

2015  
AMENDMENT

CLRP

Financially Constrained Long Range Transportation Plan  
for the National Capital Region

## AIR QUALITY CONFORMITY ANALYSIS

of the 2015 CLRP Amendment and the FY2015-2020 TIP

Presentation to the Travel Forecasting Subcommittee

September 28, 2015



# Air Quality Conformity 2015 CLRP Amendment and FY2015-2020 TIP Technical Approach

## Key Technical Inputs and Tools:

- ❖ Round 8.4 Cooperative Forecasts – **NEW**  
(presentations: [TPB Tech Feb 6](#) & [TPB March 18](#))
- ❖ “Regionally Significant” Transportation Projects - **NEW**  
(presentation: TPB Feb 18- [major changes](#) & [project input table](#))
- ❖ Version 2.3.57 Travel Demand Model
- ❖ 2014 Vehicle Registration Data (VIN) – **NEW**  
(presentations: [TPB Tech Jan 9](#) & [MWAQC TAC Jan 13](#))
- ❖ EPA’s MOVES2014 Mobile Emissions Model – **NEW**  
(presentation: [MWAQC TAC Feb 10](#) & [TPB Tech April 3](#))

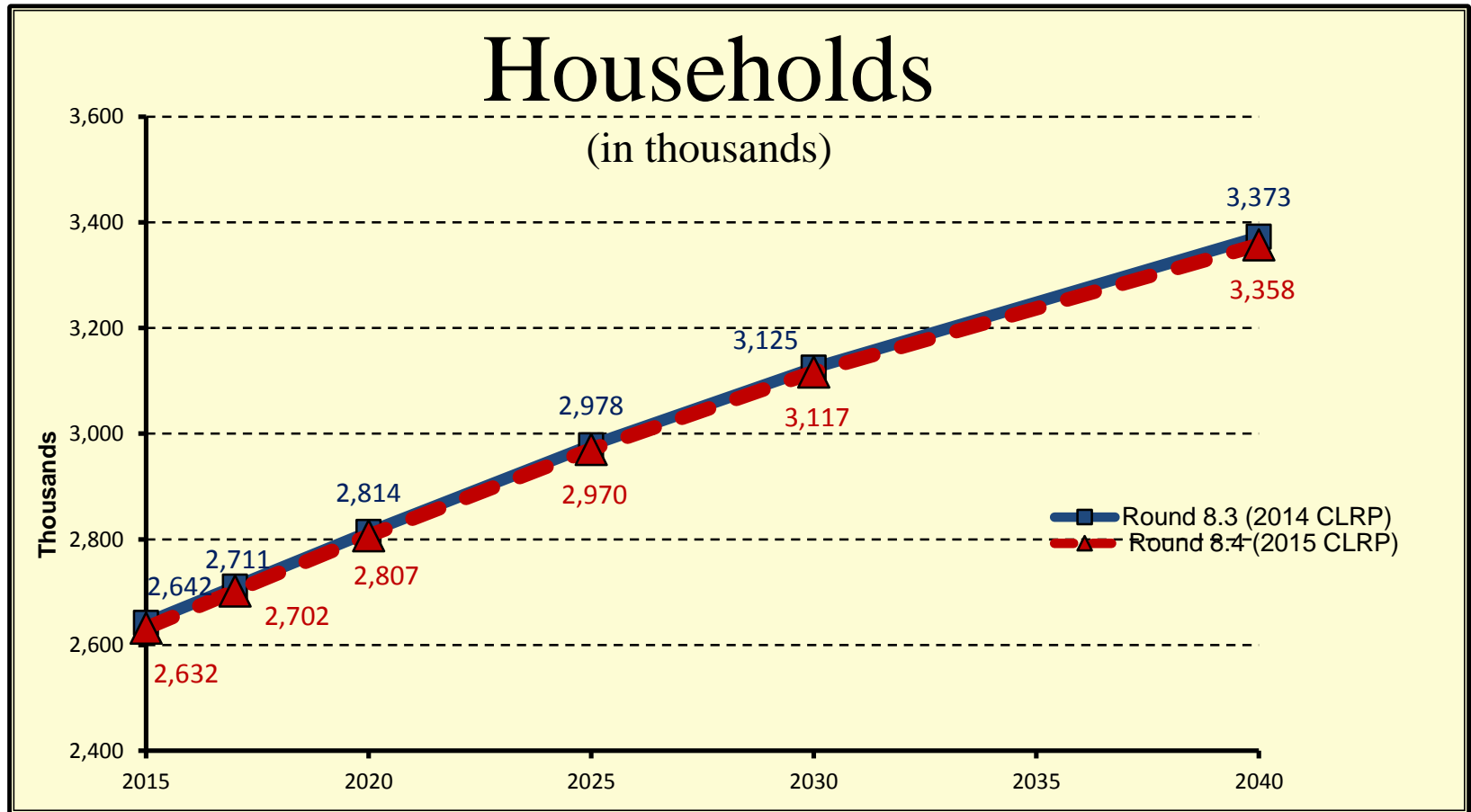
*NOTE: Detailed presentations were given to the TPB, the TPB Technical Committee, and MWAQC TAC on the ‘NEW’ items in the January – April timeframe. Links to the presentations are included with each item above.*



# Air Quality Conformity

## 2015 CLRP Amendment and FY2015-2020 TIP

### Round 8.4 Cooperative Forecasts



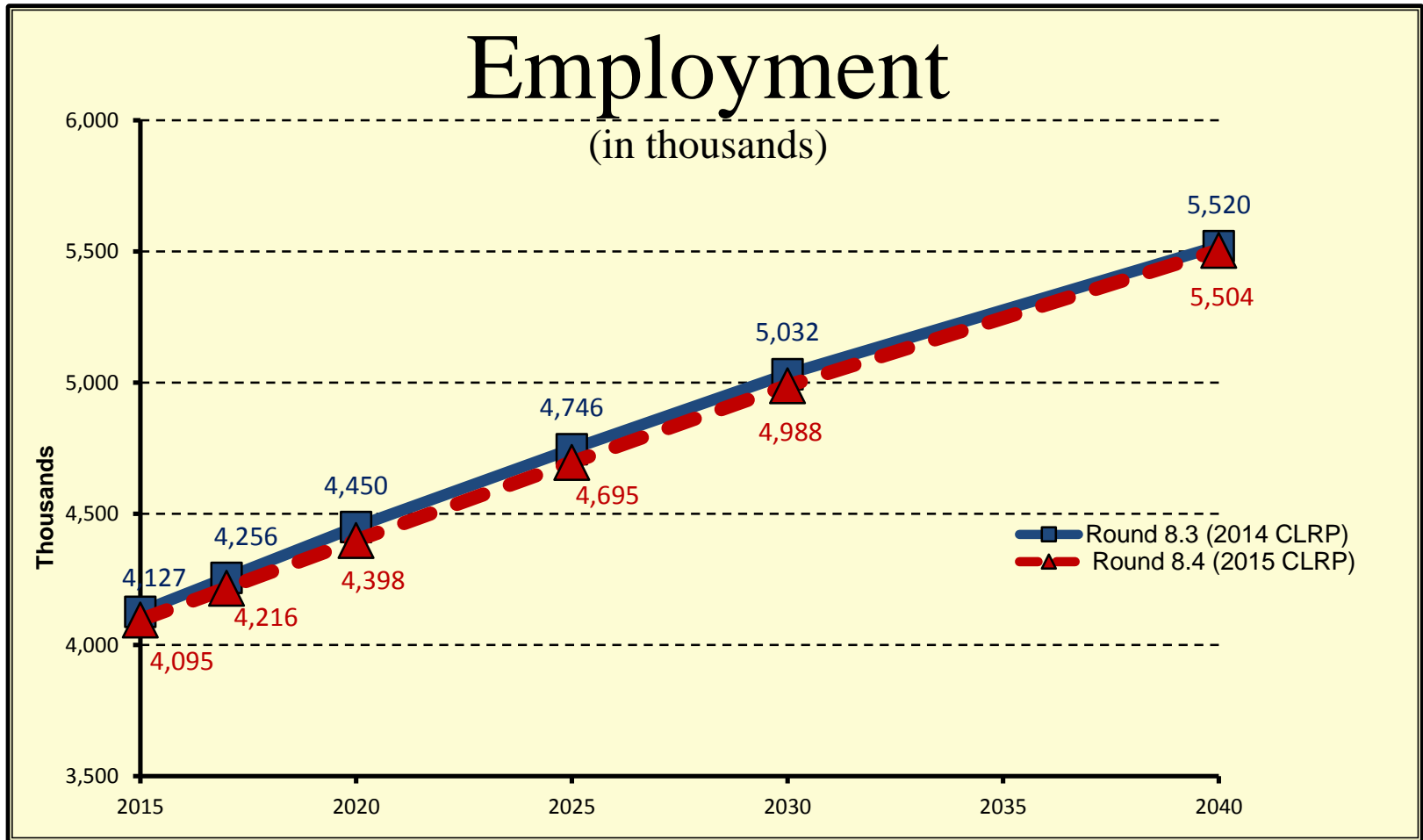
NOTE: Values are for the modeled area.



# Air Quality Conformity

## 2015 CLRP Amendment and FY2015-2020 TIP

### Round 8.4 Cooperative Forecasts



NOTE: Values are for the modeled area.

\*Includes census adjustment



# Air Quality Conformity 2015 CLRP Amendment and FY2015-2020 TIP 2014 Vehicle Registration Data

## The Region's Vehicle Fleet:

- ❖ Inventoried every three years using VIN data
- ❖ 3.9 million vehicles – increasing through time
- ❖ Average age 9.5 years – aging through time
- ❖ Vehicle type and age distribution used in analysis



# Air Quality Conformity

## 2015 CLRP Amendment and FY2015-2020 TIP

### Mobile Emissions Model

## MOVES2014 (released in July 2014):

- ❖ Includes New Federal Programs
  - ✓ Tier 3 emission standards for cars and trucks
  - ✓ Tier 3 fuel standards
  - ✓ CAFE standards
  - ✓ Medium and heavy duty engine and vehicle GHG standards
  - ✓ Light duty vehicle GHG standards
  
- ❖ Includes New Science
  - ✓ Improved emission rates for gasoline sulfur and ethanol
  - ✓ Improved temperature effects on emissions
  - ✓ Improved evaporative and PM emissions calculations methods
  
- ❖ Includes Methodological Changes
  - ✓ Combination long-haul truck ‘hoteling’
  - ✓ Combination long-haul truck start emissions eliminated





**Air Quality Conformity  
2015 CLRP Amendment and FY2015-2020 TIP  
Technical Approach**

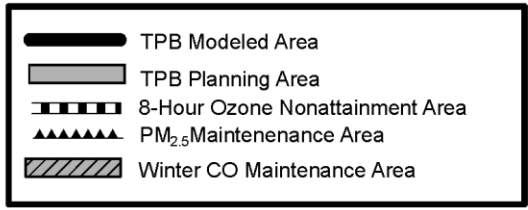
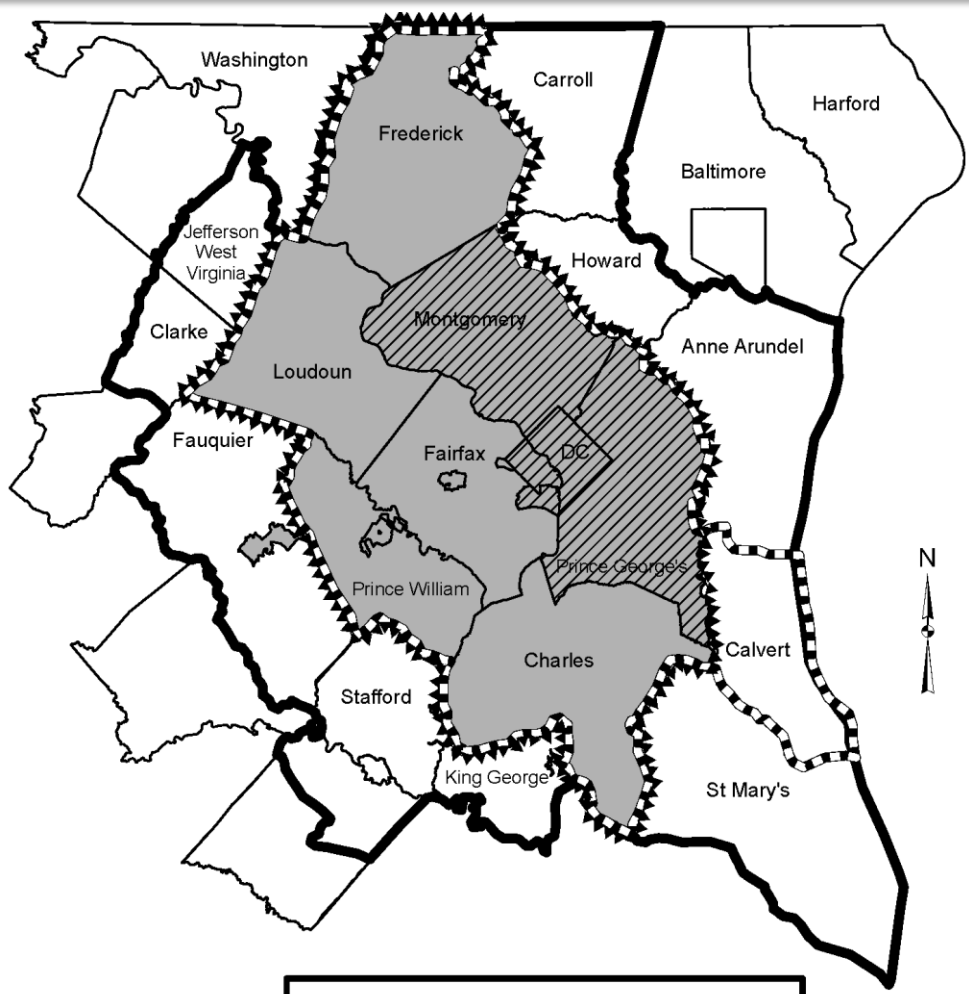
# Analysis Years:

2015, 2017, 2020\*, 2025\*\*, 2030\*\*, 2040\*\*

\*The 2020 analysis year is included only to provide transit constraint data for later years.

\*\*Includes Multiple VDOT I-66 Alternatives

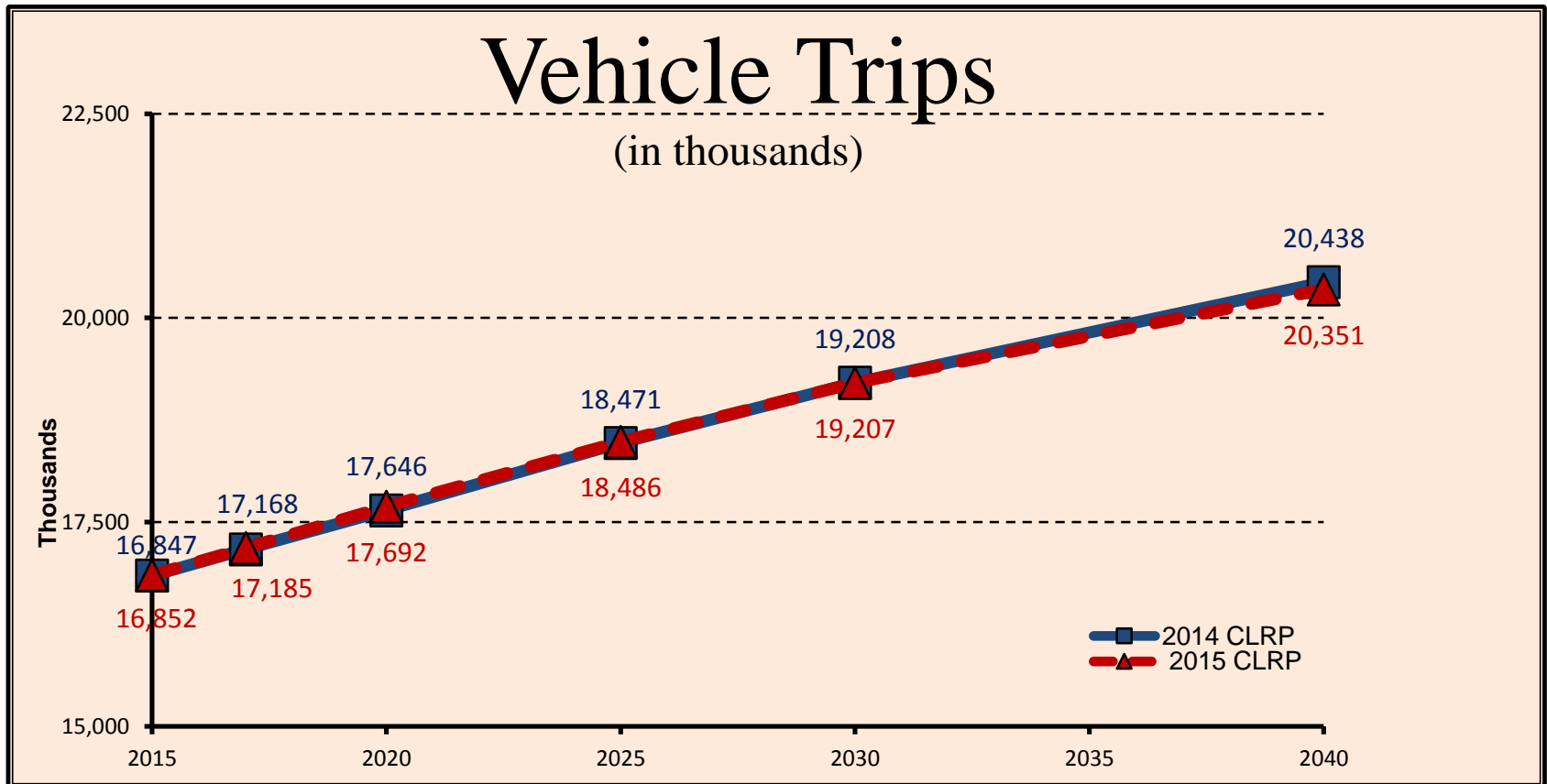
# TPB Transportation Planning Area and Washington, DC-MD-VA Nonattainment & Maintenance Areas





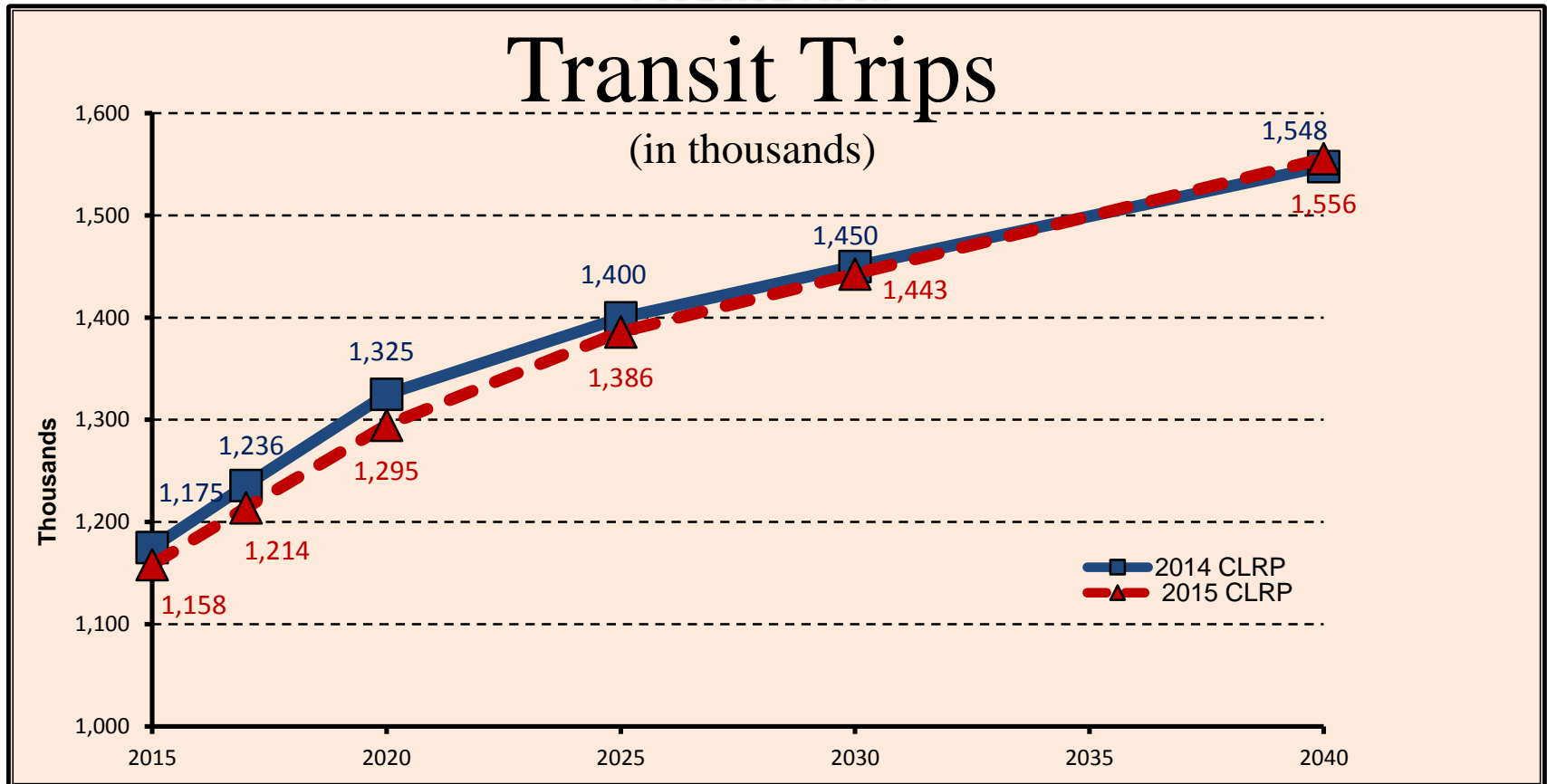
# Air Quality Conformity 2015 CLRP Amendment and FY2015-2020 TIP Travel Demand Summary

## Average Weekday Traffic Modeled Area



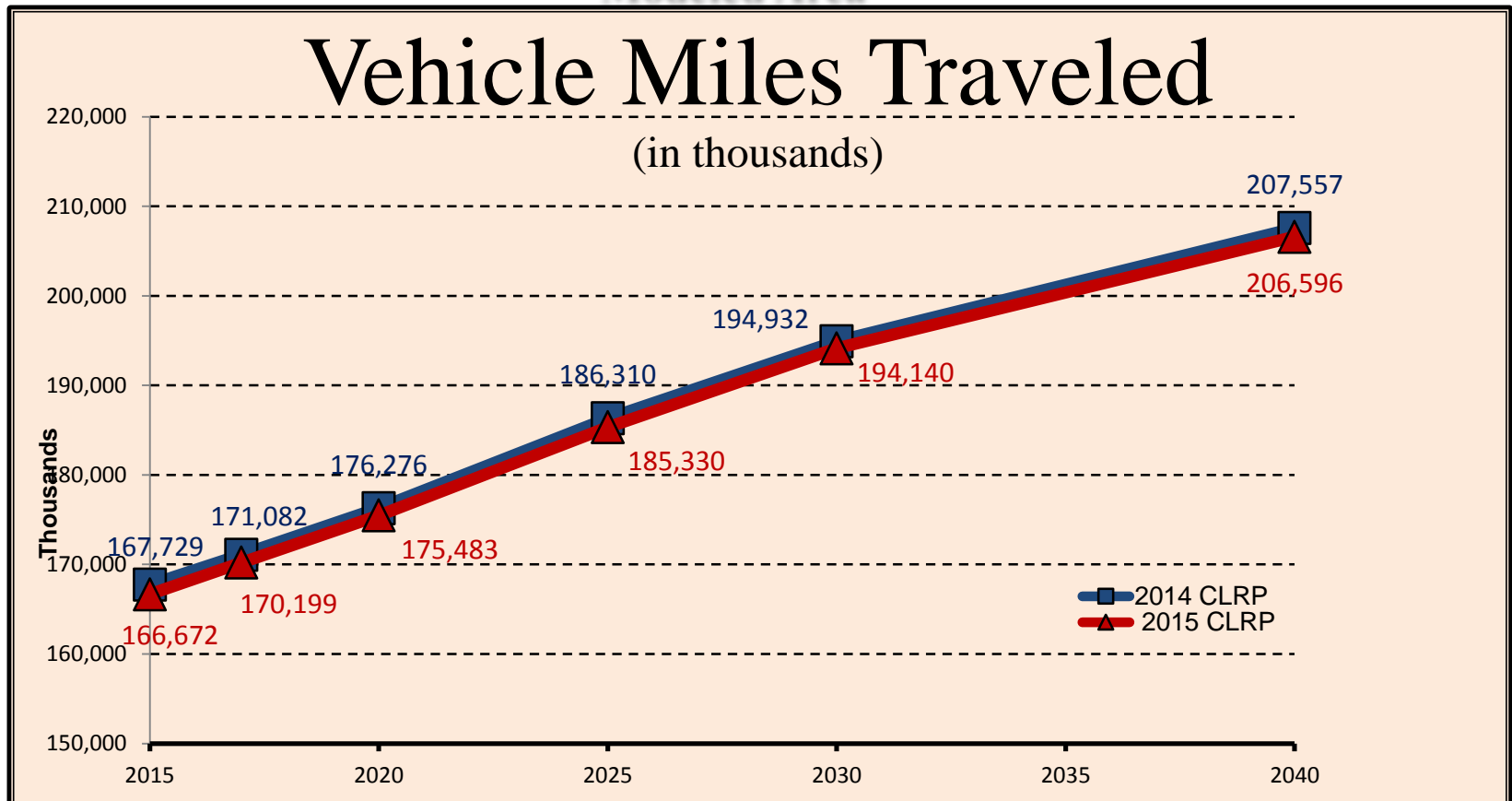
# Air Quality Conformity 2015 CLRP Amendment and FY2015-2020 TIP Travel Demand Summary

## Average Weekday Traffic Modeled Area



# Air Quality Conformity 2015 CLRP Amendment and FY2015-2020 TIP Travel Demand Summary

## Average Weekday Traffic Modeled Area



# Air Quality Conformity

## 2015 CLRP Amendment and FY2015-2020 TIP

# Pollutants

- ❖ Volatile Organic Compounds (VOC)
- ❖ Nitrogen Oxides (NO<sub>x</sub>)
- ❖ PM<sub>2.5</sub> Precursor NO<sub>x</sub>
- ❖ Direct Fine Particles (PM<sub>2.5</sub>)
- ❖ Wintertime Carbon Monoxide (CO)



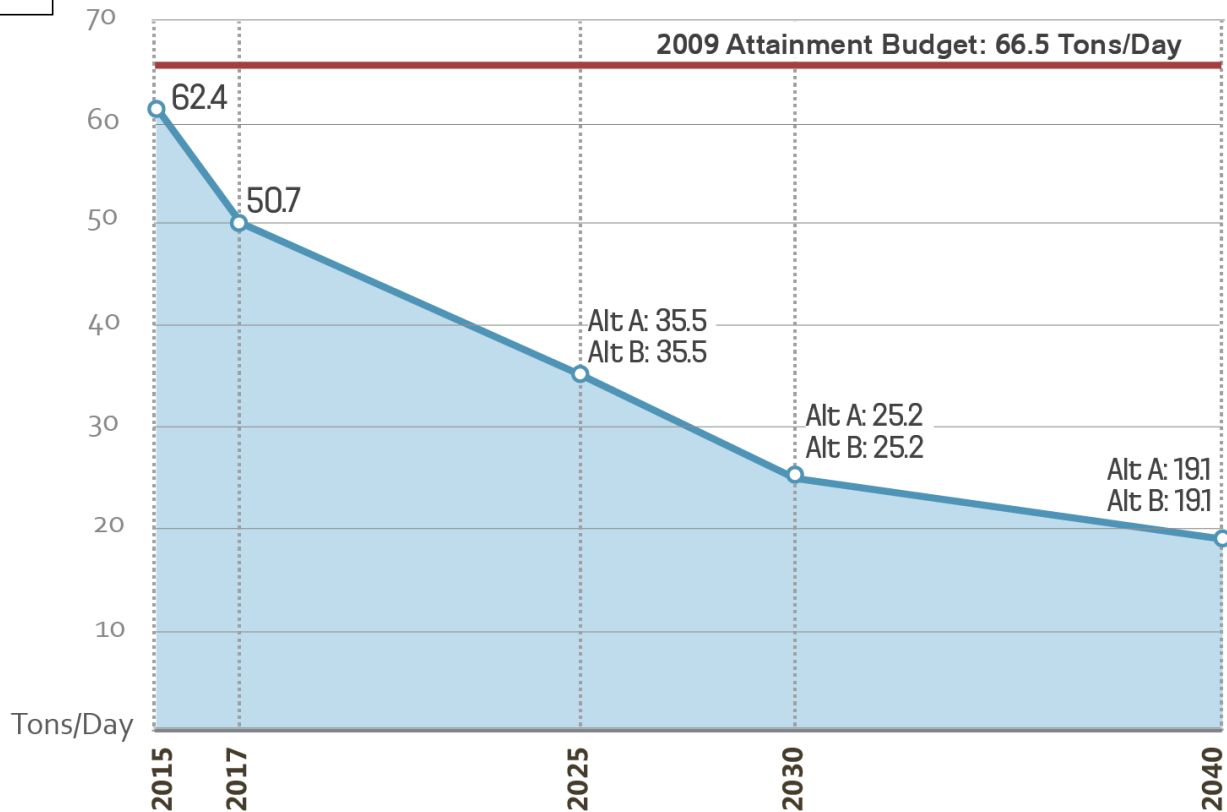
# Air Quality Conformity

## 2015 CLRP Amendment and FY2015-2020 TIP

### Mobile Source Emissions

NOTE: The Mobile Budget shown was developed in 2007, as part of the 8 Hour - Ozone SIP, in response to the 1997 Ozone Standard. This budget, as the most current approved by EPA, is required for use in any conformity analysis assessing ozone season pollutants.

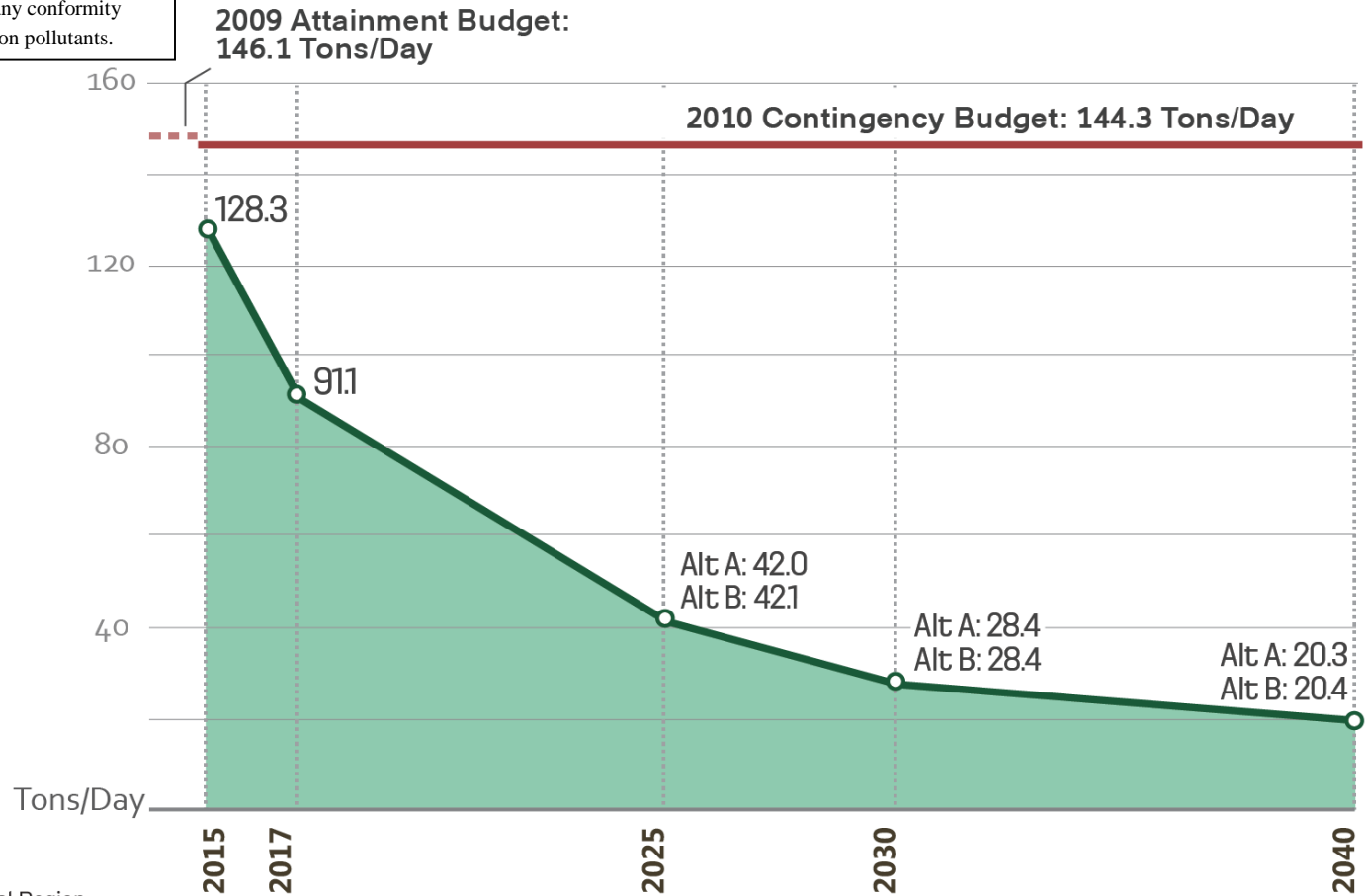
## Ozone Season VOC



# Air Quality Conformity 2015 CLRP Amendment and FY2015-2020 TIP Mobile Source Emissions

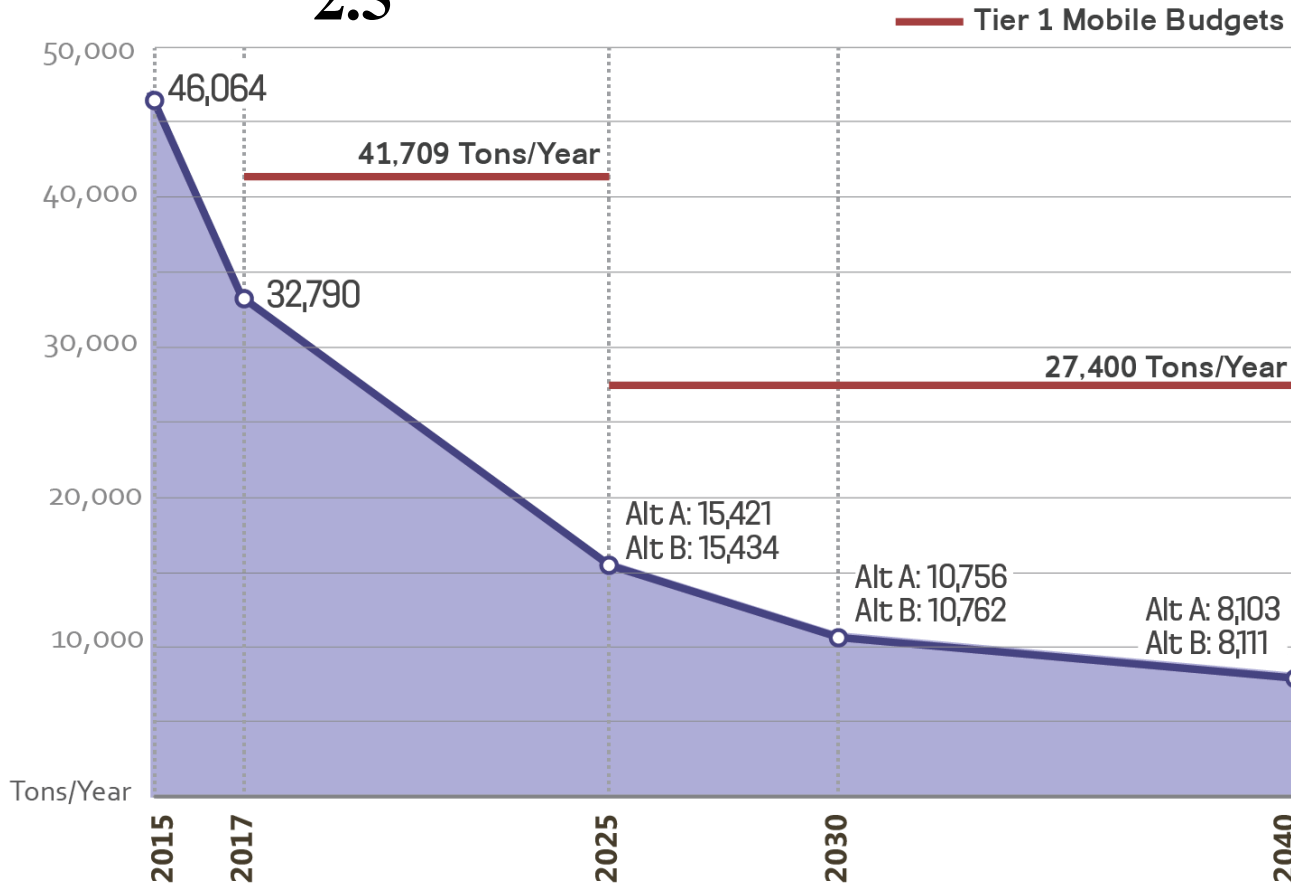
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## Ozone Season NO<sub>x</sub>



# Air Quality Conformity 2015 CLRP Amendment and FY2015-2020 TIP Mobile Source Emissions

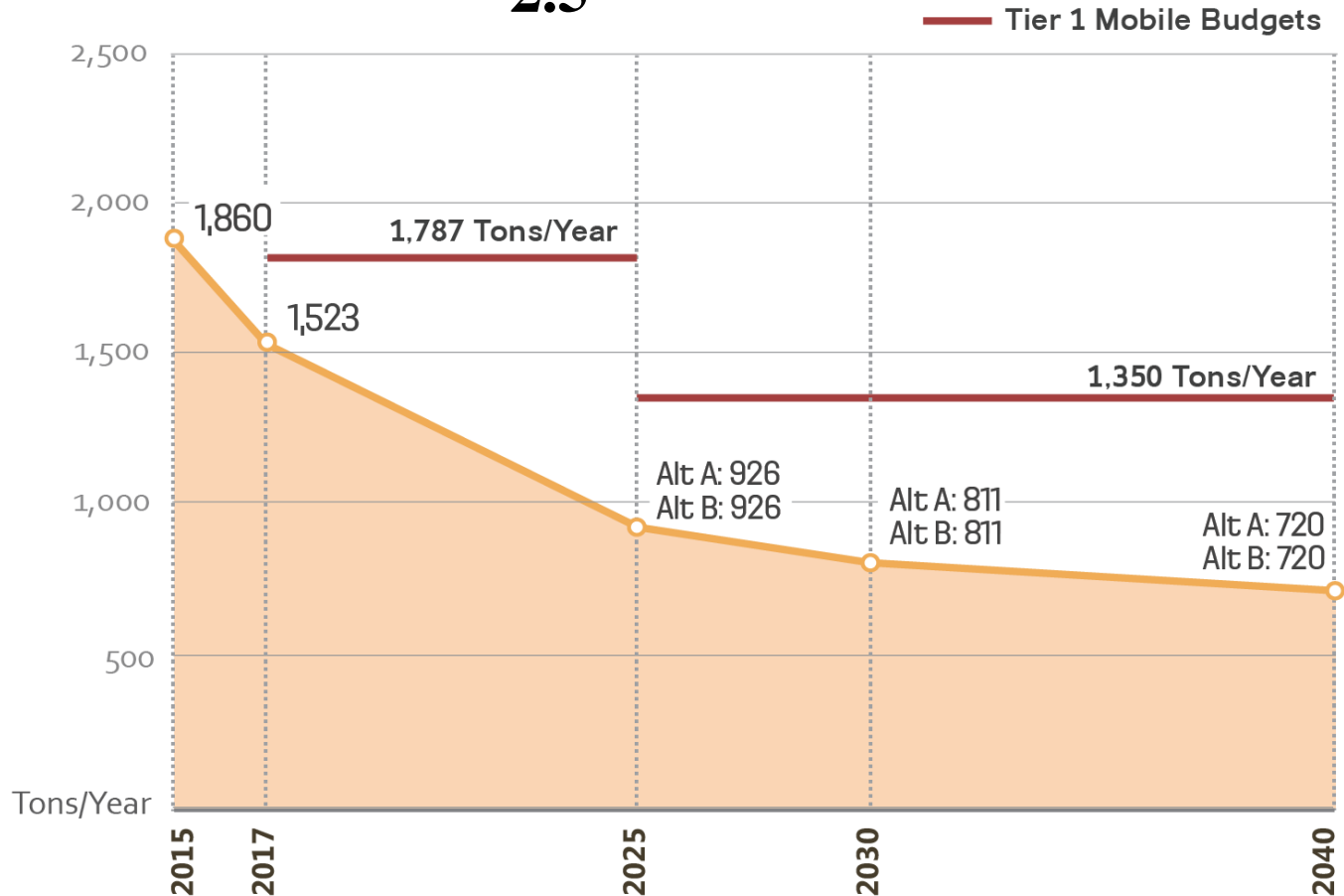
## PM<sub>2.5</sub> Precursor NO<sub>x</sub>





# Air Quality Conformity 2015 CLRP Amendment and FY2015-2020 TIP Mobile Source Emissions

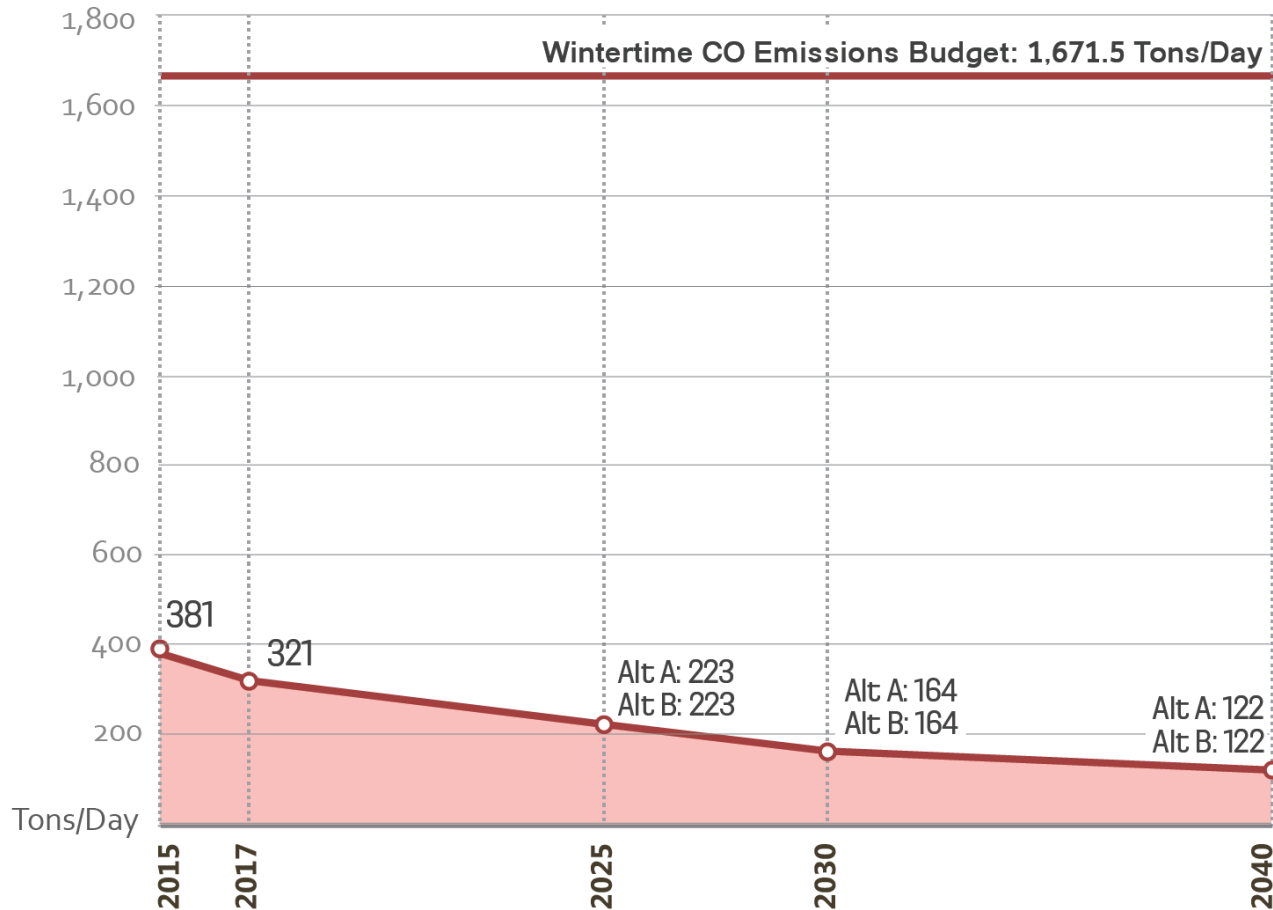
## PM<sub>2.5</sub> Direct



TCMs and TERMS are not included in totals.

# Air Quality Conformity 2015 CLRP Amendment and FY2015-2020 TIP Mobile Source Emissions

## Wintertime CO



# Air Quality Conformity 2015 CLRP Amendment and FY2015-2020 TIP Schedule

## Current Disposition of the 2015 CLRP:

- ❖ TPB was briefed on AQC findings on Sept. 16<sup>th</sup>
- ❖ Public comment period has begun and will close on Oct. 10<sup>th</sup>
- ❖ TPB will consider approval of TIP/CLRP and AQC analysis on Oct. 21<sup>st</sup>
- ❖ Staff will prepare a transmittal package of the latest model inputs/applications files by the end of November



# Air Quality Conformity 2014 CLRP Amendment and FY2015-2020 TIP

# QUESTIONS?

