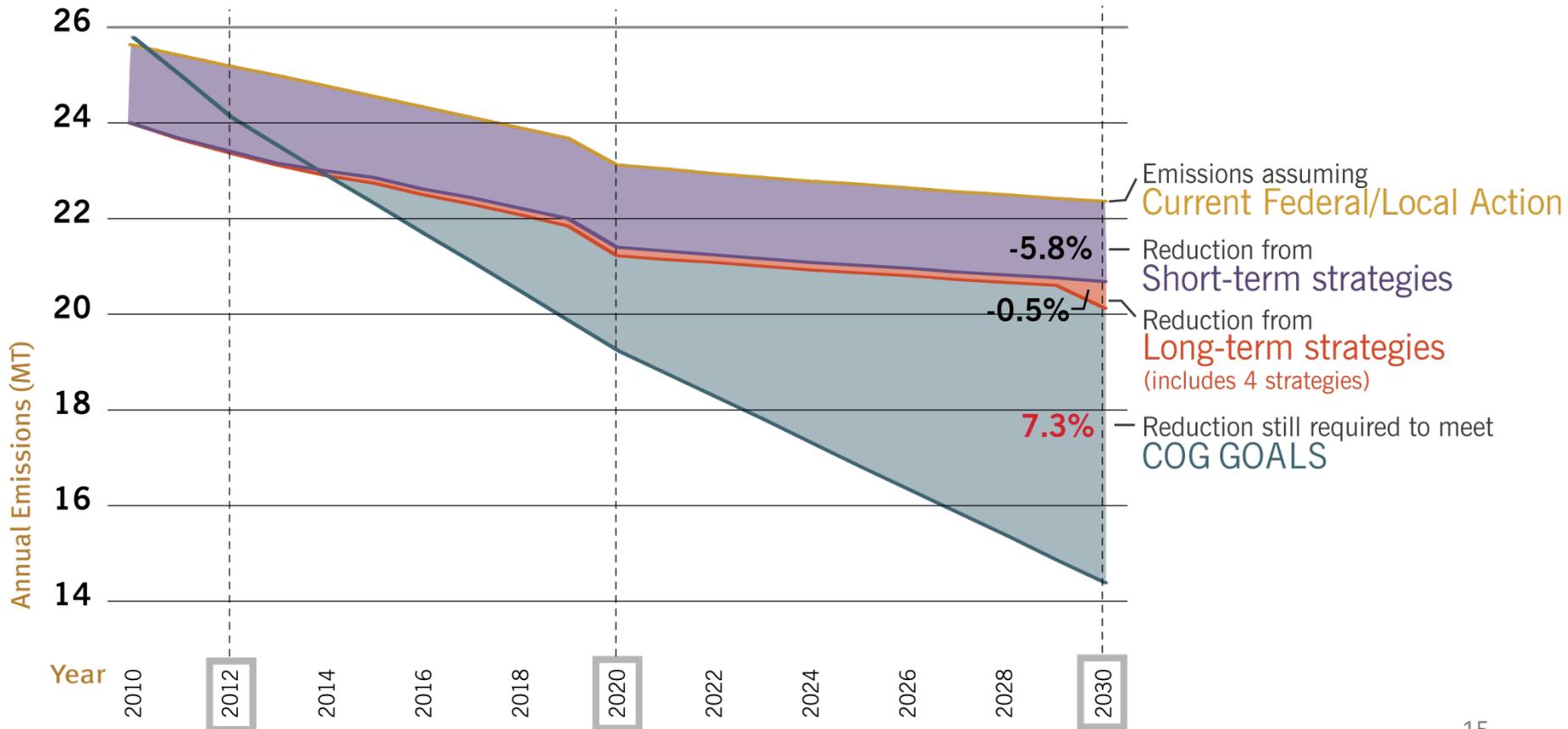
baseline

analysis

results

conclusions

A longer study timeframe for long-term impacts would help.



Cost-Effectiveness



purpose

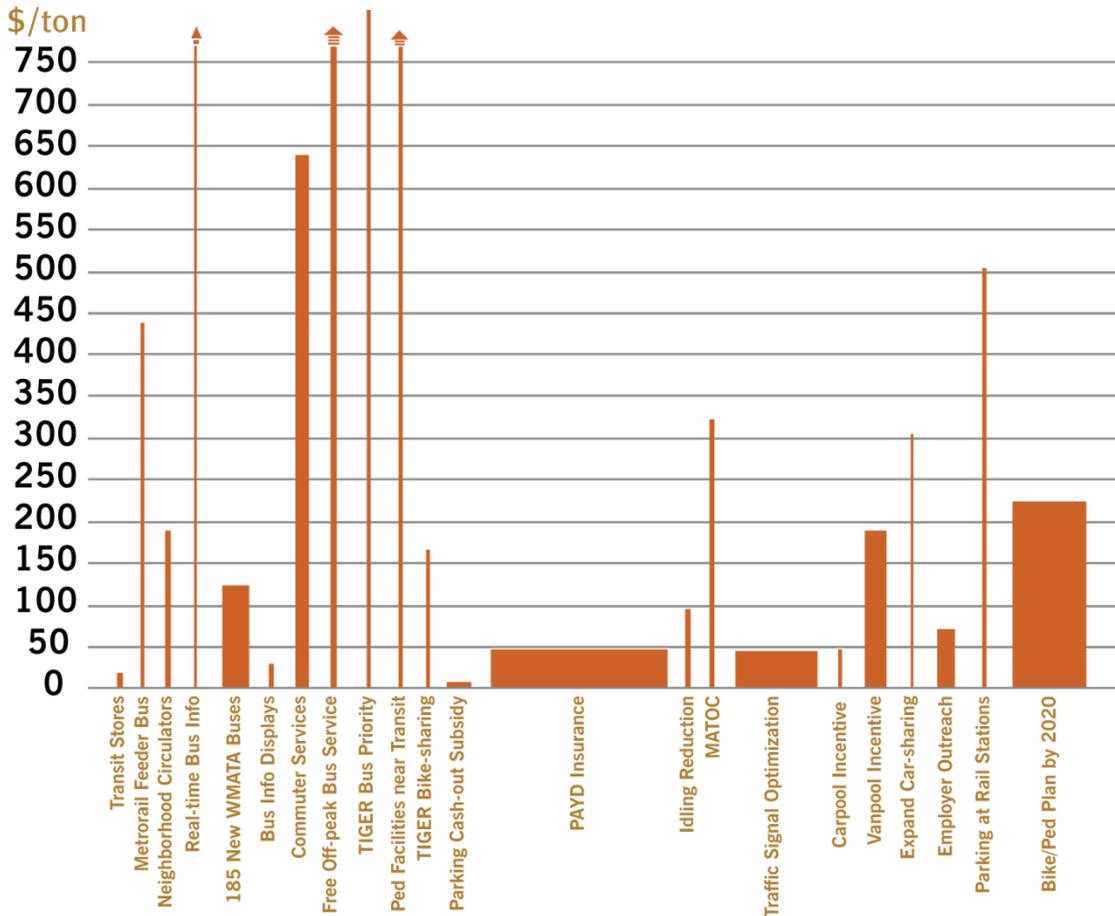
baseline

analysis

results

conclusions

Several strategies are both cost-effective and highly effective.



1 million tons of cumulative reduction 2010-2030

(width of bar indicates 20 year CO₂ reduction effectiveness)

Assumes current federal/local action

Next Step: Cost Benefit Analysis



purpose

baseline

analysis

results

conclusions

EXAMPLE

Bike-sharing

Modest CO₂ benefits are a contributing factor to large overall benefits.



Costs **\$231,000,000**

Capital \$16,000,000

Operating \$75,000,000

Increased Accidents \$145,000,000

Benefits **\$625,500,000**

User Cost Savings \$197,000,000

Travel Time Savings \$378,000,000

Reduced Accidents
(from reduced VMT) \$1,300,000

Public Health \$2,000,000

Increased Access \$38,000,000

Congestion Reduction \$3,500,000

Environmental Benefits \$5,700,000

CO₂ **66,000 tons**

All numbers over 20 year horizon from 2010-2030 17

What Would it Take?



purpose

baseline

analysis

results

conclusions

- 1** Strategies analyzed to date do not achieve regional goals—**additional strategies can and should be analyzed.**
- 2** Goals are difficult to meet--and will require reductions in **all 3 categories**
- 3** While major reductions can come from federal energy policies, **local governments can make significant reductions quickly**
- 4** Some strategies may not have major GHG reduction potential, but have **multiple benefits worth exploring through benefit-cost analysis**

Potential Local Actions to do Now



purpose

baseline

analysis

results

conclusions

- 1** Incentivize **eco-driving** [free air at service stations, public and private driver training, public messaging, eco-driving checklist mailings]
- 2** Expanded **telecommuting** and compressed work week
- 3** Incentivize increased **carpooling** and vanpooling
- 4** Increase **bicycle** mode share [bike-sharing, bike racks, stations, and lanes]
- 5** Increase **transit** use [bus priority treatments, technology, lowering fares, parking cash-out subsidies]
- 6** Promote **compact, mixed use development** around transit
- 7** **Incident management** and regional coordination
- 8** **Signal** optimization
- 9** Incentivize purchase of **fuel efficient** cars