What Would it Take?

Transportation and Climate Change in the National Capital Region

Final Results

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Presentation to the Climate, Energy, and Environment Policy Committee

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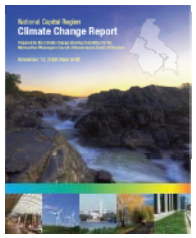
National Capital Region Transportation Planning Board (TPB)

Why "What Would it Take"?

background | baseline | analysis | results | conclusions

1 

Build off regional goals in COG Climate Change Report (November 2008)

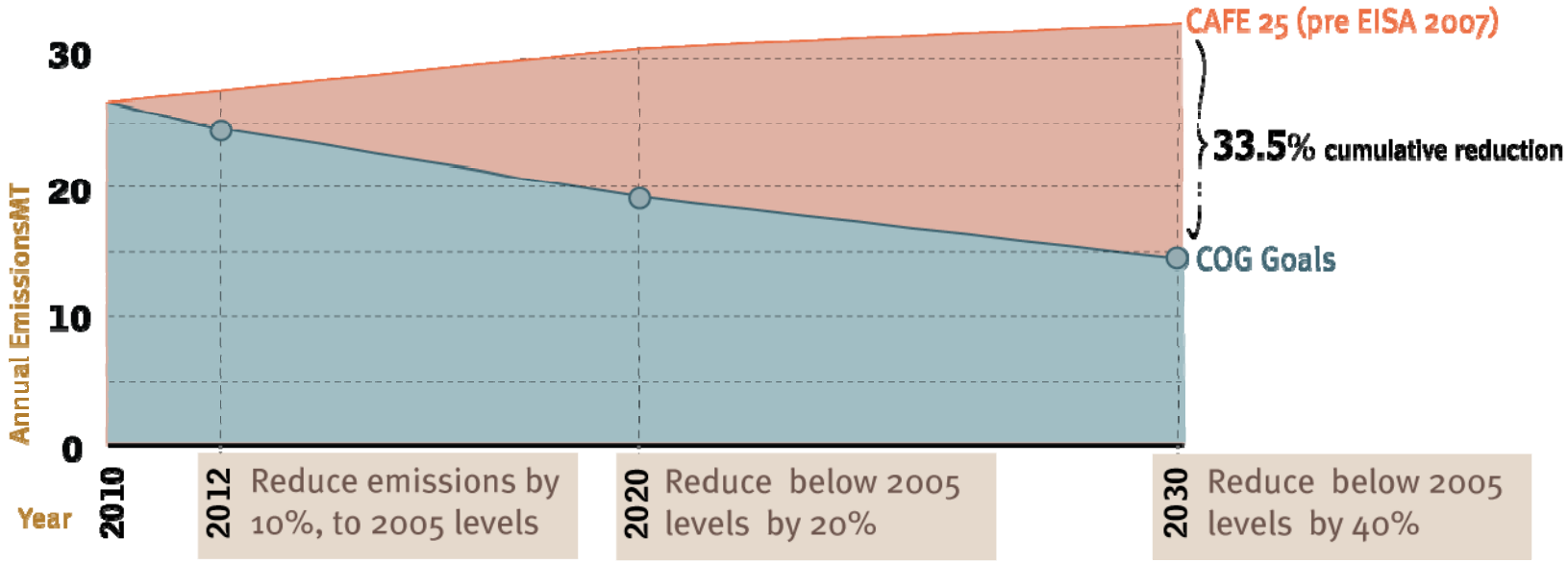
2 Support local jurisdictions by identifying **effective and feasible** strategies

3 Determine the **type and scale of transportation strategies** necessary to meet regional goals

What Would it Take?

background | baseline | analysis | results | conclusions

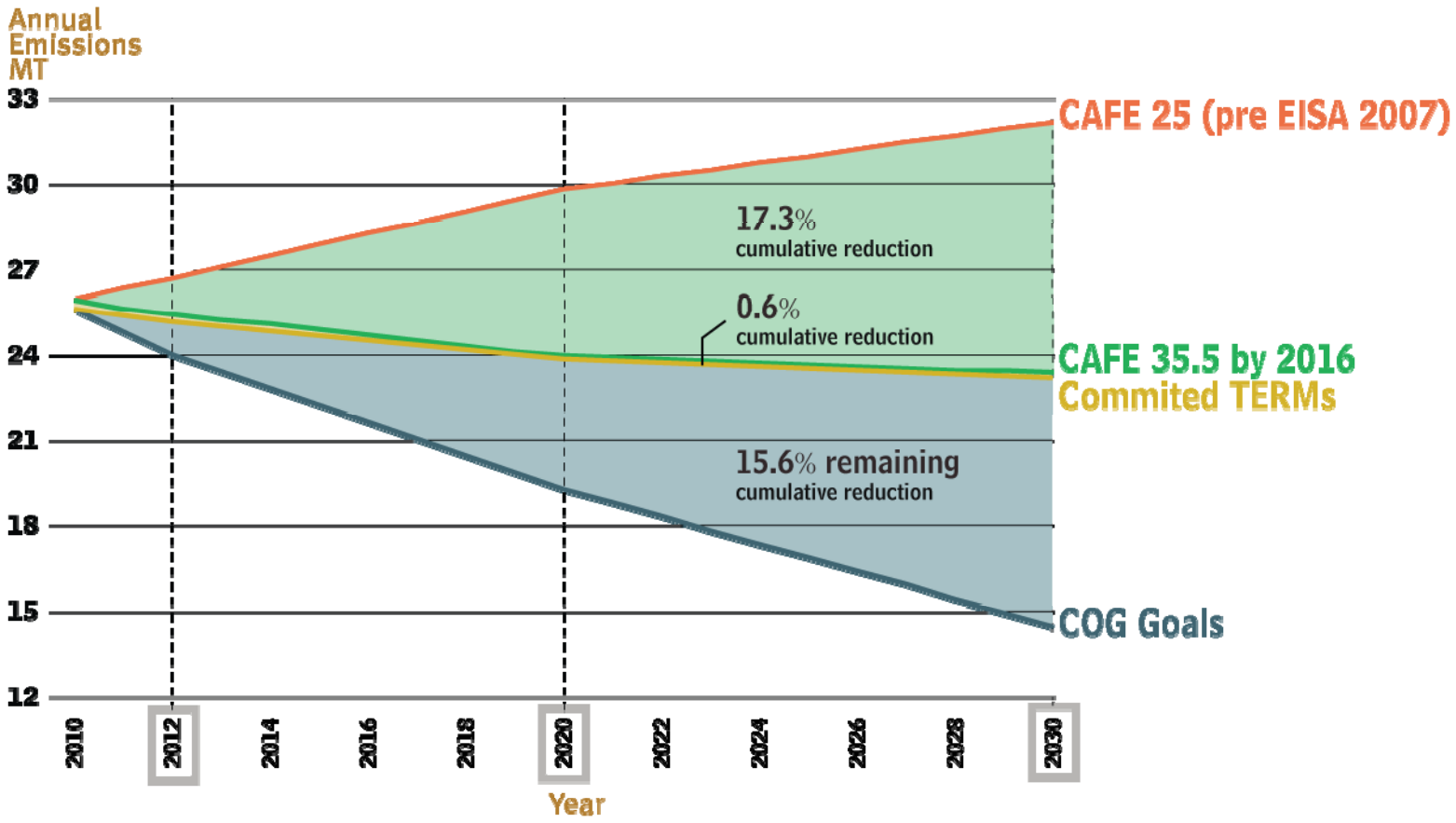
What if we had to meet the regional goals in the transportation sector?



MT=Millions of Tons
CAFE=Corporate Average Fuel Economy Standard

What's Our GHG Baseline?

background | 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?

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)

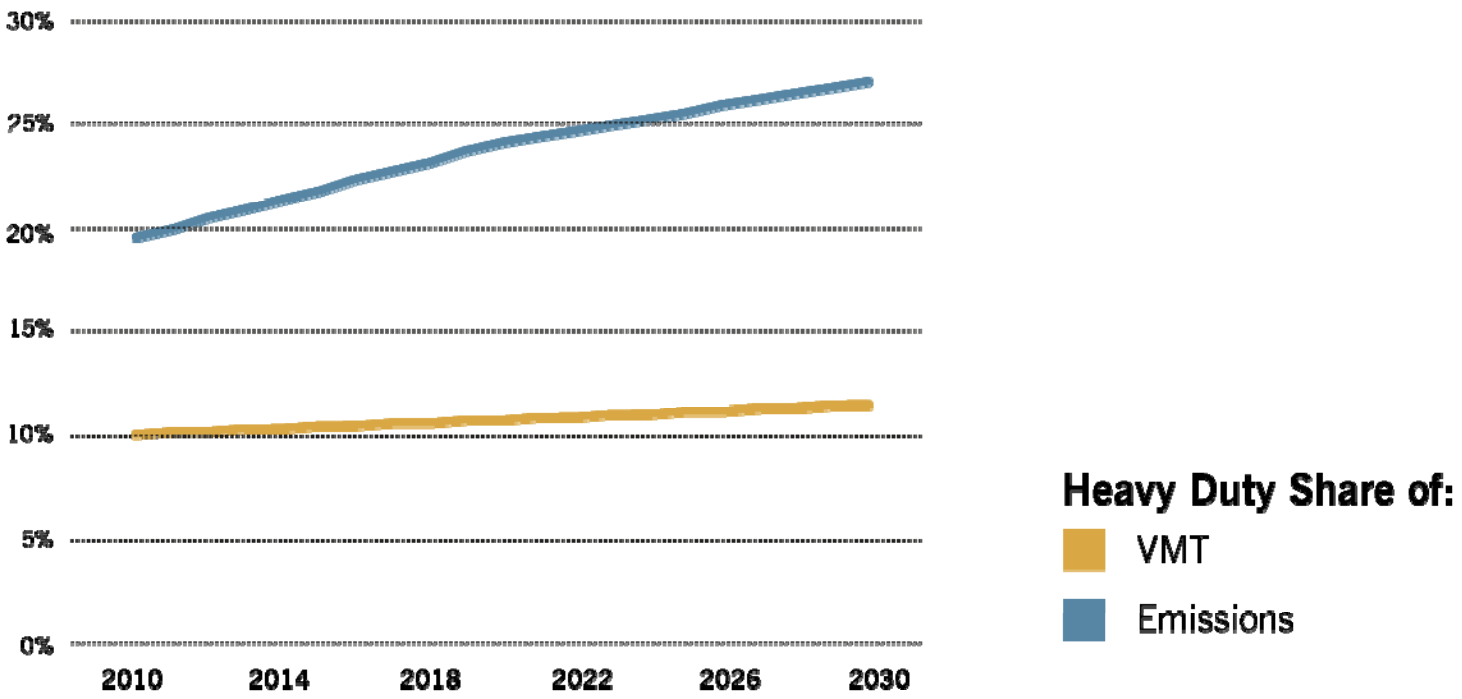
3 

How we use our fleet

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

What Does Our Fleet Look Like?

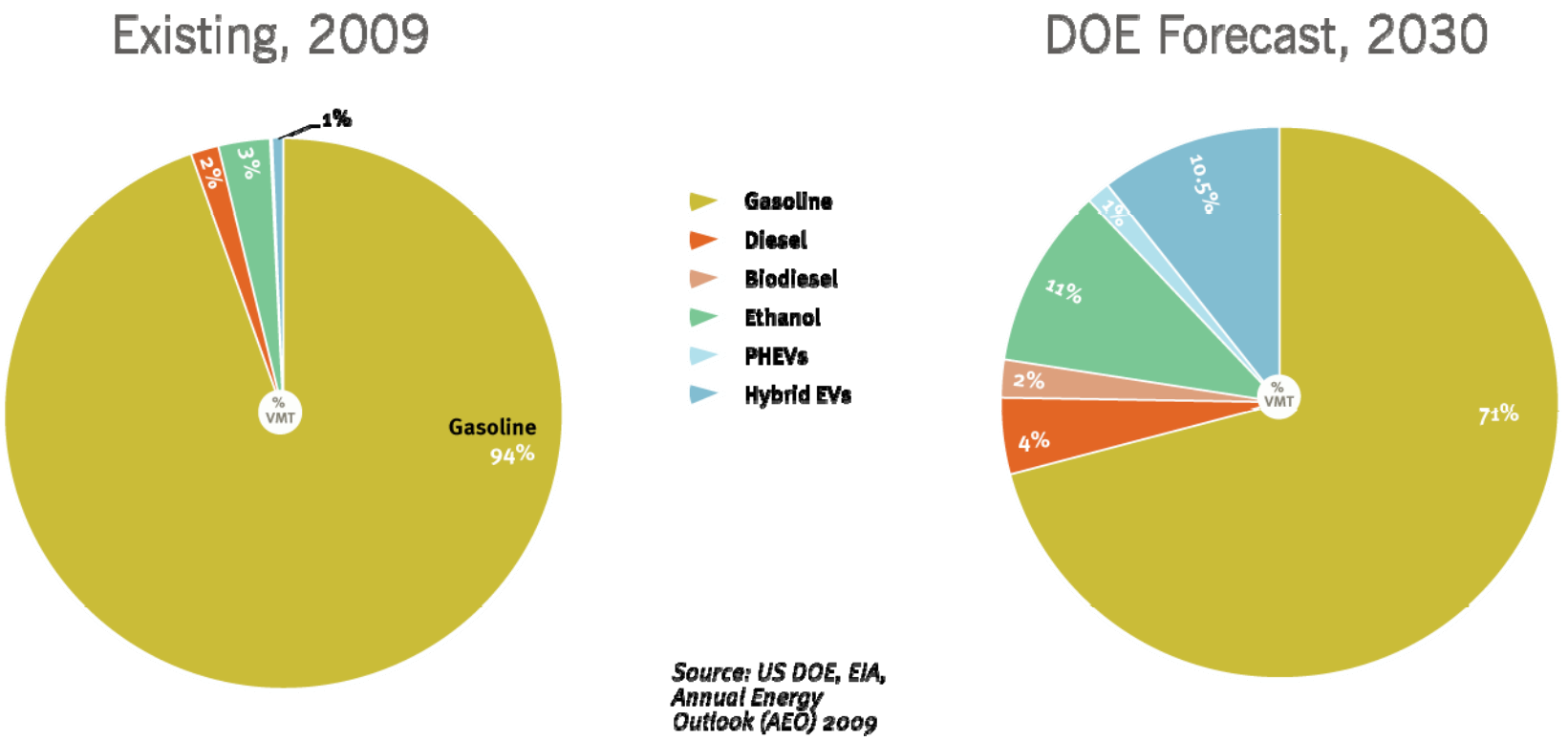
Heavy Duty Share of Total Vehicle Miles of Travel (VMT) and CO_2 Emissions



What's Our Fuel Mix?

background | baseline | analysis | results | conclusions

National Light Duty VMT by Vehicle Type

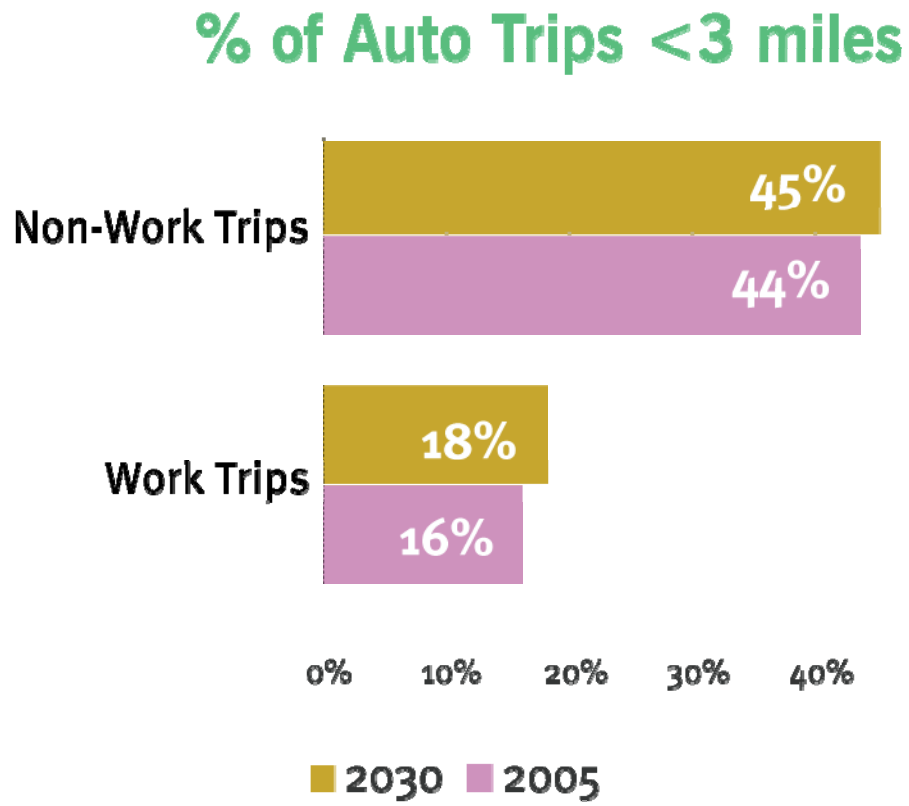


Source: US DOE, EIA, Annual Energy Outlook (AEO) 2009

How Do We Use The Fleet?

background | baseline | analysis | results | conclusions

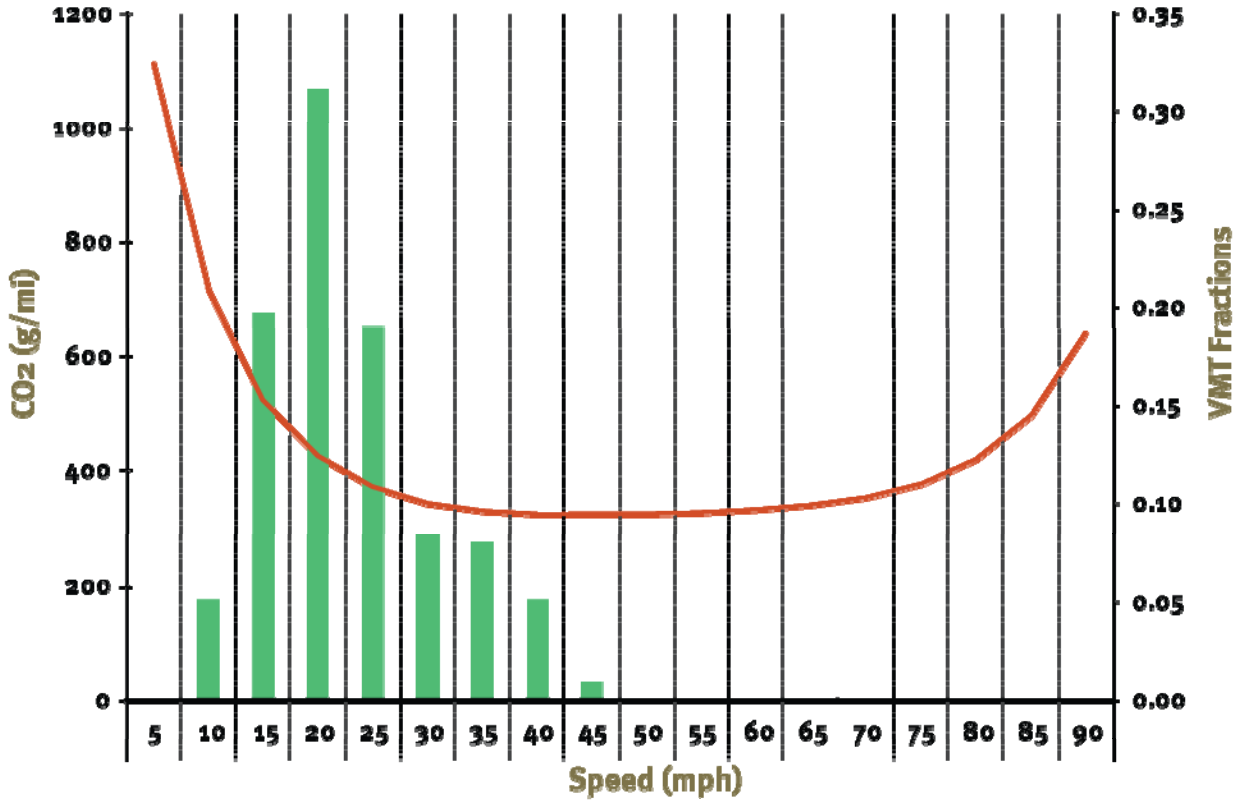
Many of our trips are short.



How Do We Use The Fleet?

background | baseline | analysis | results | conclusions

Congestion affects CO_2 emissions and is widespread.



How Can We Reduce CO_2?

background | baseline | analysis | results | conclusions

1
fuel efficiency

Enhanced CAFE
HDV CAFE
Local tax incentives
Cash for Clunkers

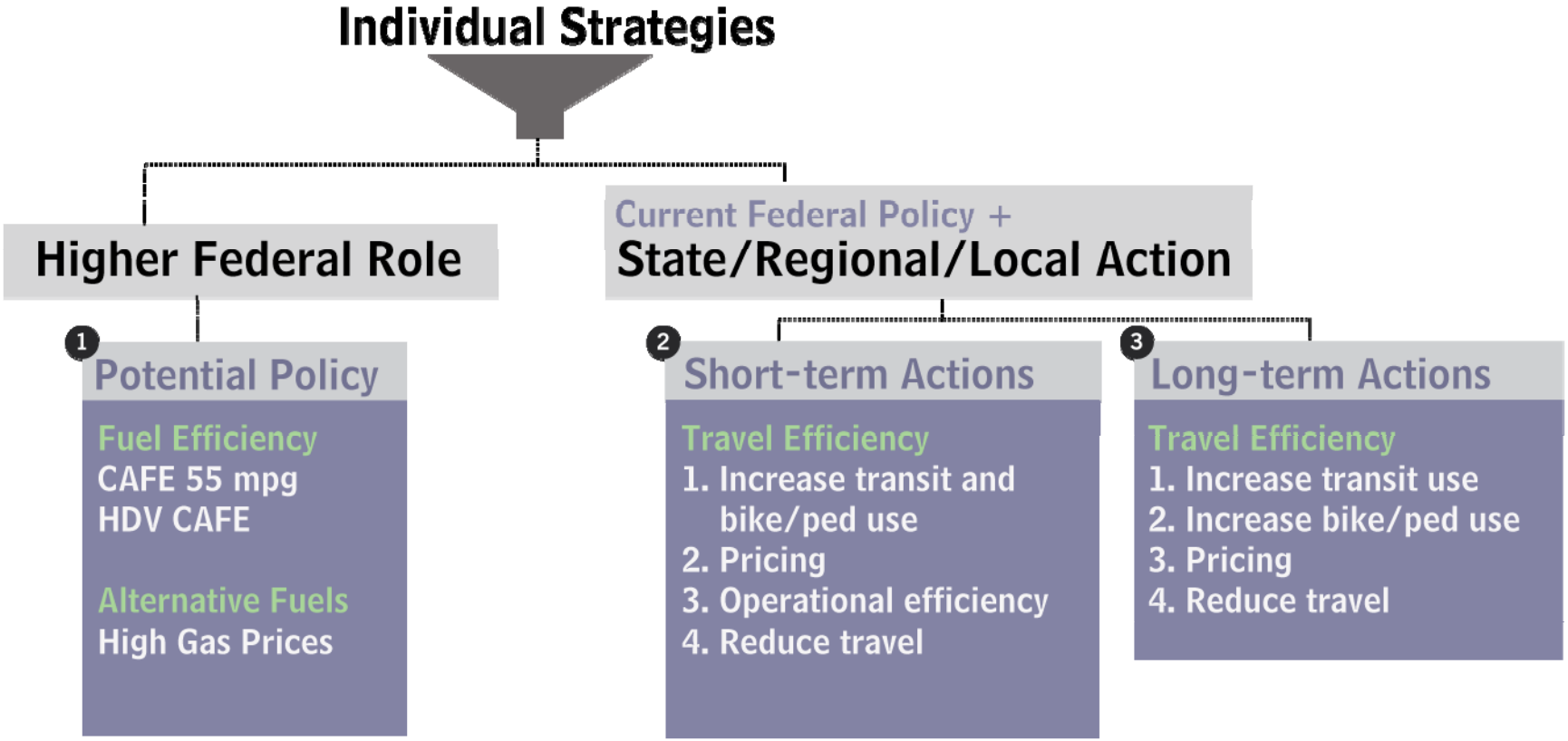
2
alternative fuel

DOE Forecasts:
Current regulation
High price case

3
travel efficiency

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

Categories of Strategies

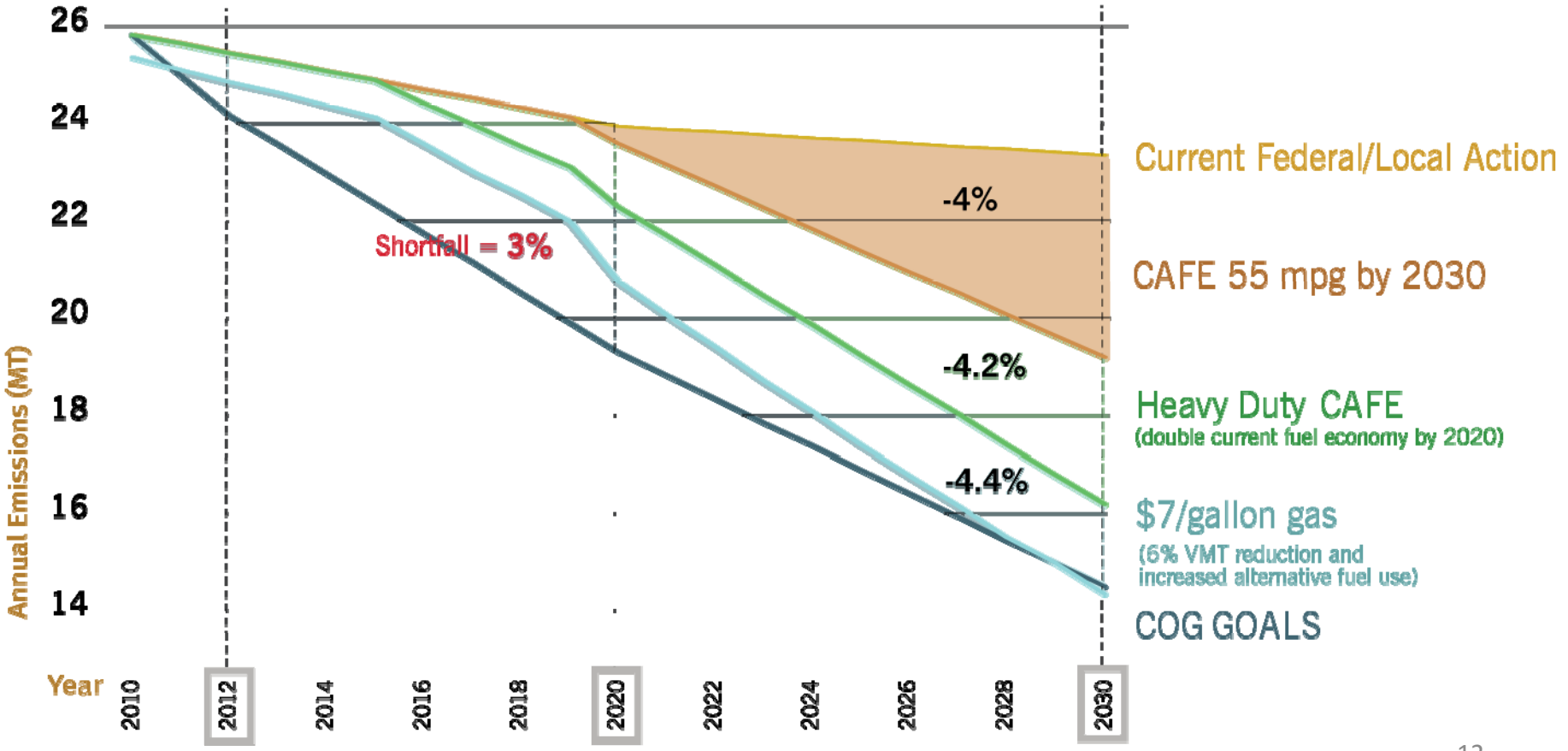


All groups combine additive strategies to the full extent currently possible.

Higher Federal Role

background | baseline | analysis | results | conclusions

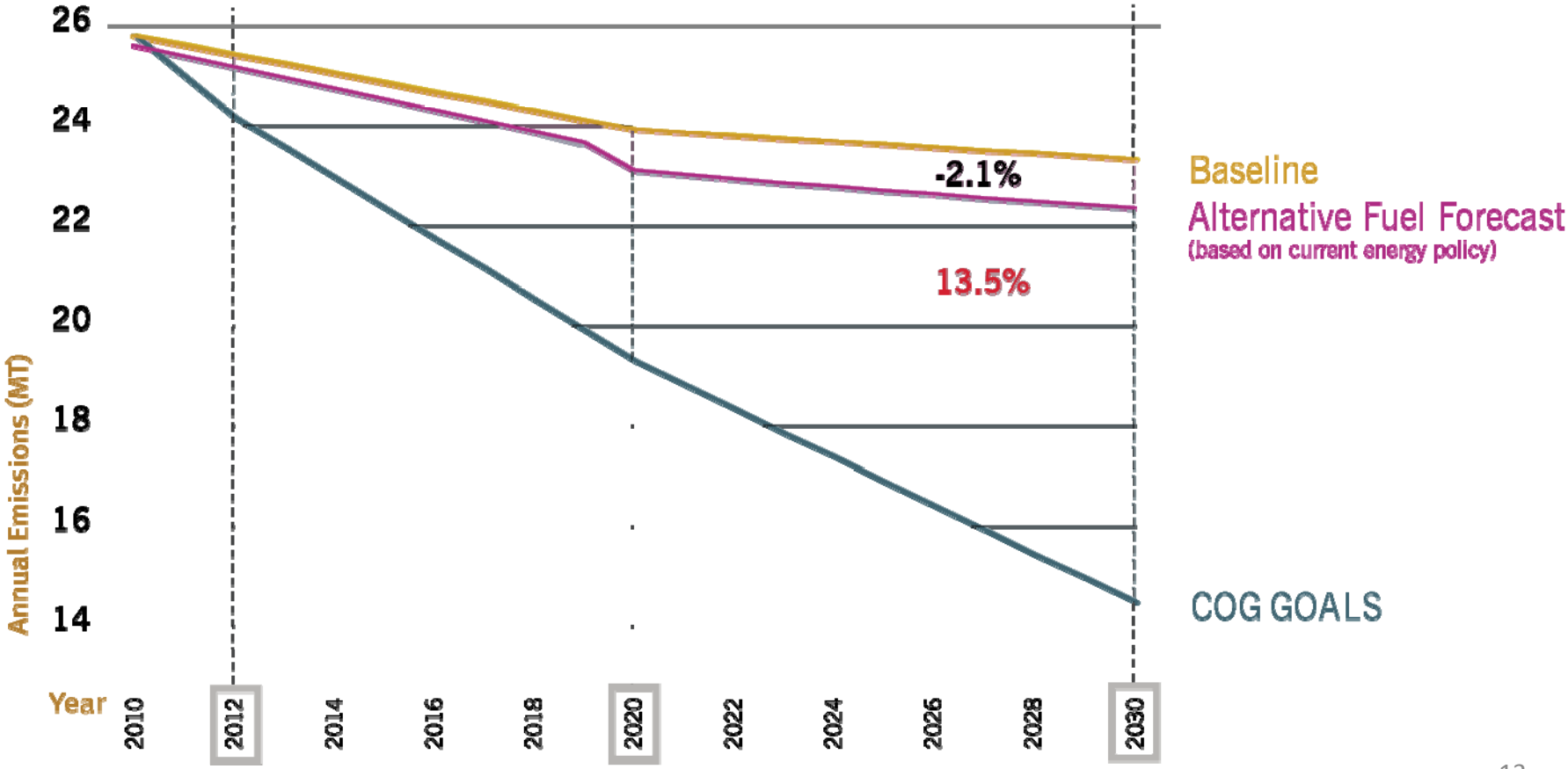
Aggressive federal measures would *almost* get us there.



Current Federal Policy

background | baseline | analysis | results | conclusions

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



Short-term Strategies

Some short-term strategies can be implemented now.

Category	Example Strategies	Reduction (% off BAU)
1. **Increase transit and bike/ped use**	Implement kiosks, feeder buses and circulators, real-time bus information, bus priority, free transfers, bike stations, improved bike/ped access to transit, bike sharing	-0.3%
2. **Pricing**	Implement parking impact fees, pay-as-you drive insurance, parking cash-out subsidies	-1.5%
3. **Improve operational efficiency**	Promote eco-driving (public education campaign), incident management, traffic signal optimization, idling reduction	-1.8%
4. **Reduce travel**	Expand telecommuting, carpooling and vanpooling, car-sharing	-0.3%
	TOTAL	**-3.9%**

Long-term Strategies

background | baseline | analysis | results | conclusions

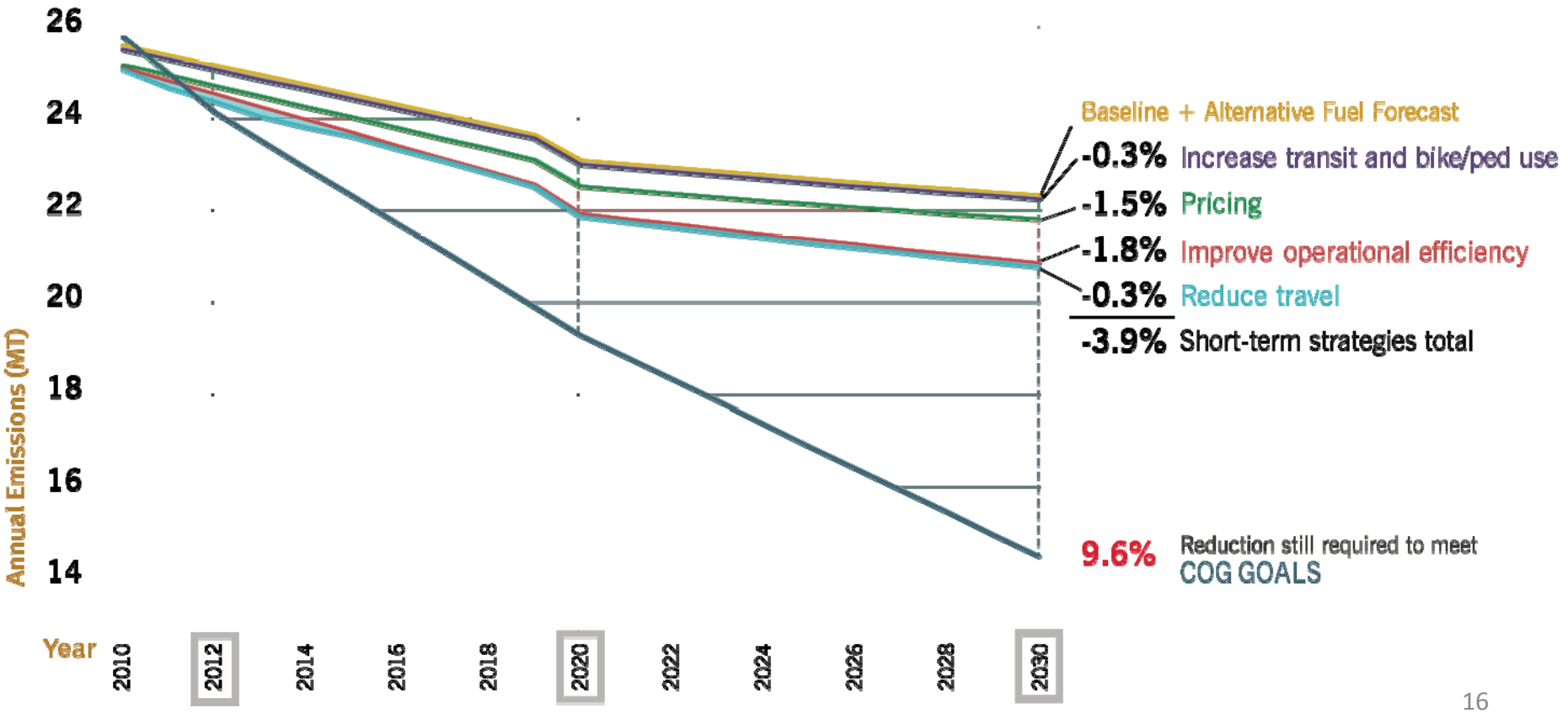
We can begin the initial stages of implementation for some long-term measures.

Category	Example Strategies	Reduction (% off BAU)
1. Increase transit use	Major transit expansion, such as the Dulles Rail line, and park and ride lots at rail stations	-0.15%
2. Increase bike/ped use	Accelerated completion of the TPB Bicycle and Pedestrian Plan	-0.3%
3. Pricing	Variable pricing of new and existing freeway and select arterial lanes	-0.25%
4. Reduce travel	Land use strategy encouraging concentrated growth in activity centers and around transit	-0.15%
	TOTAL	**-0.85%**

Short-term Strategies

background | baseline | analysis | results | conclusions

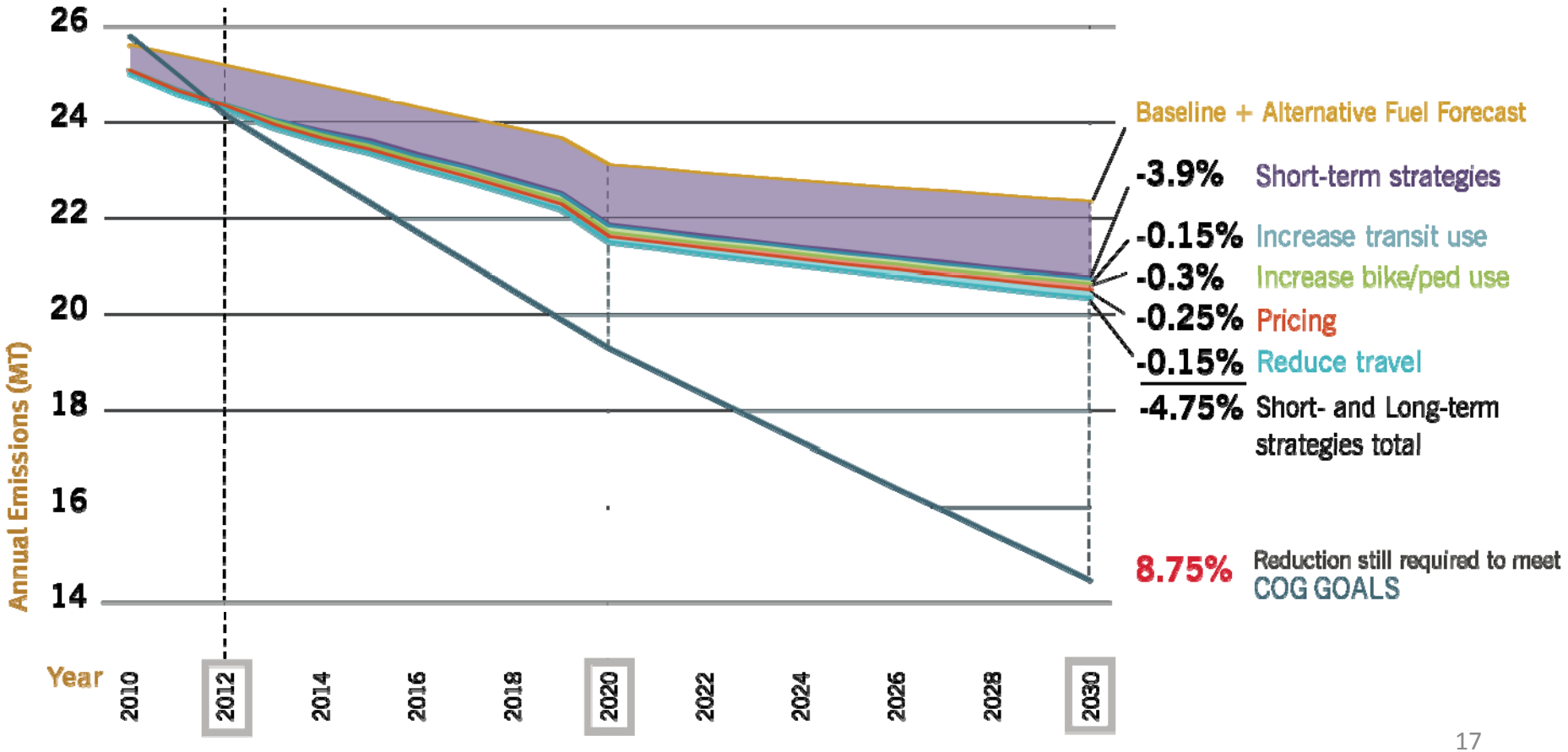
Many strategies can be done soon, almost meeting early goals.



Longer-term Strategies

background | baseline | analysis | results | conclusions

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



Meeting the Goals

Can we combine the aggressive federal strategies with the regional strategies and meet the goals?

1. Danger of double-counting if VMT-reducing strategies are combined with the High Gas Price strategy, which results in a 6% VMT reduction.

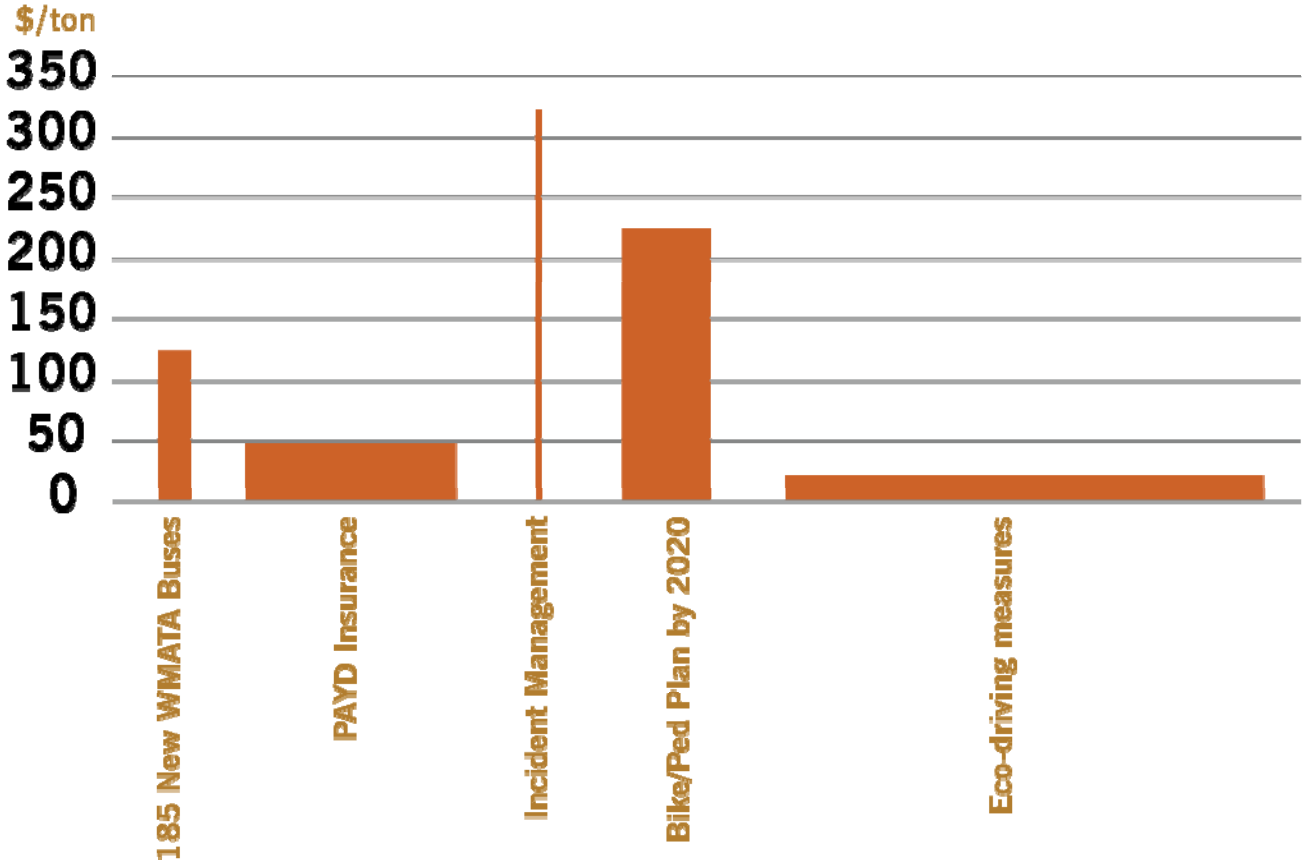
2. The effectiveness of travel efficiency strategies is diminished if the fleet is cleaner.

3. If operations measures (incident management, signal optimization, hybrid buses, eco-driving, and idling reduction) are adjusted and added to the high federal role grouping, the 3% shortfall is reduced to 1.6%.

Cost-Effectiveness

background | baseline | analysis | results | conclusions

Some strategies are both cost-effective and effective.



1 million tons of cumulative reduction 2010-2030

(width of bar indicates 20 year CO_2 reduction effectiveness)

Assumes current federal/local action

USG assumes the Social Cost of CO_2 to be $21 in 2010 rising to $45 in 2050.

Next Step: Benefit Cost Analysis

background | baseline | analysis | results | **conclusions**

EXAMPLE

Bike-sharing

Modest CO_2 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
CO_2	**66,000 tons**

All numbers over 20 year horizon from 2010-2030

Supporting Further Federal Action

background | baseline | analysis | results | conclusions

The region could express support for high pay-off measures that require further federal action.

1. Heavy duty CAFE
2. 55 mpg by 2030 CAFE
3. Pricing of carbon-intensive fuels

We should research various legislative and administrative proposals to determine what the region may wish to support.

Emerging Federal Planning Requirements

background | baseline | analysis | results | conclusions

How should the TPB as the Metropolitan Planning Organization (MPO) develop regional goals for transportation?

Current legislative proposals would incorporate GHG reduction requirements into the MPO planning process (Kerry-Lieberman, Waxman-Markey, Oberstar-Mica)

MPOs to develop GHG reduction targets and strategies and show progress in MPO plans

MPO plans to be approved by DOT and EPA

What Next?

background | baseline | analysis | results | conclusions

TPB can begin designing some actions that the region could consider for the near-term:

1. Expand **pay-as-you-drive insurance** to the whole region
2. Accelerate the **TPB Bike/Ped Plan** completion
3. Begin an **eco-driving** public education campaign (potentially through Commuter Connections)
4. Promote state/local incentives to accelerate use of **fuel efficient/ alternative fuel vehicles** for both public fleets and private use
5. Strengthen long-term focus on **mixed use activity centers** and **transit-oriented development**