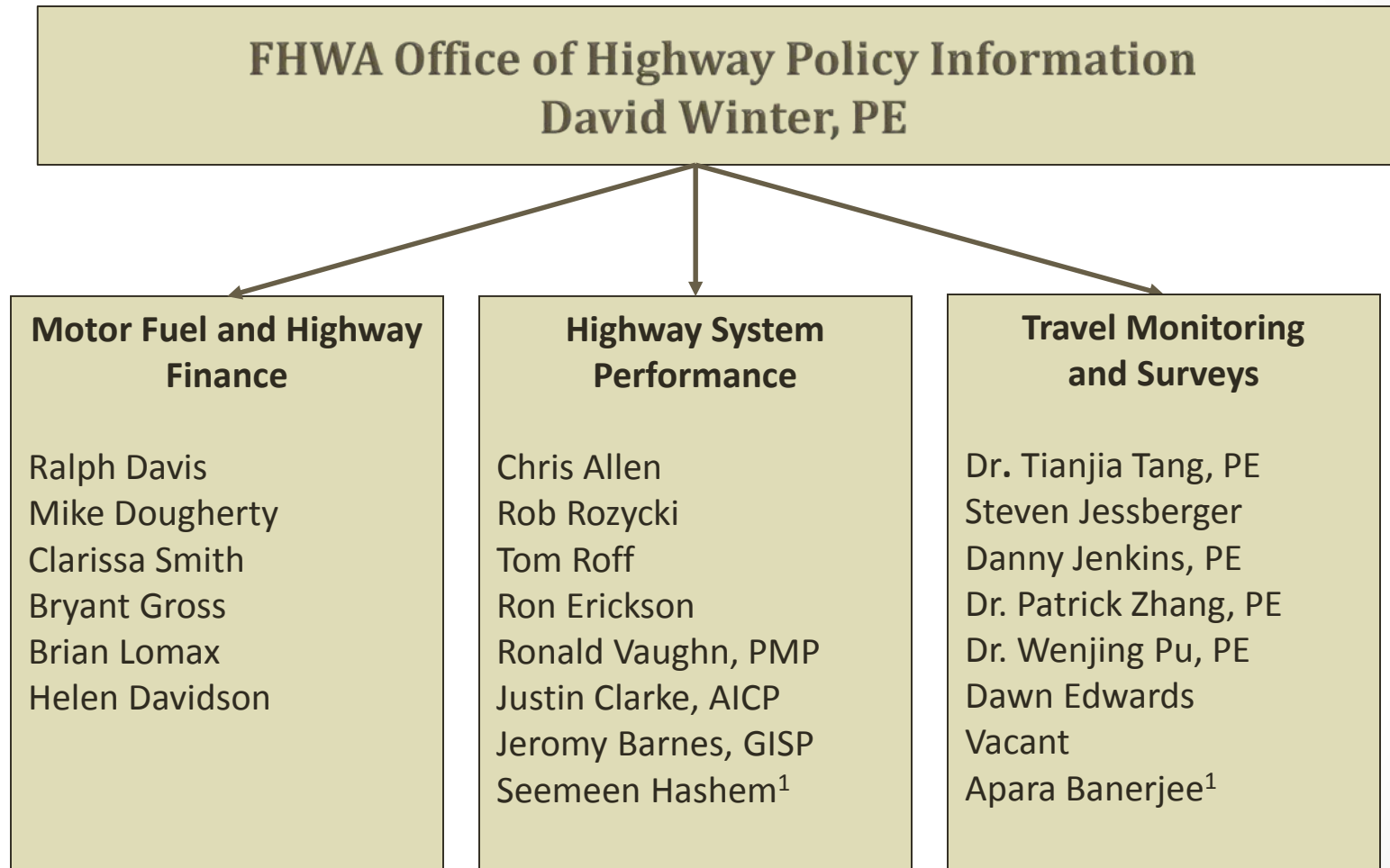


HPMS Future AADT

Office of Highway Policy Information
2017 Highway Information Seminar
Nov 13 - 16



Office Organizational Chart



1 – Indicates contractor



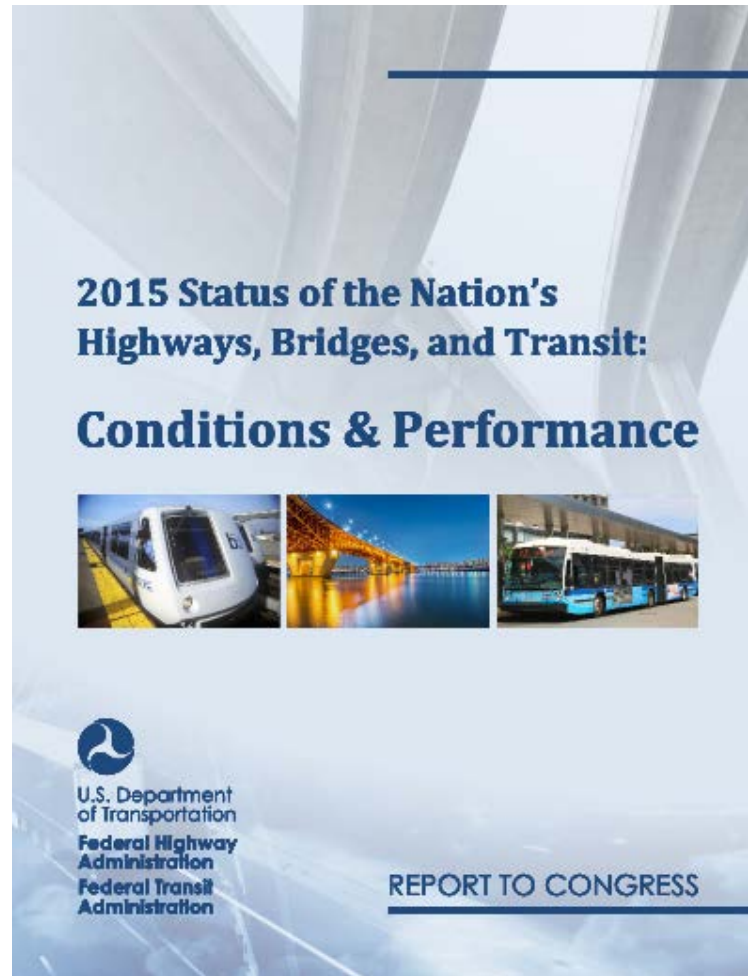
Outlines

- Why FHWA needs Future AADT
- Future AADT C&P Applications
- Future AADT Requirements & QA/QC
- FHWA future VMT study



Why We Need Future AADT

Congressional Mandated “Conditions and Performance Report”



Why We Need Future AADT

Congressional Mandated “Conditions and Performance Report”

Answering two questions for the nation:

- 1) what is the traffic demand in the future?**
- 2) What’s the investment need to meet the future need?**



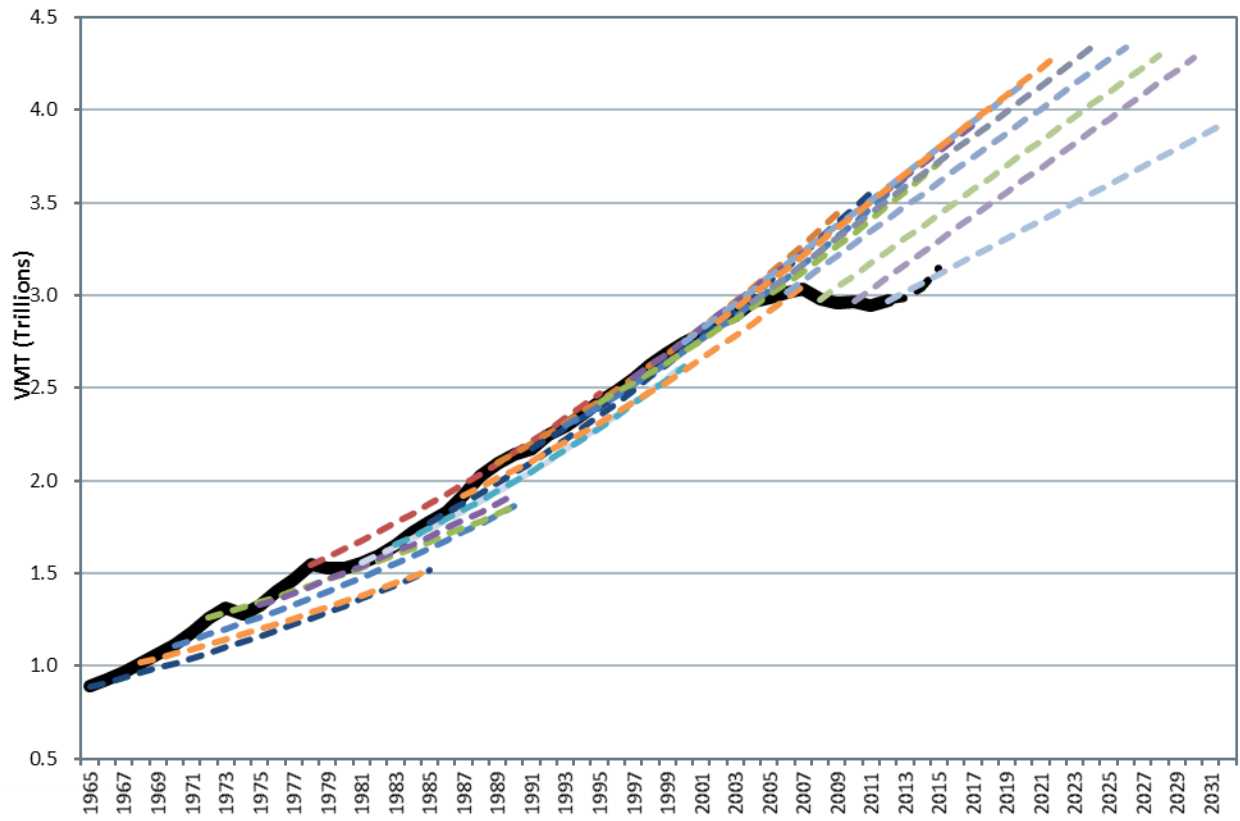
Where the C&P Gets Its Future Traffic Data

- HPMS Sample Future AADT data covering NHS highways
- State by State
- Aggregated together as a national total



How It Looks Like In the C&P Report

C&P Report Exhibit 9-4 State-Provided Long-Term VMT Forecasts Compared with Actual VMT, 1965–2031



Basic C&P Procedure

HPMS Future AADT Sample Data



Estimate Future Travel Demand for All Highways



Congestion Analyses



Investment Options



Future AADT – Sample Panel Data

| Functional System | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| | NHS | Int | OFE | OPA | MiA | MaC | MiC | Local |
| <u>Rural</u> | <u>SP</u> | <u>SP</u> | <u>SP</u> | <u>SP</u> | <u>SP</u> | <u>SP</u> | | |
| <u>Urban</u> | <u>SP</u> | <u>SP</u> | <u>SP</u> | <u>SP</u> | <u>SP</u> | <u>SP</u> | <u>SP</u> | |

FE = Full Extent
 R = Ramp
 SP= Sample Panel



Future AADT - Requirements

- Required for all HPMS sample sections
- Future AADT year and Expansion Factor also reported
- Should be 20-year forecast
- Can be 18-25 year reported
- Should be distinct by area (rural, small urban, urbanized area), and functional class



Future AADT – Requirements

- Should be sourced from a technically supportable procedure (State, MPO, other local)
- Data may be available from travel demand models, State/Local planning activities, socio-economic forecasts
- Motor vehicle/fuel trends, travel projections, other statistical analyses



Common Issues for HPMS Future AADT data

- Missing data – null or zero
- Extreme values – Annual Average Growth Rate (AAGR) negative and/or positive value
- Negative growth rates – pay attention to these negative value
- Random Numbers – Future AADT was generated at different database and linked to HPMS database incorrectly



Future AADT QA/QC

- Missing AADT data: Facility_Type_VN <=3, Is_sample=1, Future_AADT_VN=null?
- Calculate Average Annual Growth Rate (AAGR) for all sample panel segments

$$\text{AAGR} = \left(\frac{\text{AADT}_{\text{future}}}{\text{AADT}_{\text{today}}} \right)^{1/(\text{future year} - \text{current year})} - 1$$



Future AADT QA/QC

| Begin_I | End_Pc | AADT_I | F_SYST | FACILIT | FUTURE_AA | FUTURE_A/ | THROU | URBAN | IS_SAM | AAGR |
|---------|--------|--------|--------|---------|-----------|-----------|-------|-------|--------|--------|
| 6.81 | 9.22 | 491 | 5 | 2 | 496 | 1/1/2036 | 2 | 99999 | 1 | 0.051% |
| 0 | 2.76 | 1764 | 5 | 2 | 1782 | 1/1/2036 | 2 | 99999 | 1 | 0.051% |
| 0 | 0.16 | 2293 | 3 | 2 | 2316 | 1/1/2036 | 4 | 11350 | 1 | 0.050% |
| 0.16 | 0.28 | 4487 | 3 | 2 | 4532 | 1/1/2036 | 3 | 11350 | 1 | 0.050% |
| 0.28 | 0.38 | 4487 | 3 | 2 | 4532 | 1/1/2036 | 3 | 11350 | 1 | 0.050% |
| 11.61 | 12.17 | 3248 | 4 | 2 | 3280 | 1/1/2036 | 2 | 970 | 1 | 0.049% |
| 12.73 | 12.87 | 4984 | 5 | 2 | 5034 | 1/1/2036 | 2 | 970 | 1 | 0.050% |
| 8.75 | 9.42 | 9983 | 3 | 2 | 10083 | 1/1/2036 | 4 | 99998 | 1 | 0.050% |
| 7.98 | 13.32 | 10245 | 3 | 2 | 10347 | 1/1/2036 | 2 | 99999 | 1 | 0.050% |
| 13.32 | 13.87 | 11604 | 3 | 2 | 11720 | 1/1/2036 | 2 | 99999 | 1 | 0.050% |
| 14.85 | 15.77 | 10421 | 3 | 2 | 10525 | 1/1/2036 | 4 | 99999 | 1 | 0.050% |
| 24.43 | 24.87 | 10205 | 4 | 2 | 10307 | 1/1/2036 | 2 | 11350 | 1 | 0.050% |
| 26.1 | 29 | 5818 | 4 | 2 | 5876 | 1/1/2036 | 2 | 11350 | 1 | 0.050% |
| 33.82 | 34.87 | 1350 | 3 | 2 | 1364 | 1/1/2036 | 2 | 11350 | 1 | 0.052% |
| 0.84 | 1.21 | 1326 | 6 | 2 | 1339 | 1/1/2036 | 2 | 99998 | 1 | 0.049% |
| 0 | 0.38 | 1118 | 5 | 2 | 1129 | 1/1/2036 | 2 | 99999 | 1 | 0.049% |
| 0.49 | 3.01 | 1232 | 6 | 2 | 1244 | 1/1/2036 | 2 | 89785 | 1 | 0.048% |
| 1.27 | 1.9 | 2440 | 3 | 2 | 2464 | 1/1/2036 | 2 | 89785 | 1 | 0.049% |
| 1.9 | 2.27 | 2440 | 3 | 2 | 2464 | 1/1/2036 | 2 | 89785 | 1 | 0.049% |
| 3.1 | 3.28 | 3996 | 4 | 2 | 4036 | 1/1/2036 | 2 | 89785 | 1 | 0.050% |
| 11.81 | 12.42 | 852 | 5 | 2 | 861 | 1/1/2036 | 2 | 99999 | 1 | 0.053% |

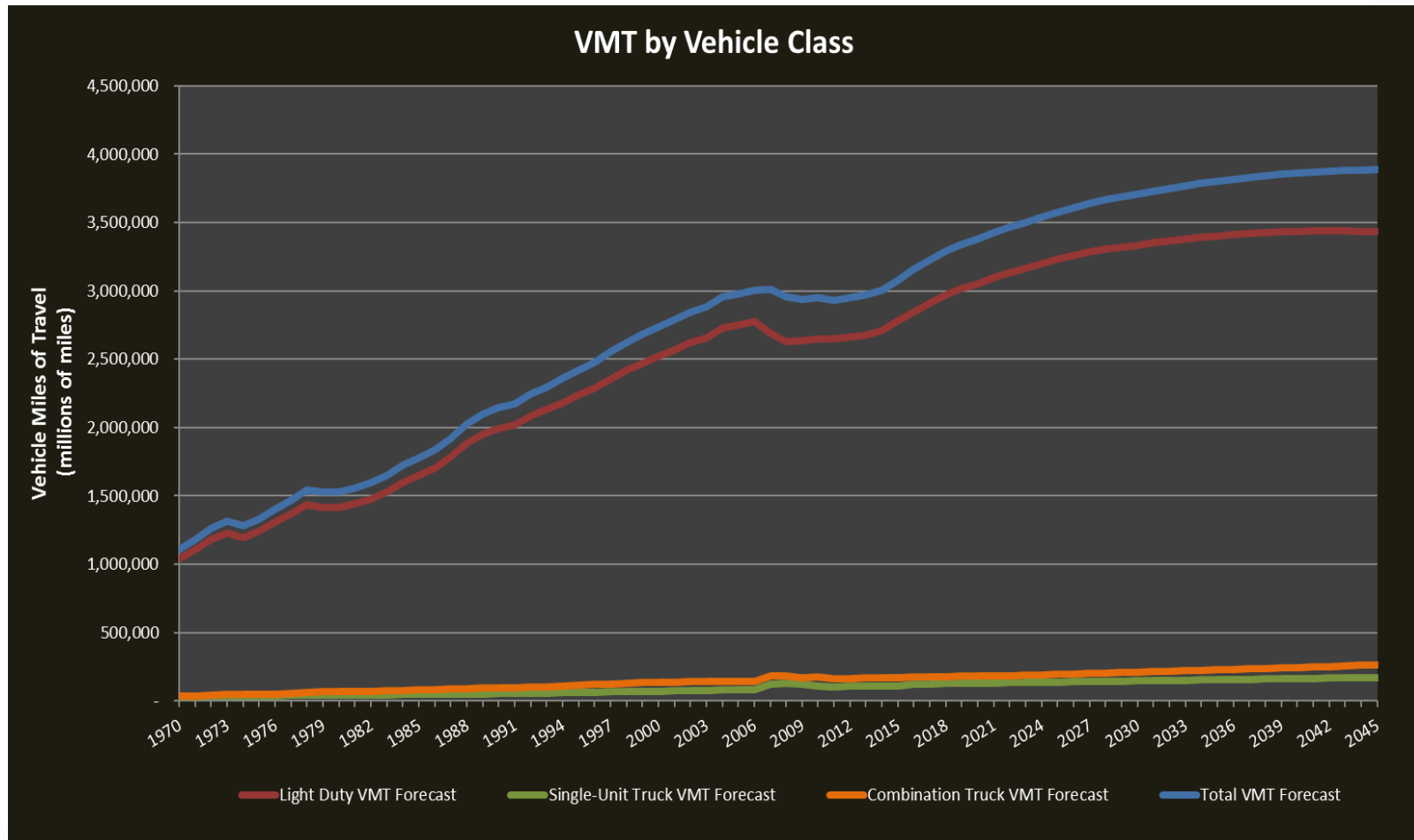


New National Scenario – FHWA's Own Assessment

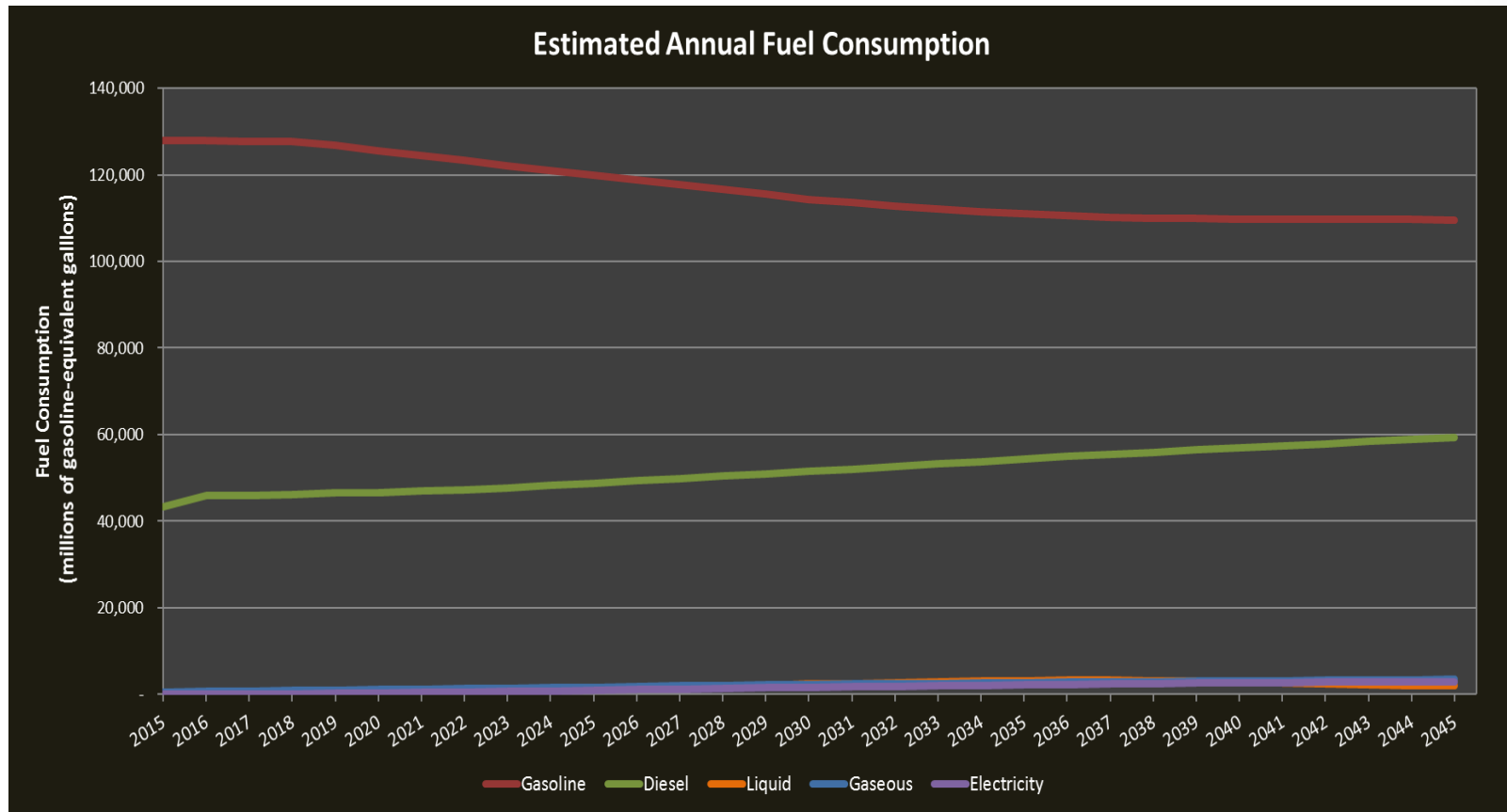
- FHWA has developed a national vehicle miles travel model relying on state level:
 - Population
 - GDP
 - Fuel
 - Labor
 - other factors
- Not link level AADT



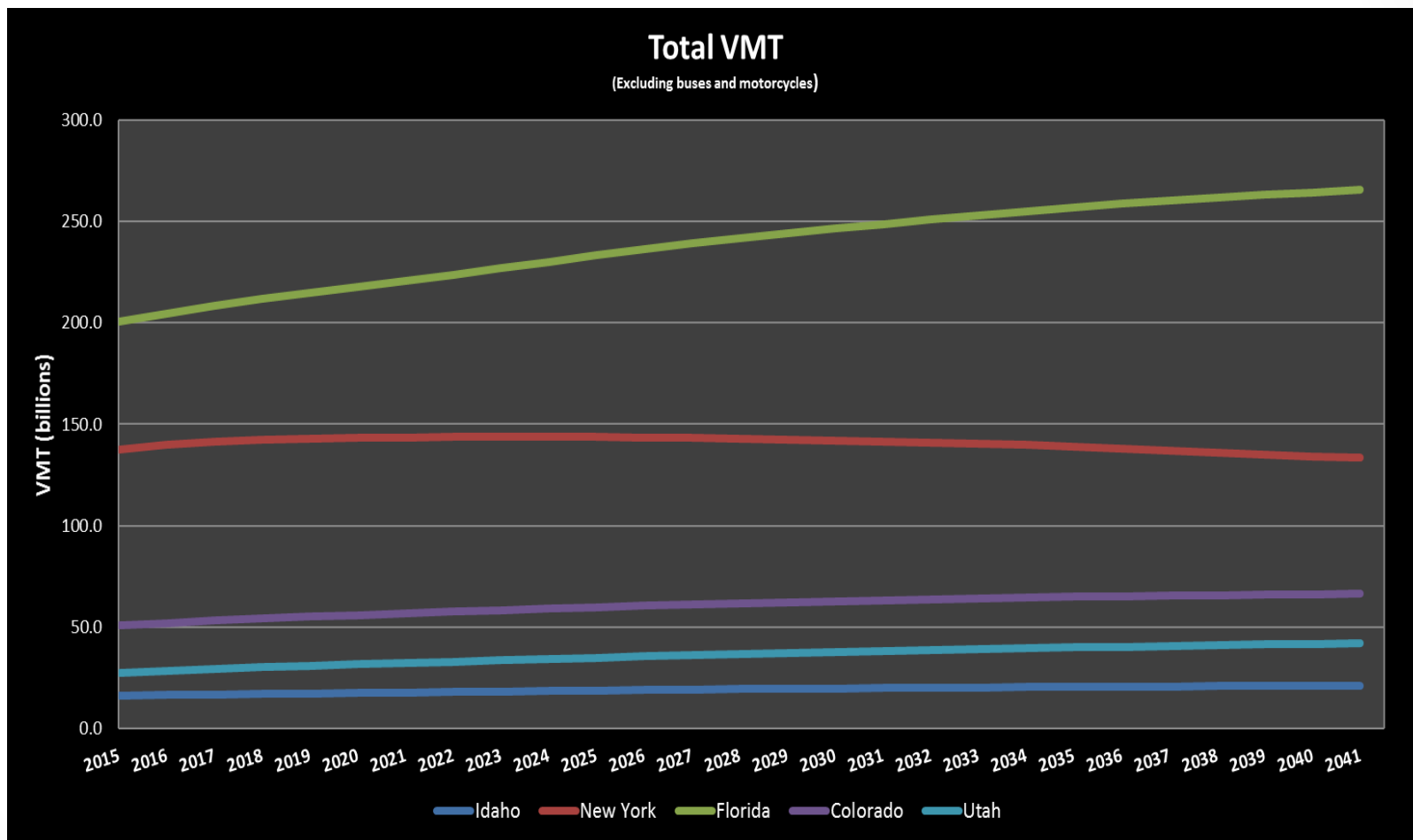
FHWA Future VMT Study at National Level



Fuel Consumption Forecast at National Level



FHWA Future VMT at State Level (ID, NY, FL, CO, UT)



Summary

- The future AADT data from states are critical in deciphering what the future is
- The data offers foundational information for Congress to act in new surface transportation
- State's attention to this data item is needed and appreciated.
- Let's work together to deliver the best data possible.



Questions/Comments

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