Minnesota's Distance Based Fee Demonstration

Minnesota County Engineers Association Conference

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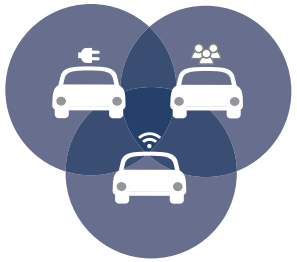
Ken Buckeye, Project Manager, MnDOT Office of Finance https://dbf.dot.state.mn.us/

DEPARTMENT OF TRANSPORTATION

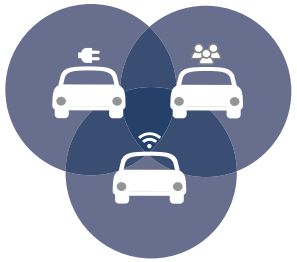
Outline

- Background
- Driving Forces
- Context: What other states and nations are doing
- Project Vision and Approach
- Goals and Objectives
- Demonstration Status Performance
- Rate Setting Framework
- Preliminary Findings and Conclusions



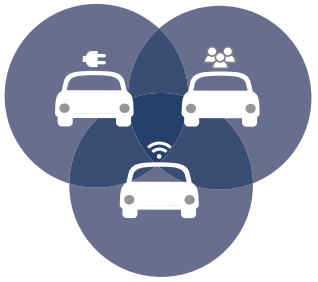
Background: Minnesota's Road User Fee Experience

- A New Approach to Assessing Road User Charges, 2003
  - Multi-State Pooled Fund Project
- Pay-As-You Drive Demonstration, 2006
- Public Acceptance of Road User Charges, 2010
  - Customer Outreach
- Minnesota Road Fee Test, 2013
  - Mileage-Based User Fee Policy Task Force
  - Demonstration
- Distance Based Fee Demonstration, 2017-2021

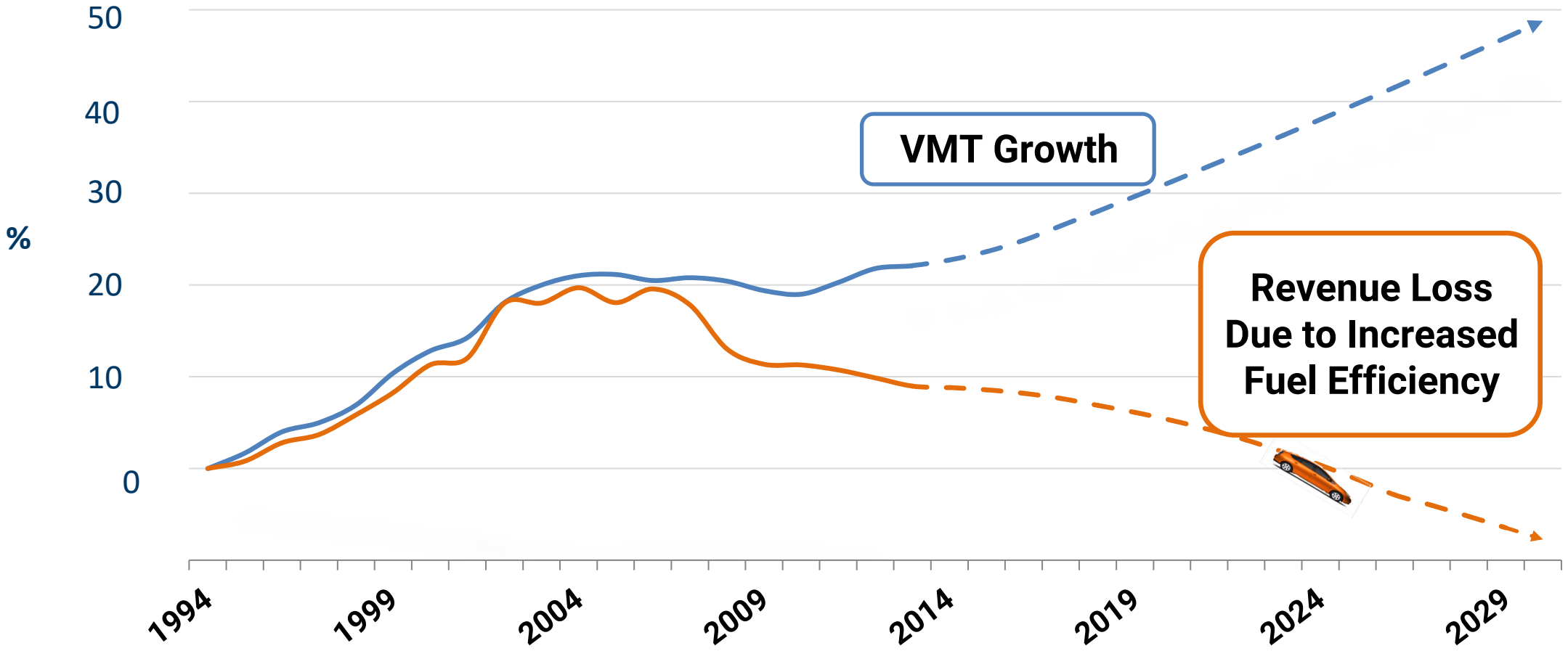


Road User Fees: Driving Forces

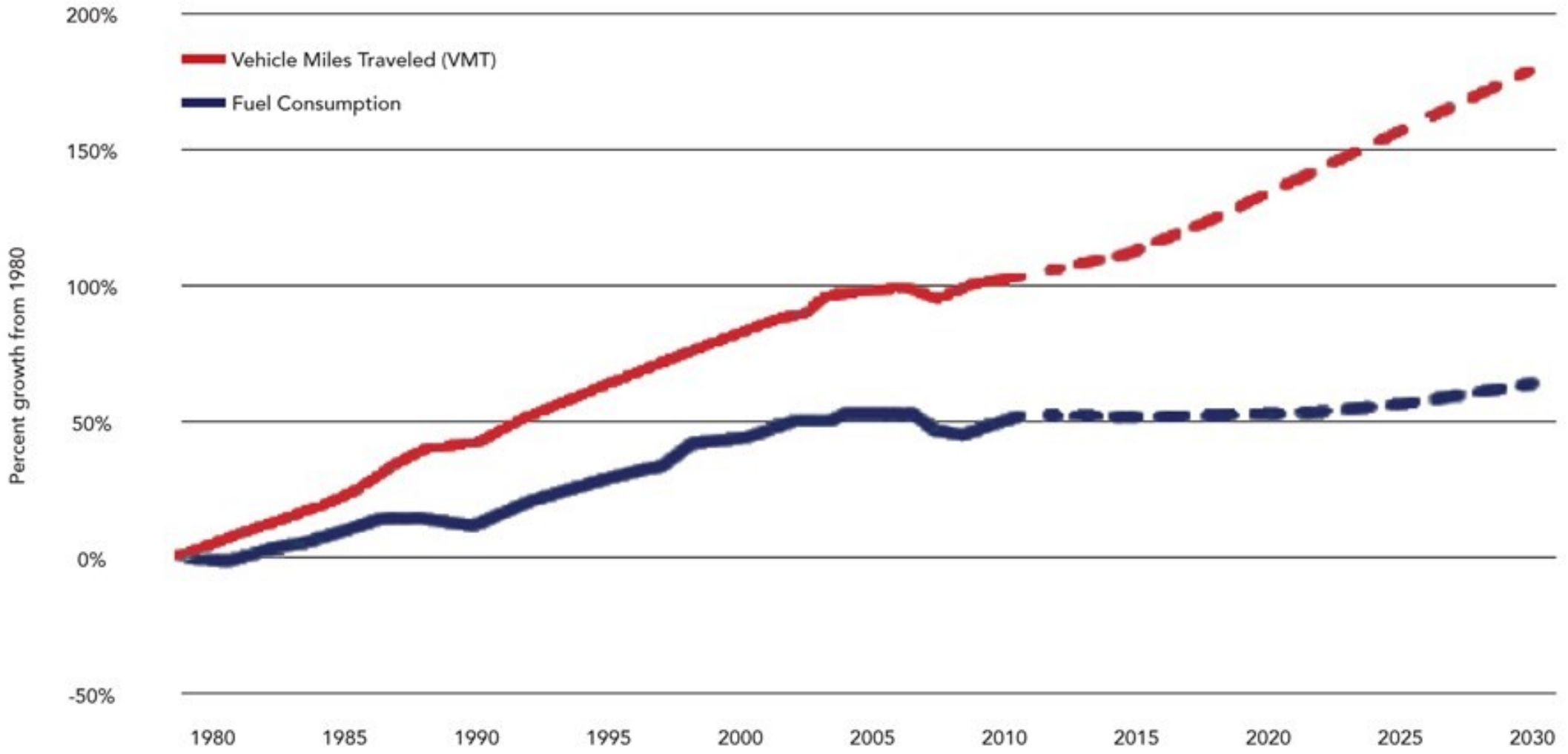
- Continued heavy reliance on the motor fuel tax
- Today's vehicles are becoming more efficient…, less MFT revenue generation
- Convergence of significant trends, Electric, Automated, Shared Mobility
- Electric and alternative fueled vehicle growth: WSJ reports 230 new EVs will be on the market in 2021
- Federal government is urging states to test alternatives; STSFA program
  - Incentivized states to research and demonstrate
  - It is a bigger problem than technical feasibility



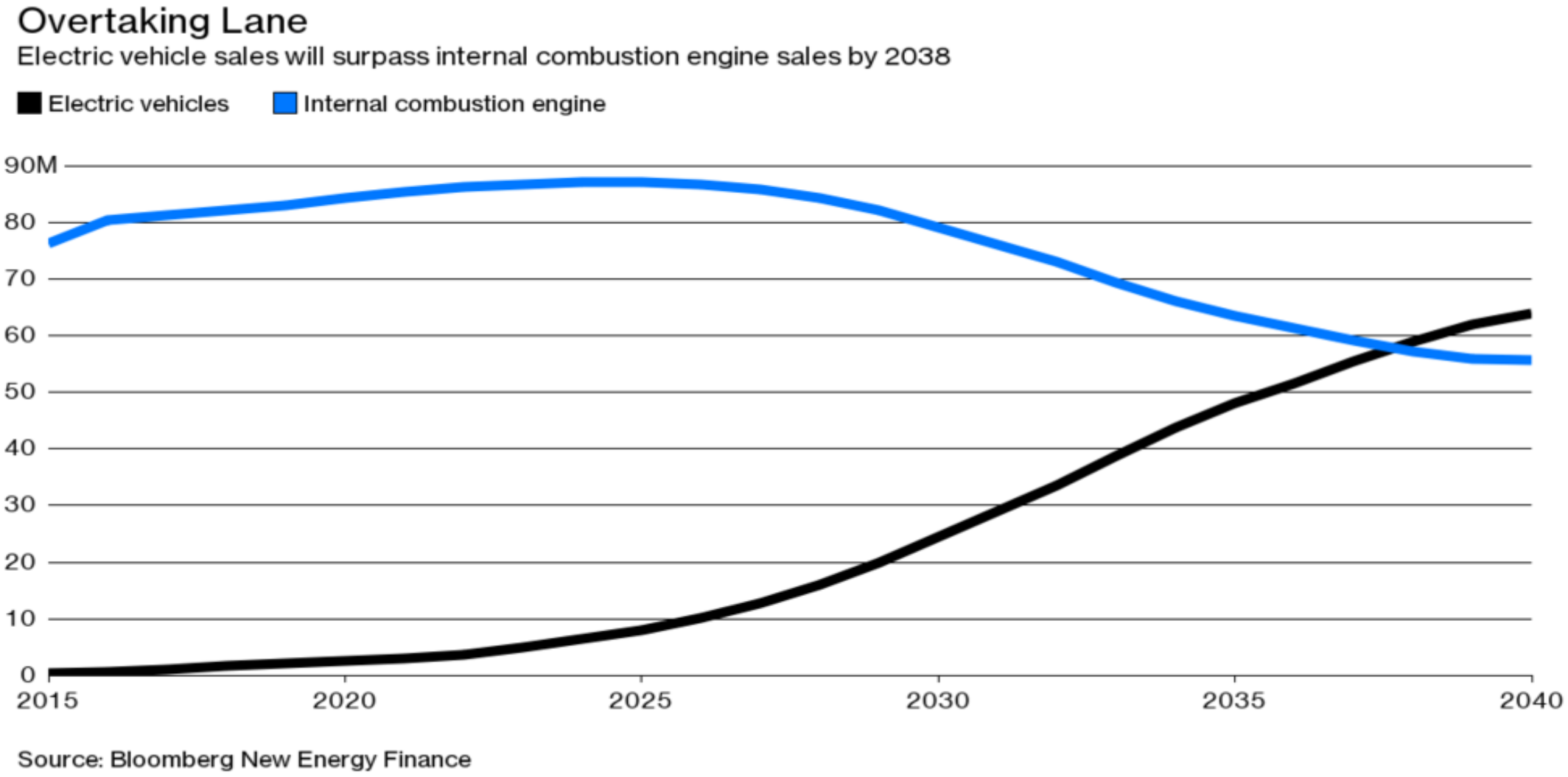
Driving Forces: Declining Revenue per VMT



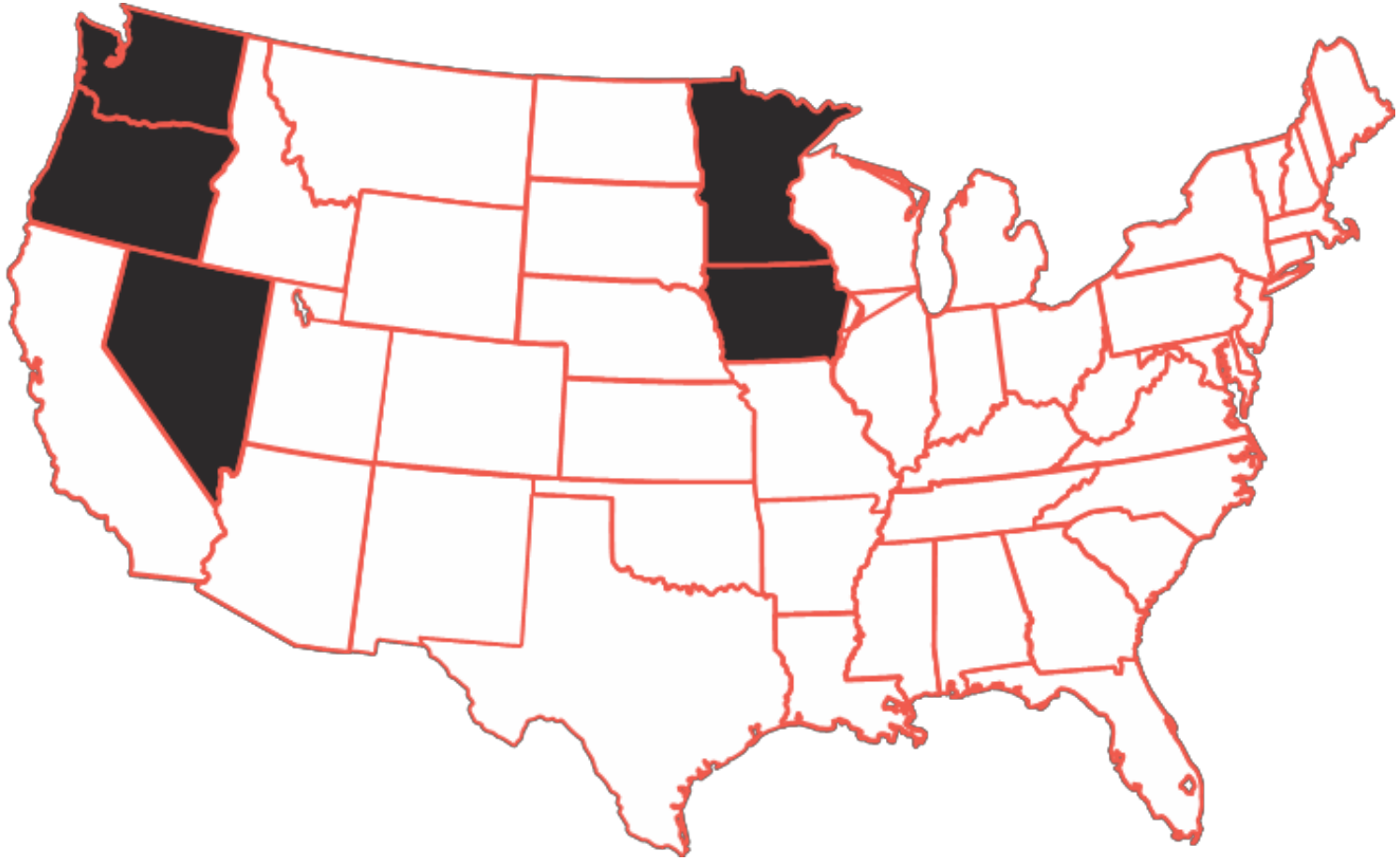
Driving Forces: VMT and Fuel Consumption



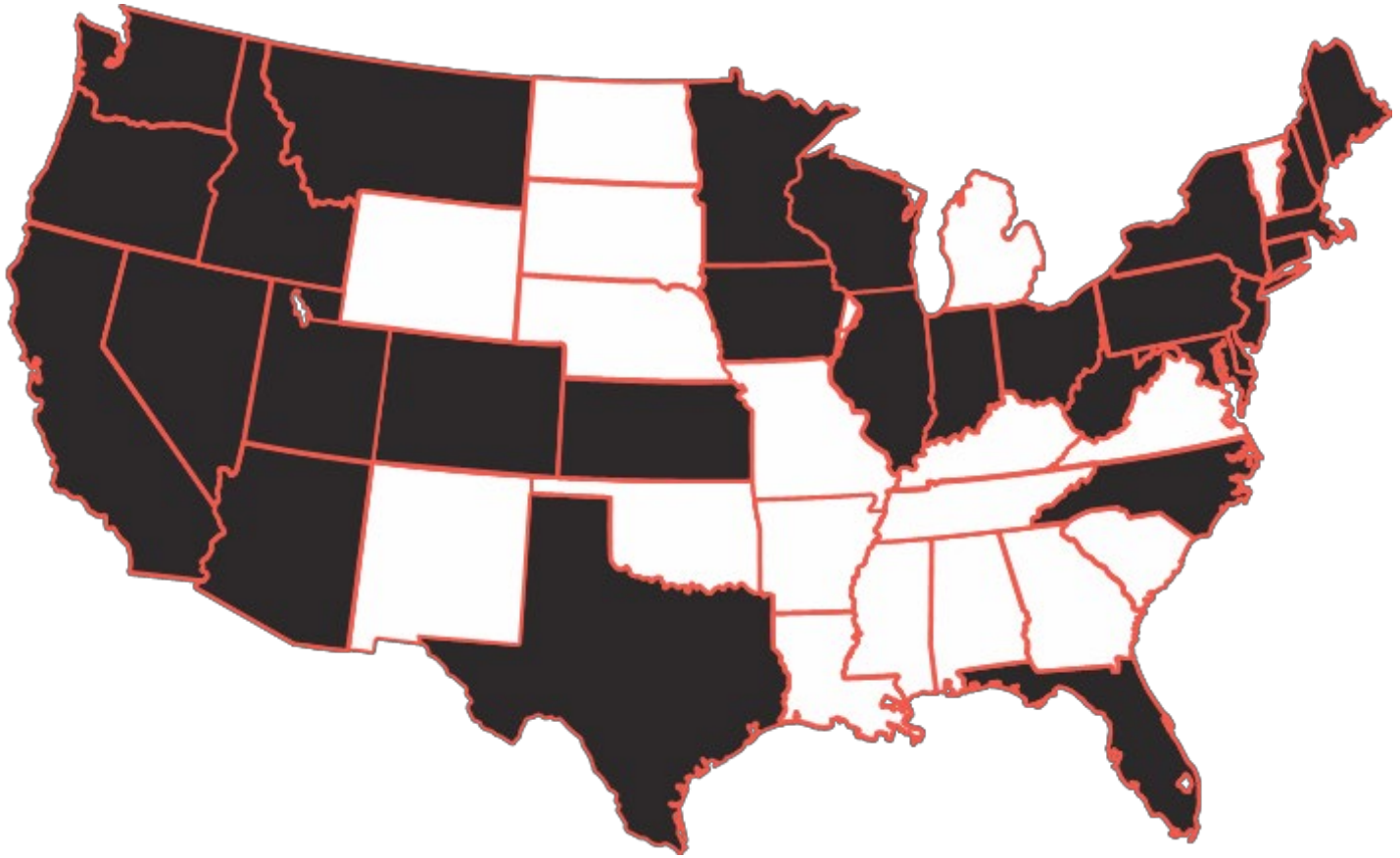
Driving Forces: Light Duty Vehicle Sales - Worldwide



States Exploring a Road Charge in 2010

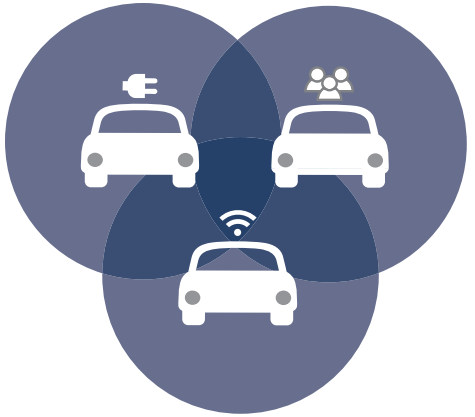


States Exploring a Road Charge in 2019



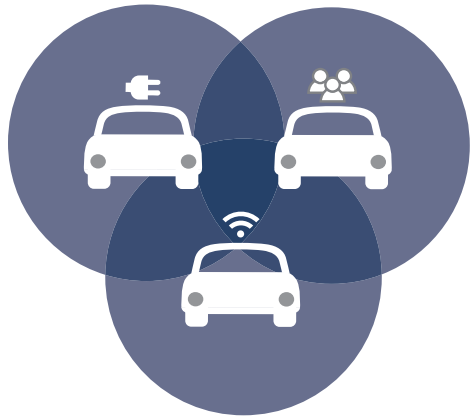
Vision for Distance Based Fees

- Offer a measured and incremental approach to DBF
- Maintain the Motor Fuel Tax; adjust as necessary
  - A dual road use fee collection system is necessary
  - Complementary
- Make driver interface simple
- Provide rate classes ; one DBF rate will not fit all
- Build in a rate index
- Auditability



Minnesota's DBF Project Design Approach

- Use embedded telematics as the platform for fee collection to find efficiencies, improve compliance, develop scalable and portable model for DBFs
- Formed partnerships
  - Two car-share fleets; HOURCAR & Zipcar
  - Automated vehicle company; VSI Labs
  - MnDOT Fleet telematics



- Supporting research on financial analysis, modal and social equity, rate setting, administrative costs, rural/urban equity

HOURCAR

Zip Car

VSI Automated Vehicle

MN Distance Based Fee Demonstration Organization

TECHNICAL ADVISORY COMMITTEE

Policy Oversight

Future Strategy & Guidance

U.S. Department of Transportation Federal Highway Administration

Project Sponsorship & Evaluation

Project Manager

DEPARTMENT OF TRANSPORTATION

Auditing & Compatibility

DEPARTMENT OF REVENUE

Communications

DEPARTMENT OF TRANSPORTATION

Technology Services

HOURCAR

VSI Labs

Policy & Research

HUMPHREY SCHOOL OF PUBLIC AFFAIRS
UNIVERSITY OF MINNESOTA

Implementation

WSP

Goals and Objectives

- Goal: *Demonstrate that on-board embedded telematics in shared-mobility fleets and automated vehicles can be used to efficiently and effectively collect distance-based fees;*
- Objectives:
  - *Privacy protection*
  - *Ease and security of payments*
  - *Low evasion rates*
  - *Scalability*
  - *Equity*

Project Status

- Two-year project designing, planning and demonstrating
- Three stages of reporting for partners
  1. Aggregate datasets sent to system integrator for validation and simulated revenue report generation; sent to Dept. of Revenue (DOR)
  2. Providers generate simulated revenue report; send to system integrator for validation; sent to DOR
  3. Providers generate simulated revenue report and submit directly to DOR
- Data collection complete in March 2021
- Final Reports June 2021
  - Technical feasibility
  - Administrative and policy
  - Evaluation
  - Recommendations

Timeline and Status

WE ARE HERE

Wrapping up the demonstration and preparing for closeout and final reporting: Developing next steps.

Apr '20 – Jul '20

STAGE 1

Providers send sanitized data
Project Team creates Revenue Reports

Aug '20 – Nov '20

STAGE 2

Providers send sanitized data
Providers create Revenue Reports;
sends to Project Team for validation

Dec '20 – Mar '21

STAGE 3

Providers send sanitized data
Providers create Revenue Reports;
sends directly to State

Performance Results

Total Miles Traveled	Total Fuel Gallons Purchased	Average Fuel Economy (miles per gallon)
565,839	18,068	31.32

As of data reported through January 31, 2021

- **2 Shared Mobility Providers + 1 Automated Vehicle**
- **64 total vehicles have participated / collected data**
- **1400+ drivers have participated**

Performance Results

Total Gross Distance Based Fees (DBF) *(state and federal)*	Total Gross Fuels Tax Credits *(state and federal)*	Net Total DBF Assessed *(simulated)*
$15,358	$8,474	**$6,884**

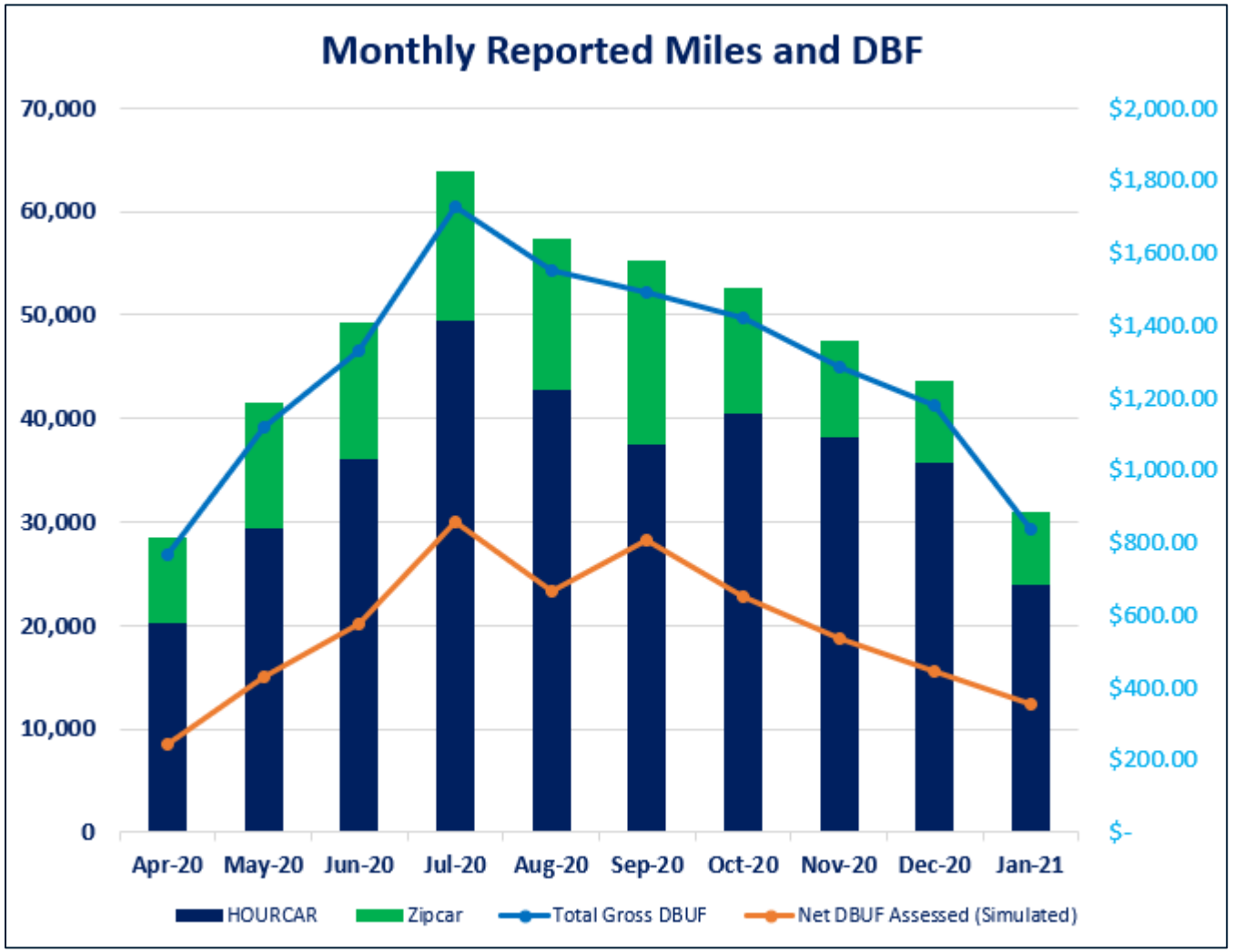
As of data reported through January 31, 2021

- **Project Monthly Revenue Reports (simulated) generated for April 2020 through March 2021**
- **DBF rates tested**
  - **$0.011 Federal**
  - **$0.016 State**

Disclaimer: The per-mile rates and calculated revenues reflected in this report are for demonstration purposes only and do not reflect any intent of a proposed rate structure by the Minnesota Department of Transportation.

Monthly Averages

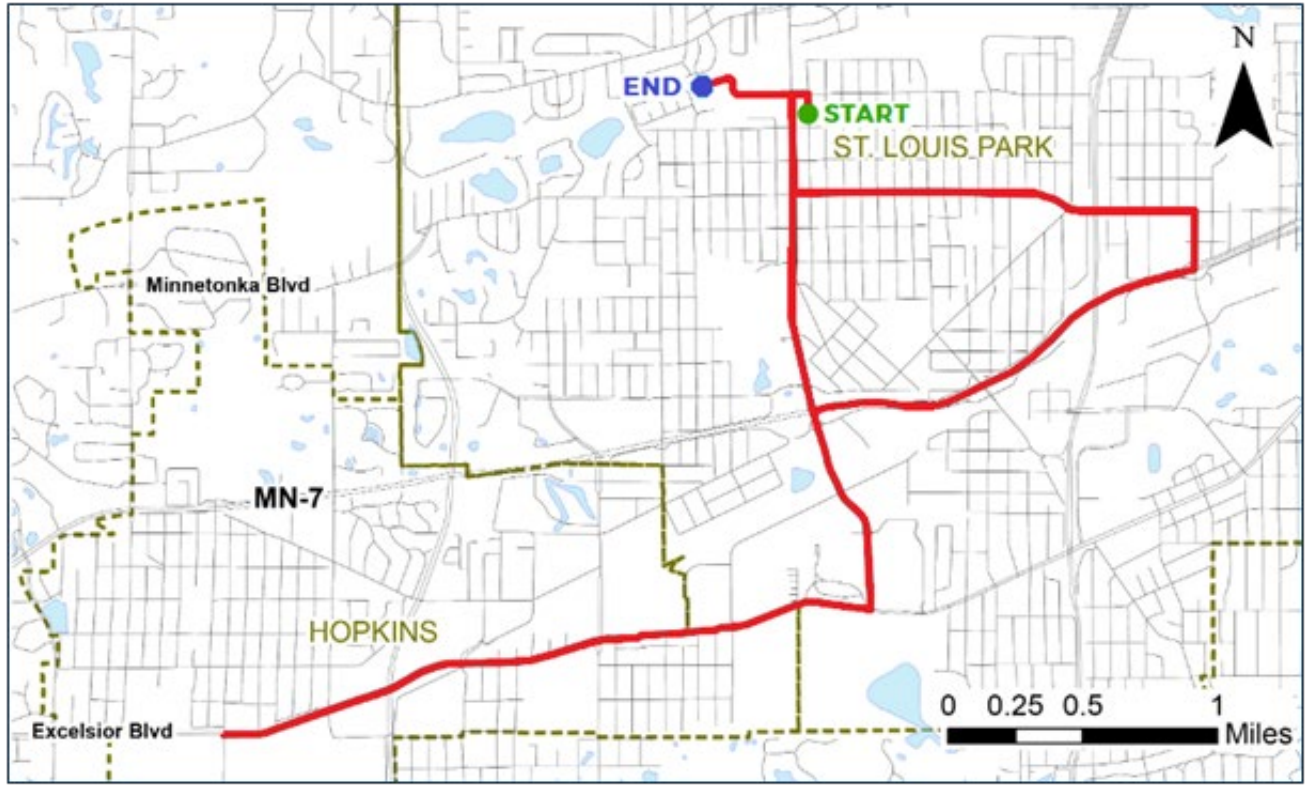
- **47,065 Reported Miles**
- **1,523.7 Gallons Purchased**
- **$1,270.77 Gross DBF**
- **$556.16 Net DBF** *(After Fuel Tax Credits)*
  - **$318.80 State DBF**
  - **$237.36 Federal DBF**



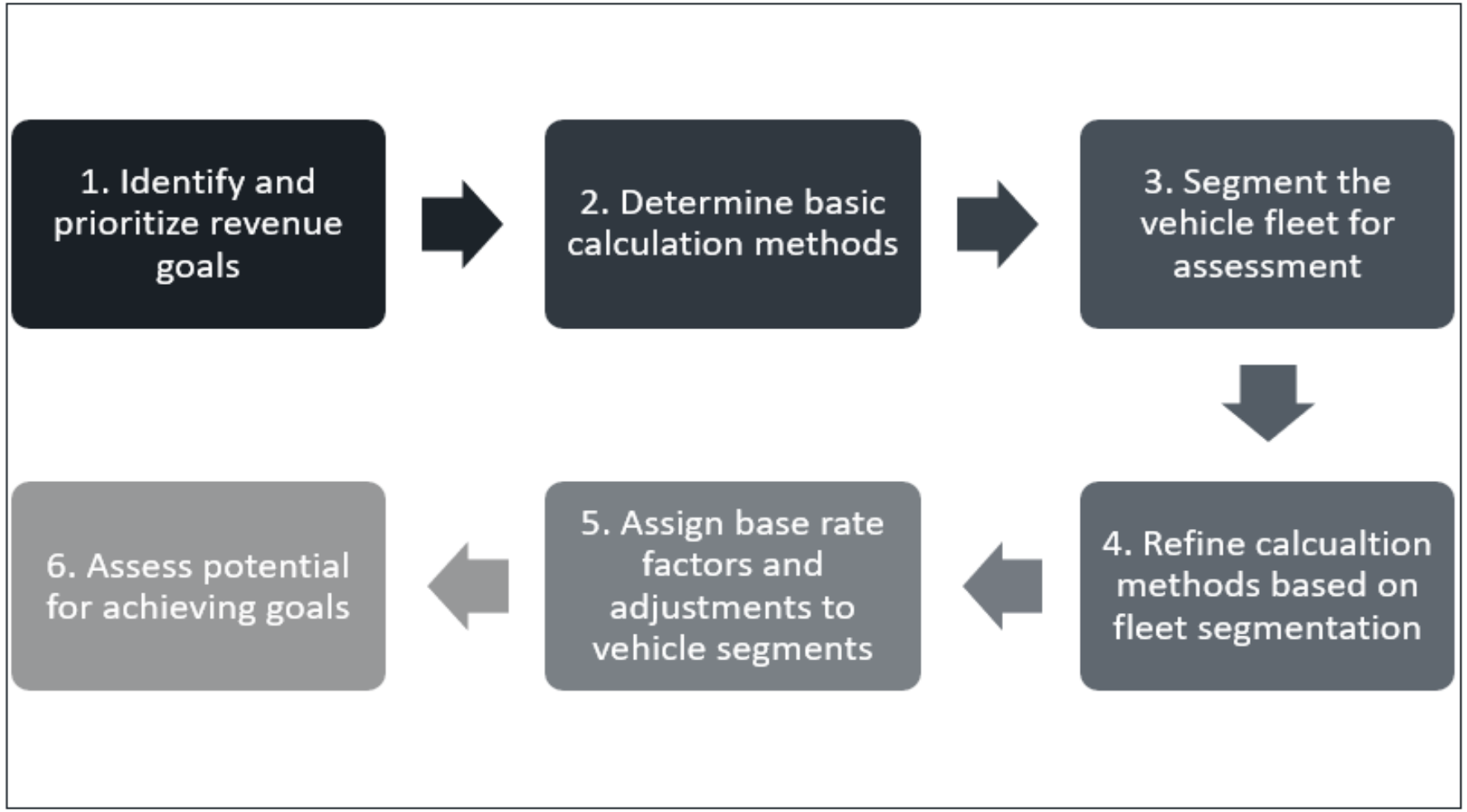
C/AV Testing

- VSI Labs has successfully demonstrated how to report DBF data from an automated vehicle *(Nov. 5th)*

- HOV lane and Vehicle Occupancy Test to be conducted mid-December



Rate Setting Framework



Policy Consideration and Analysis

- Privacy and Data Security
- Social Equity
- Rural and Urban Equity
- Modal Equity
- Collection and Administrative Costs

Next Steps

- **Completed Demonstration data collection on March 31, 2021**
- **Project Team conduct mock audits with both SM Providers early 2021**
  - Validate data accuracy and integrity
  - Simulate real-world revenue audit processes
  - Identify areas of alignment with current fuels tax audit processes; areas for improvement
- **Conduct data mining and analytics on MnDOT Fleet Data**
- **Finalize Rate Setting Framework**
- **Document findings in final demonstration report**
  - Demonstration Observations and Results
  - Alignment with STSFA Grant Program Objectives
  - Opportunities and Challenges
  - Policy Considerations and Recommendations

Accomplishments to Date

- A half million miles of travel have been collected, processed, and invoiced
  - Car-Sharing fleet model
  - Embedded telematics (manufacturers have noticed!)
- User privacy and data security have been protected
- Customer complexity reduced
- A rate setting framework (under development) examines the basis for establishing fair per-mile charges
- The first ever test of DBF collection with an automated vehicle has been successfully conducted
- Develop audit protocol and conducted full system audit

Unresolved Issues

- How does the knowledge from a DBF fleet demonstration scale
  - Car-Sharing fleet model
  - Other fleet applications
  - Automated Vehicles and Electric Vehicles
- Finding efficiencies in embedded telematics data collections and processing
- Work with the auto manufacturers
- Congress may provide opportunity for a National Trial
  - Interoperability
  - Public acceptance
  - Rate setting: appropriate framework for the per-mile charges
  - Transition plan

“Sometimes evolving doesn't mean transforming; sometimes it just means owning what is there.”

Salma Hayek,
actor, producer

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Thank you!

https://dbf.dot.state.mn.us/

Ken Buckeye – Project Manager

***Kenneth.buckeye@state.mn.us*; 651-366-3737**

Office of Financial Management