Section 47 Weight-Based Annual Registration Report

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SENATE TRANSPORTATION COMMITTEE

VTrans Working to Get You There
Vermont Agency of Transportation

Report Purpose & Requirements

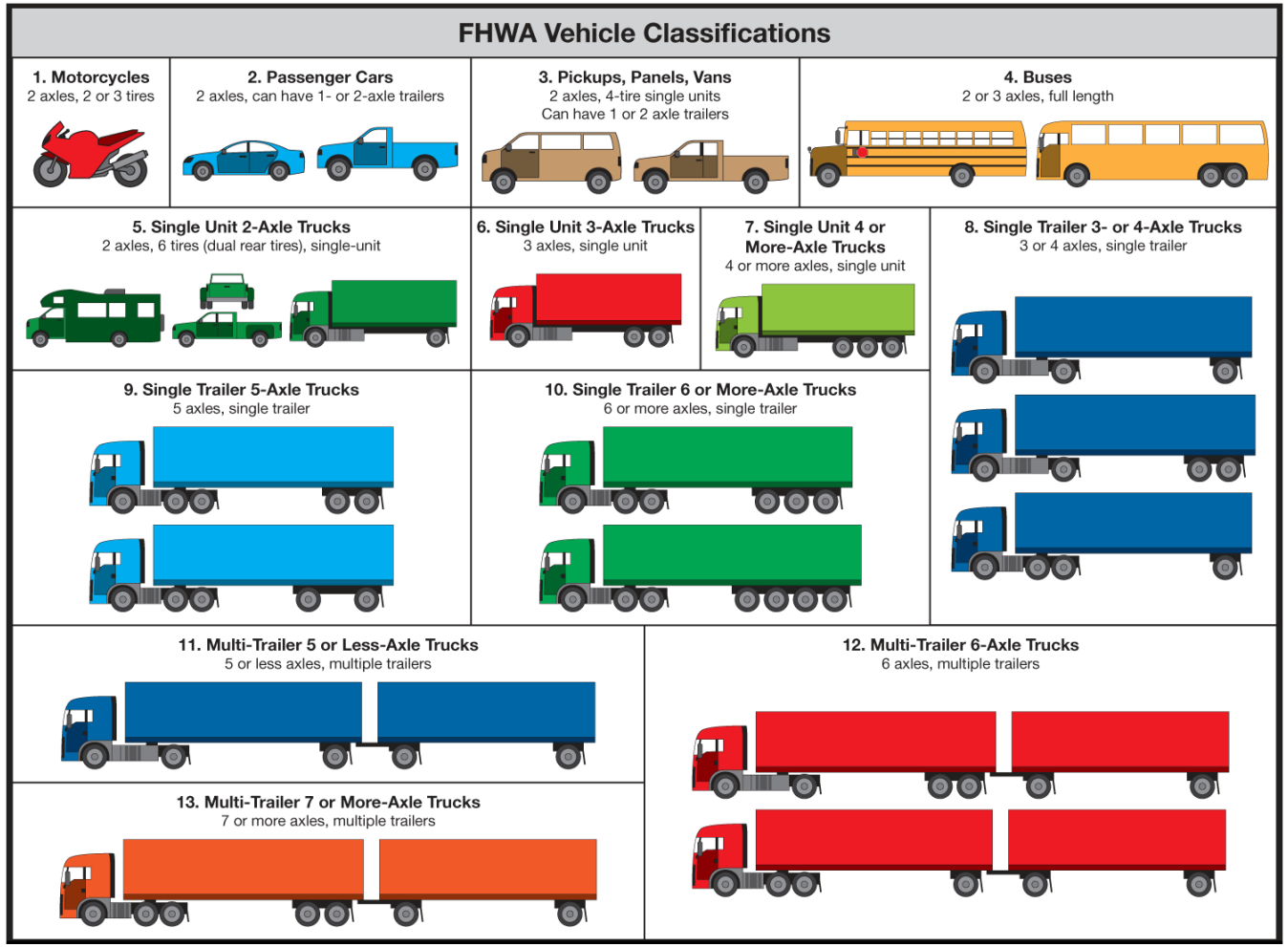
Purpose

- To examine the feasibility of implementing an annual motor vehicle registration fee system that addresses road maintenance cost allocations for road traveling motor vehicles based on vehicle weight.

Report Requirements

- To document:
  - The current motor vehicle registration fee structure.
  - Any benefits to establishing a new system that better allocates costs based on vehicle weight; and any anticipated implementation difficulties.
  - The types of road traveling motor vehicles which could and should be subject to such a registration fee.
  - How to calculate registration fees to best account for weight-based wear on Vermont roads.
  - How other States have implemented weight-based registration fees.

FHWA Vehicle Classes



Methodology & Approach

- Use of a Highway Cost Allocation Model (HCAM), which is designed to determine the fair share that each class of road users should pay for the construction, maintenance, improvement, and related costs of state highways, roads, and streets.

- Limitations:
  - Only includes registration fees and not representative of the total commercial vehicle operating cost for which in addition to the registration fee includes, sales tax, title fee, plates, fuel tax rate, commercial vehicle tax use, among others.
  - Only includes state bridge and pavement costs. In reality roadway and highway safety projects include wear and tear components and are highly variable from year to year.
  - Does not address plowing and other “operating costs” which are not defined as maintenance.

Scenarios Evaluated

- Scenario 1 assumes that each weight class has a registration fee with complete equity to its cost responsibility and that the total registration fee collected may change (either up or down) from the total fee currently collected;
- Scenario 2 is completely revenue-neutral, reallocating existing registration fee revenue based on HCAM results of needs generated;
- Scenario 3 is also revenue-neutral and assumes that the minimum registration fee should be $76 (the lowest registration fee in Vermont today) and that the other registration fees should increase in value if needed, such that heavier weight classes are always more than lower weight classes;
- Scenario 4 assumes that the relatively minimal damage caused by vehicles under 6,000 pounds is a negligible portion of the current registration fee for those vehicles, when compared to other portions of a registration fee's justification. Thus, these fees are kept identical at today's fee of $76, and other fees are scaled up proportionately. This scenario is not expected to be revenue-neutral for the entire set of registered vehicles.

General Findings on Wear & Tear

- Under each scenario the lowest weight class has the highest total cost responsibility even though per unit it has the least impact on the roads. This weight class includes automobiles, buses, and trucks with a GVWR less than 6,099 pounds. The high total cost responsibility for this lightest weight class is a result of their high volume. At the other end of the spectrum, the heaviest trucks, between 80,000 and 90,000 pounds are less numerous, but their per unit effect on the roads is much greater than other categories (while their cost ratio is lower than many of the categories). Cost responsibility can also be viewed on a per mile basis. Vehicles less than 8,099 pounds cause damage costing less than one dollar per mile, while vehicles between 80,000 and 90,000 pounds cause damage costing between $40 and $125 per mile.

Vehicle Weight & Axle Impacts

Pavements

- Affected by concentration of wheel loads on pavement
- Tandem axles may carry more weight but provide better distribution
- Weight distribution is governed by axle spacing and overall truck weight

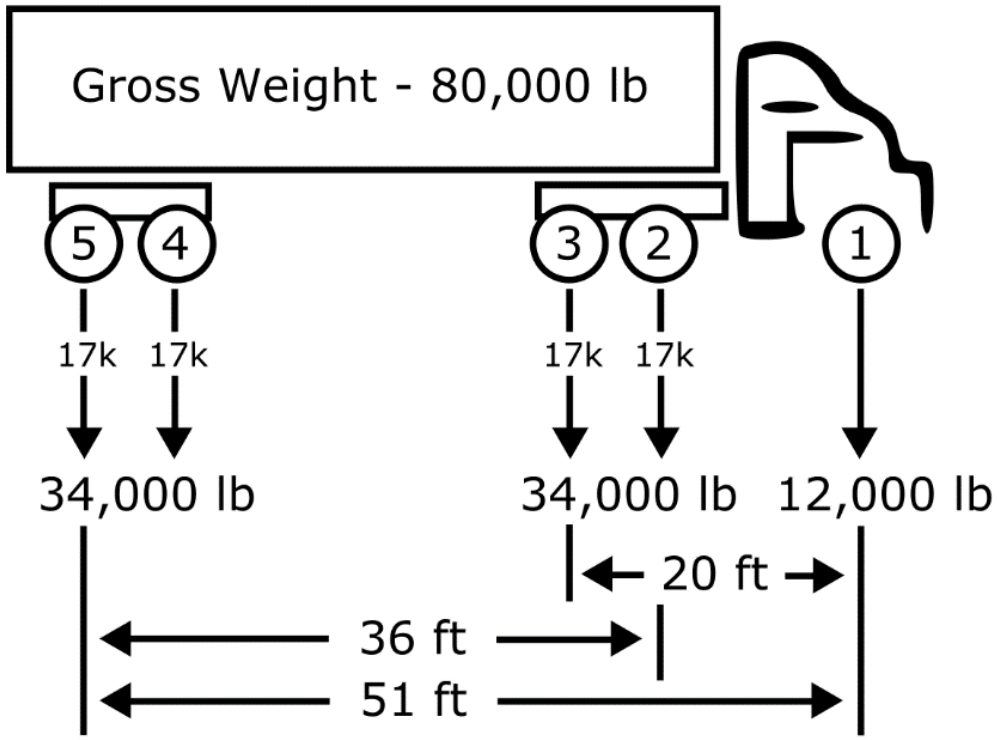


Image source: U.S. Department of Transportation/Federal Highway Administration.

Vehicle Weight & Axle Impacts

Bridges

- When a bridge is longer than a vehicle, its affected more by axle distribution than overall truck weight
- When a bridge is shorter than a vehicle, it can be affected by the overall weight of the truck. (The shorter a truck is, the more concentrated the weight).

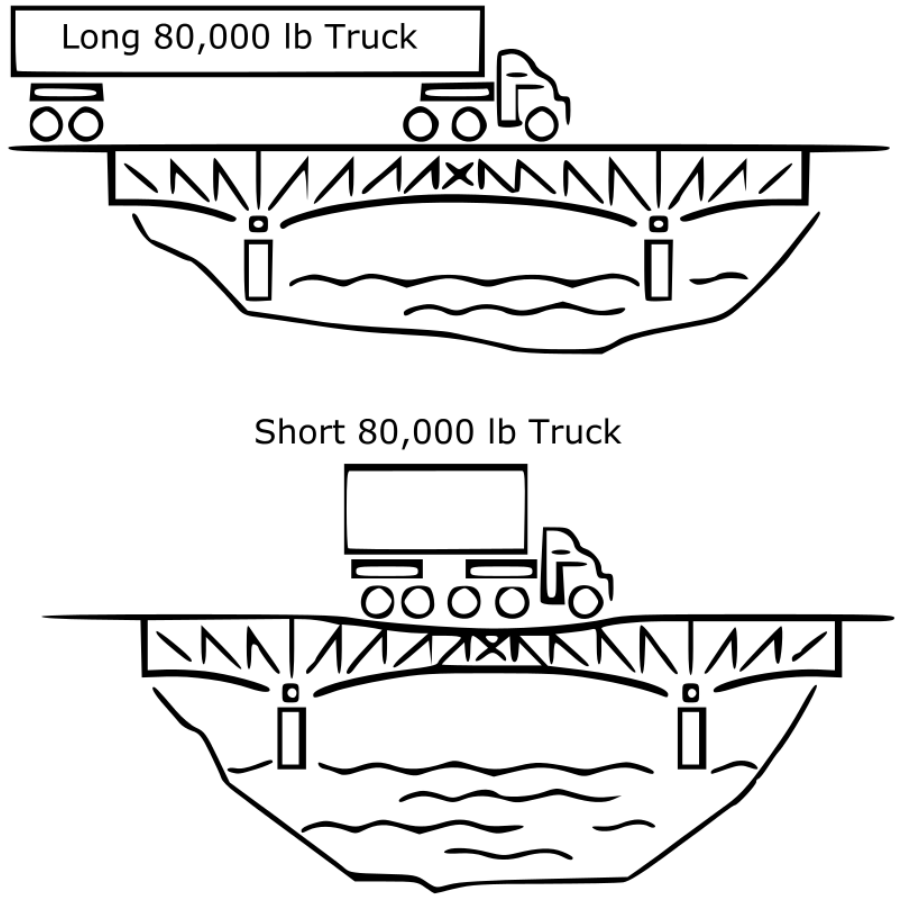


Image source: U.S. Department of Transportation/Federal Highway Administration.

Weight & Distance Fees in Other States

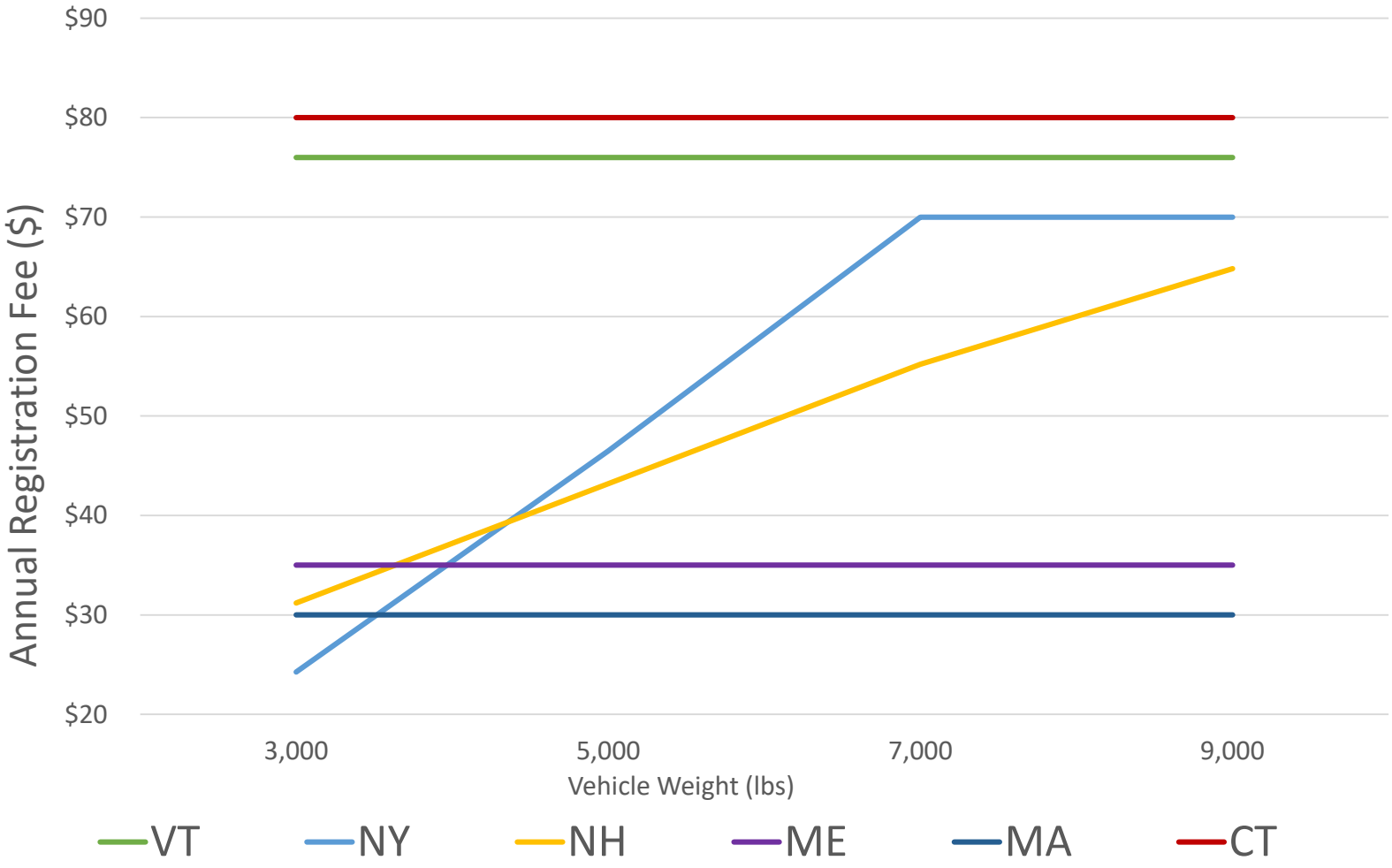
- Weight-Based Fee

➢ Two examples of unique weight-based fees include Wisconsin and Oregon. Wisconsin charges fees annually broken down by weight, vehicle class, and vehicle purpose as well as different fees for trucks depending on cargo and purpose, plus a $100 surcharge for any electric vehicles. Oregon charges different weight-based registration fees depending on weight, length of registration (1/4 to a full year), and overall combined weight if over 26,001 pounds such as tow trucks.

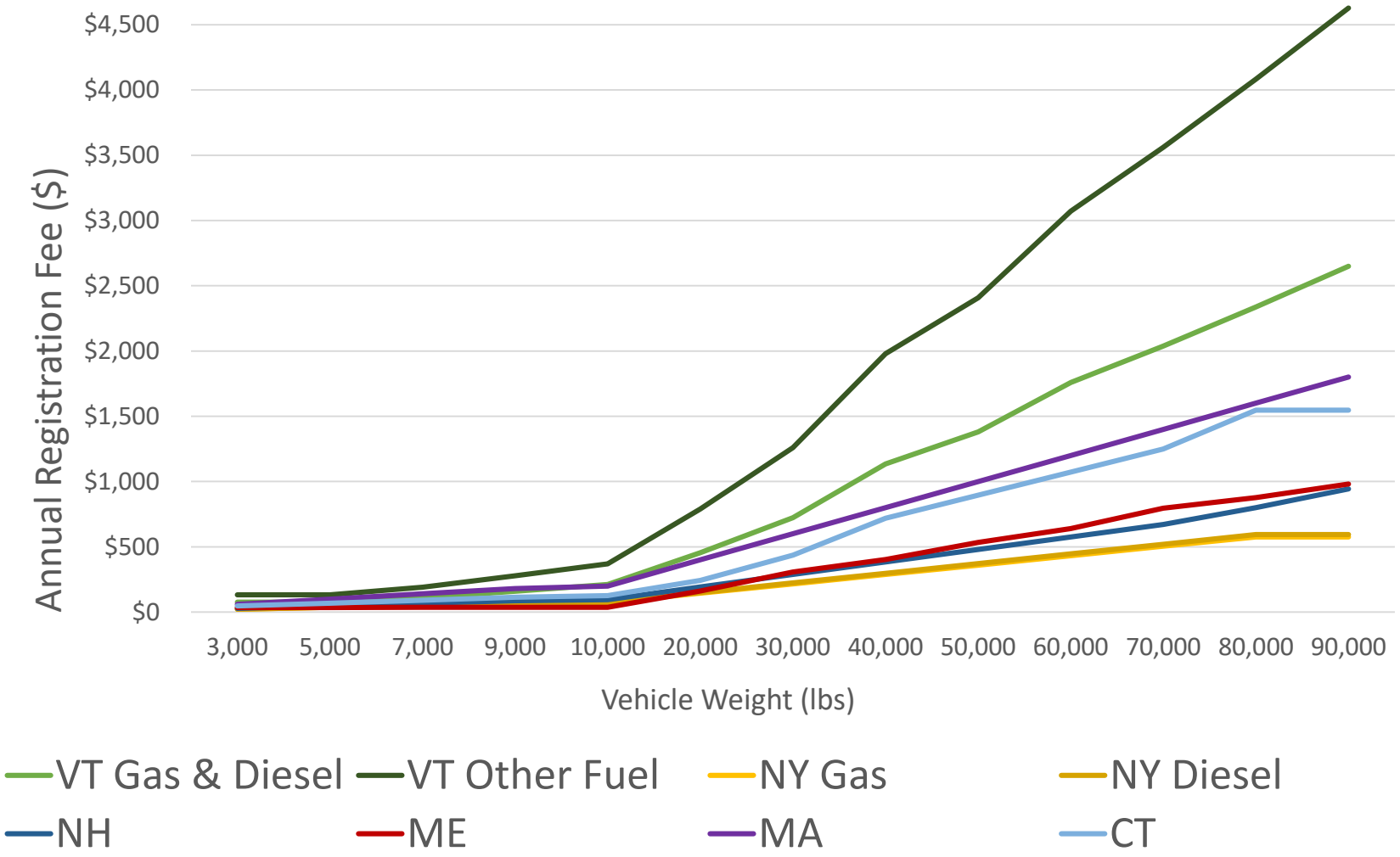
- Weight-Distance Tax

➢ Kentucky, New Mexico, New York, and Oregon charge a weight-distance tax with different base rates per mile based on a vehicle's weight and use.

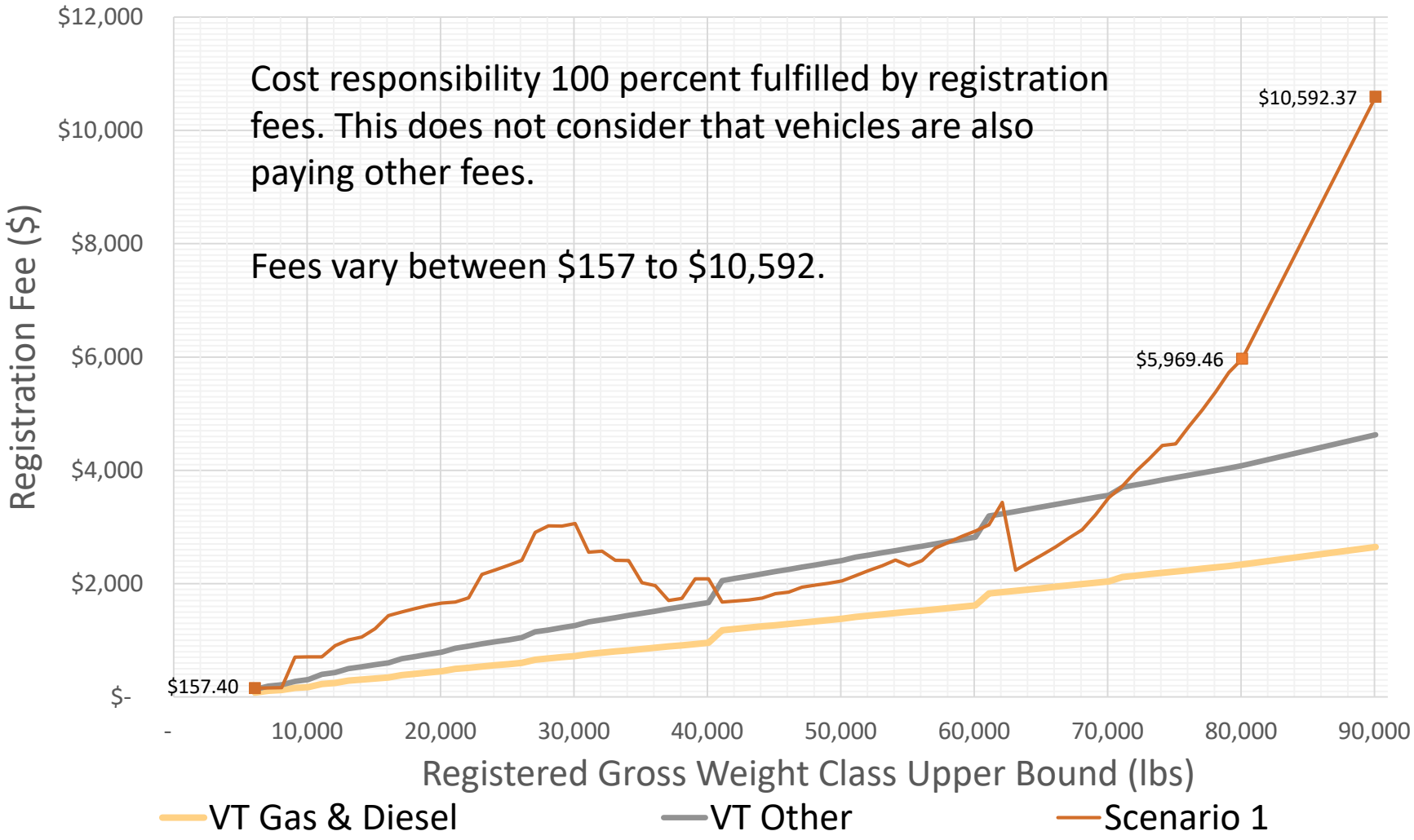
Annual Registration Fees: Passenger Vehicles



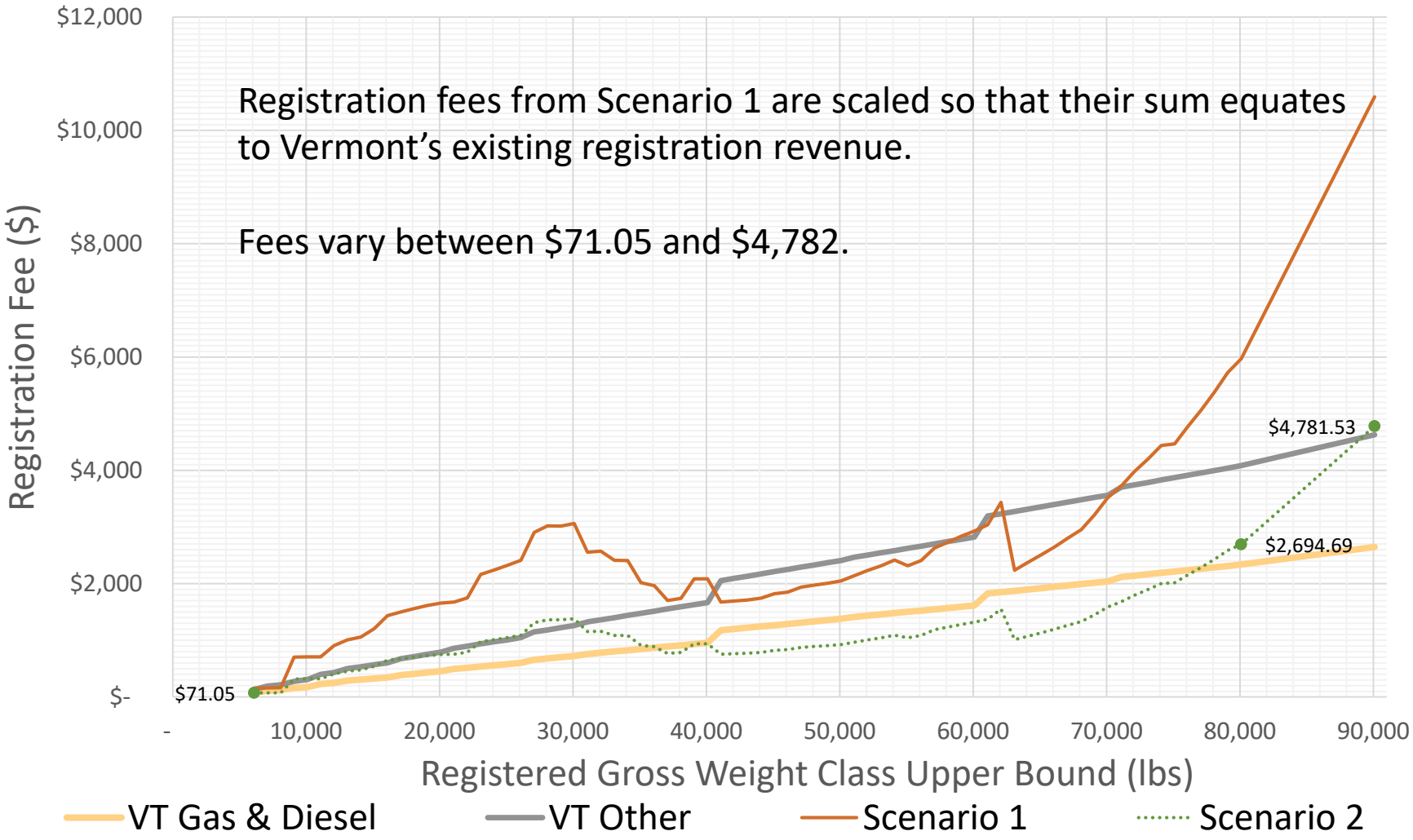
Annual Registration Fees: Commercial Vehicles



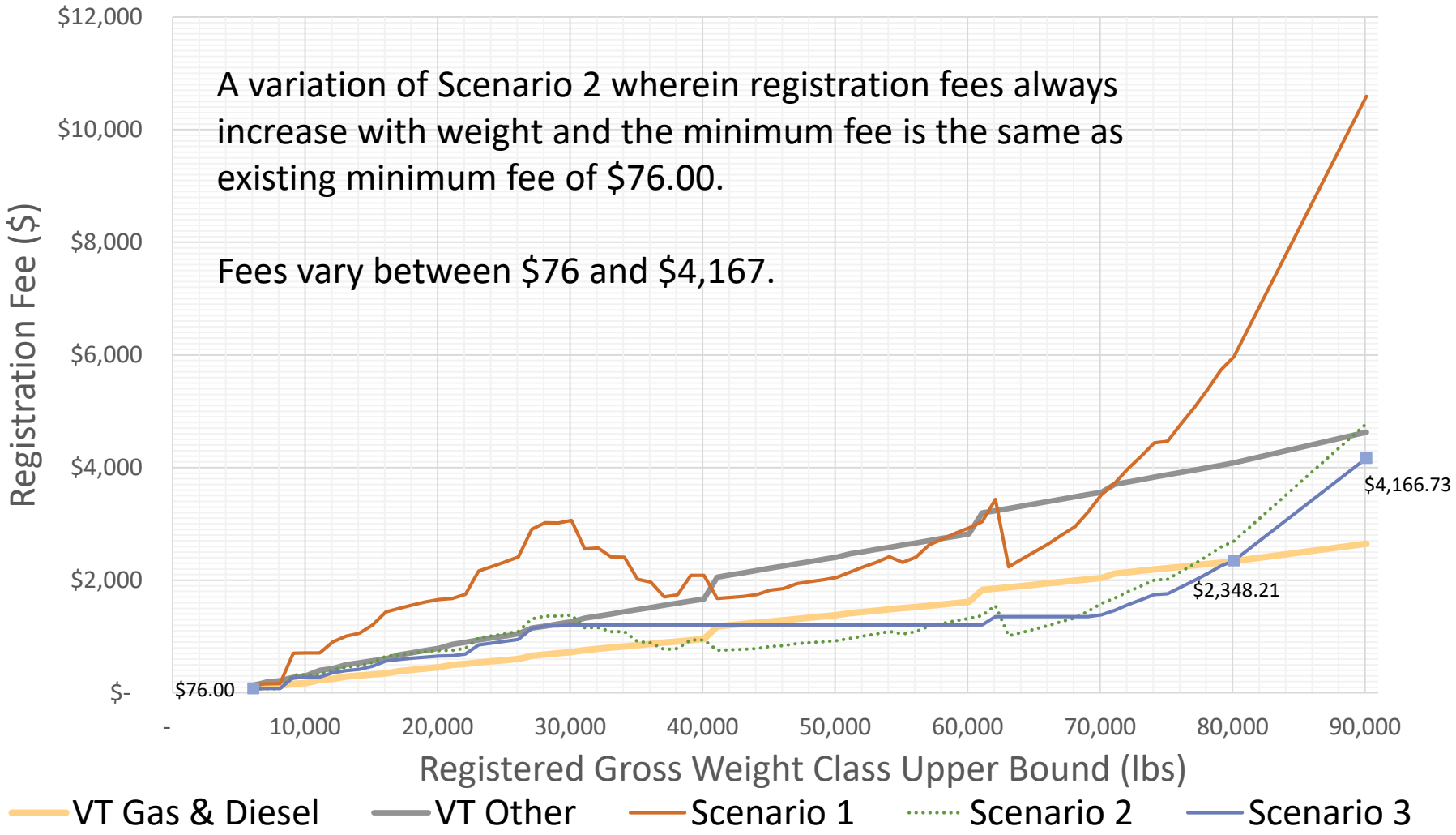
Analysis Scenarios: Scenario 1



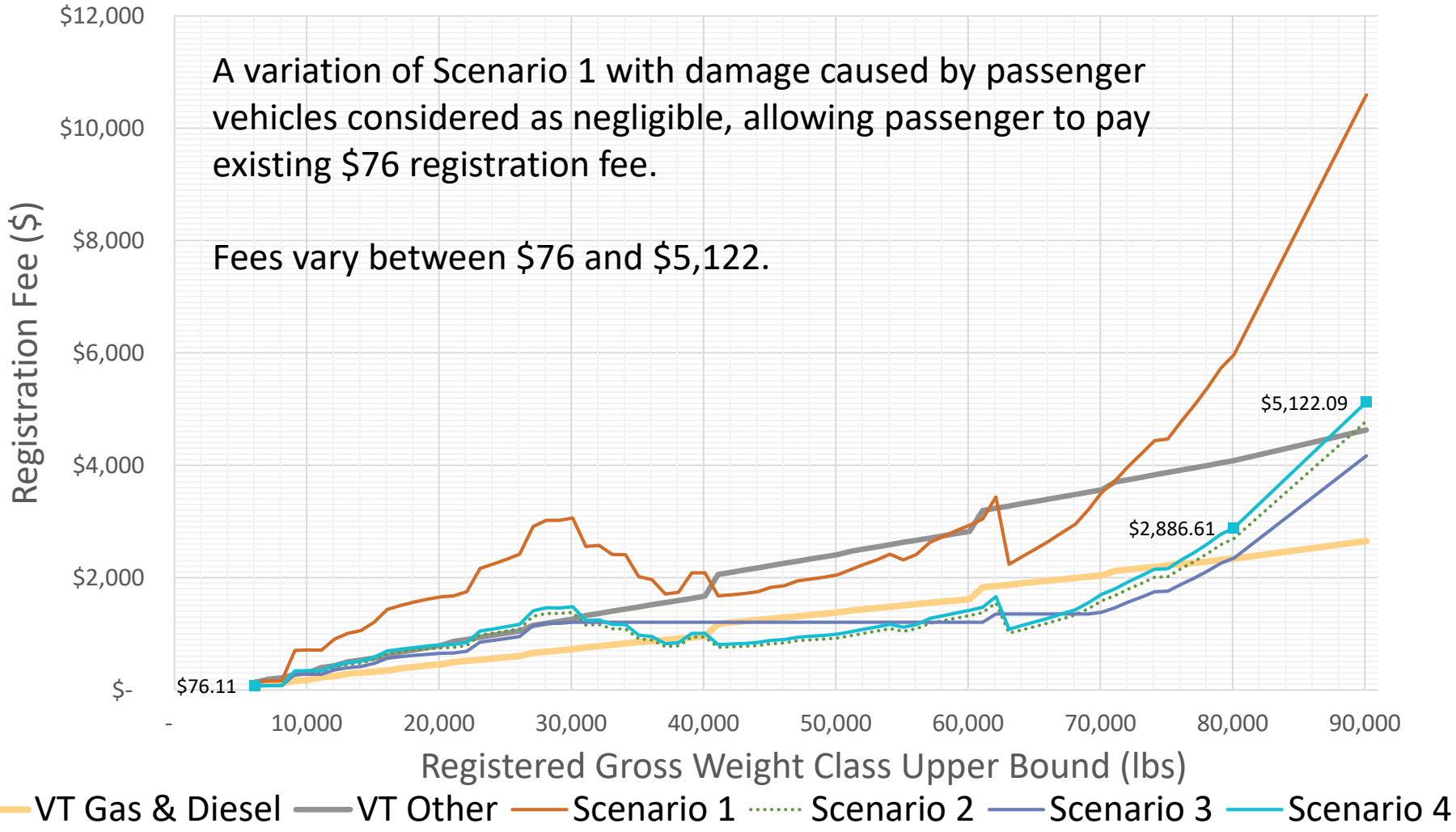
Analysis Scenarios: Scenario 2



Analysis Scenarios: Scenario 3



Analysis Scenarios: Scenario 4



Key Considerations: Data Quality & Availability

- Complete weigh-in-motion data (WIM) was not available. As individual vehicle information for each registered vehicle was not available, many assumptions had to be made, such as the number of axles, the registered location of the vehicle, and the number of miles driven for each vehicle inside of Vermont.
- While the actual results of the models and Scenarios 1-4 are documented in the report, readers are cautioned to think of the results as ranges and not point estimates.
- VTrans has accurate data on capital expenditures. The definition of “maintenance” however, differs in slight ways in different interpretations. Reasonable assumptions were made in translating VTrans’ known capital expenditures to those required in the model.

Key Considerations: Potential Vehicle Owner Adjustments to a Revised Fee Structure

- Calculations in the report assume that user behavior will not change, however, changes in price may cause changes in user behavior.
  - For example, an out-of-state owner who conducts occasional business in Vermont could choose to avoid sending drivers through Vermont if the registration fees are viewed as prohibitively expensive, especially for travel where both origin and destination are outside of the state.
  - The International Registration Plan (IRP) stipulates that commercial vehicles that cross state and national lines have their registration fees apportioned to each jurisdiction that the vehicles uses for travel. With the IRP, any commercial vehicle that travels through Vermont will end up paying Vermont a portion of Vermont's registration fee for that weight class. What is unknown and requires further study is how owner behavior of these vehicles with regards to picking business destinations and routes will change as fees change.

Key Considerations: Alternative Structures to Registered Weight

- Fees by Vehicle Class (E.g. Single Unit 2-axle trucks vs. Truck-Trailer combinations with 3- or 4-axles).
  - ➢The underlying HCAM analysis considers the class of the vehicle for cost allocation, and then translates allocations back to registered weights through assumptions about distributions.
  - ➢No state has a fee structure strictly on vehicle class. It is unlikely that there is sufficient data to model the usage of vehicles by registered class, and field data collection would likely be needed to make sufficient assumptions.
- Distance-Based Fees ($x plus $y per mile)
  - ➢Insufficient data to consider how parameters would change with registered weight. Should consider both individual vehicle records as well as the possibility of travel behavior changes. The HCAM tool utilized for this report is not sufficiently robust to take these kind of changes into account even if the underlying data was available.

Key Considerations: Implications for Government Operations

- A change in the overall structure of the fees, either to a class-based system or a distance-based surcharge system, would have substantial impacts.
- The system which VTrans utilizes for passenger car and intrastate commercial vehicle registrations is long established, and changes to such a system would be very difficult to ascertain and test.
- The structural changes to fees for intrastate vehicles would require participation from all U.S states and Canadian provinces, and changes to every one of those systems.
- A substantial increase in fees for a particular subset of vehicles is likely to have a corresponding increase of compliance challenges as owners under-register their vehicles' weights, especially for commercial vehicles conducting shorter trips or with a substantial amount of empty back-haul after deliveries.
- Adding changes to fee structure itself, such as a distance surcharge or a fee for different numbers of axles, is likely to exacerbate compliance challenges as well as adding in a layer of accidental non-compliance by owners who do not understand the revised fee structure.

Other Studies

- Federal Highway Administration (FHWA) Comprehensive Truck Size and Weight Study (2000 and 2016) - https://ops.fhwa.dot.gov/freight/sw/map21tswstudy/ctsw/ctswls_rtc_2016.pdf

- Maine and Vermont Interstate Highway Heavy Truck Pilot Program: 6-Month Report (2010), and Vermont Pilot Program Report (2010) - https://ops.fhwa.dot.gov/freight/sw/reports/me_vt_pilot_2012/

Questions / Comments?