Michael Baker
INTERNATIONAL
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Urbanism Next
Conference
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The Role of Transit in an Automated Future

Planning for Uncertainty

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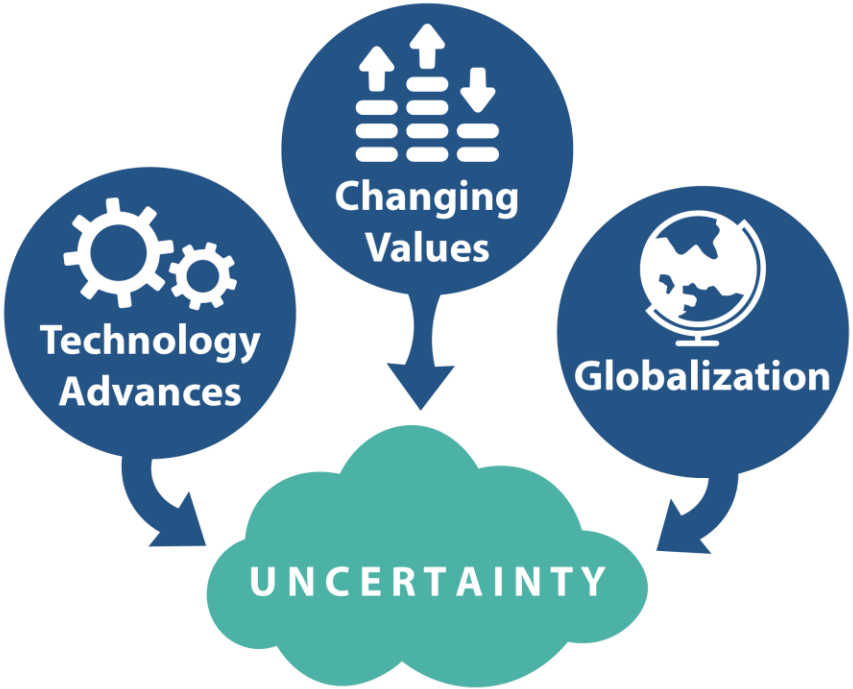
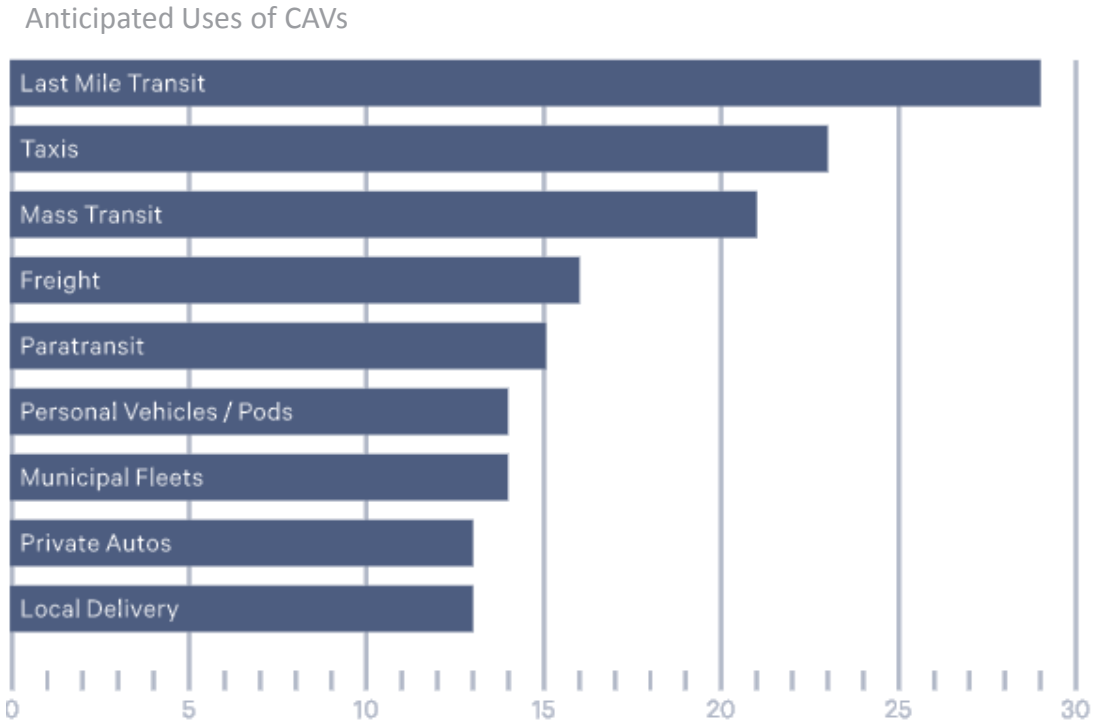
Planning for Uncertain Times



How are Communities Planning for CAV?

Bloomberg and the Aspen Institute reached out to 38 cities who are actively working on CAV strategies and found that:

- Last mile transit is the "low-hanging fruit" *(right)*
- Lack of funds is seen as the biggest barrier to municipal CAV efforts

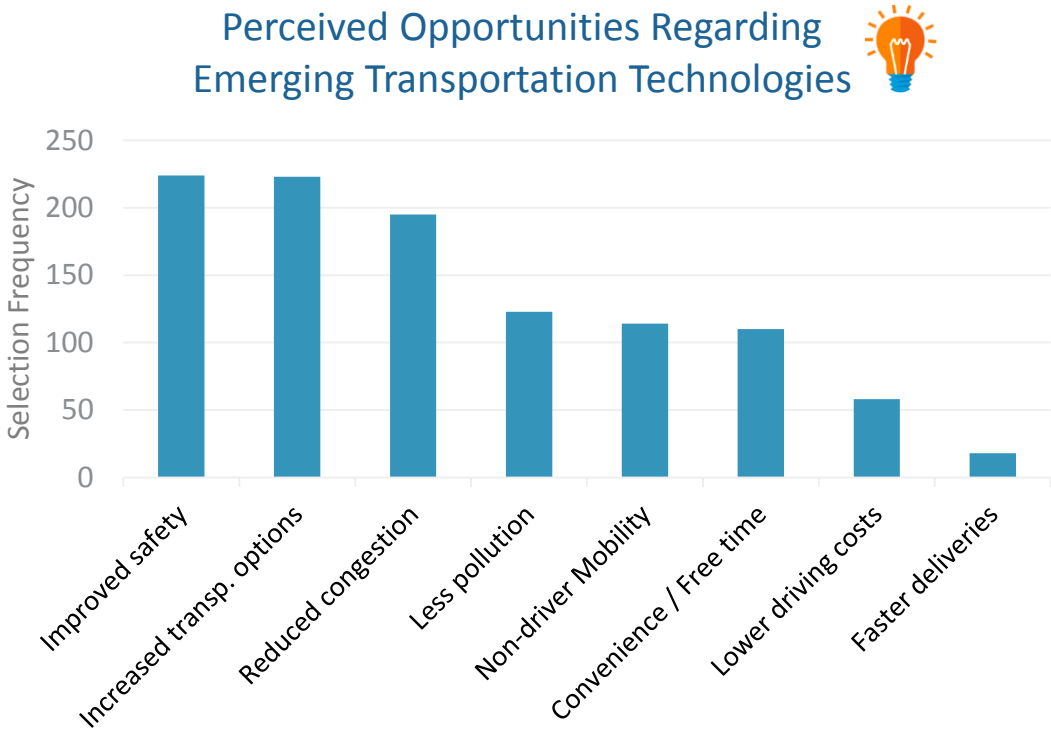


Source: Bloomberg.org

Technology Opportunities

- 1,065 Rankings for eight categories
- 57 Comments

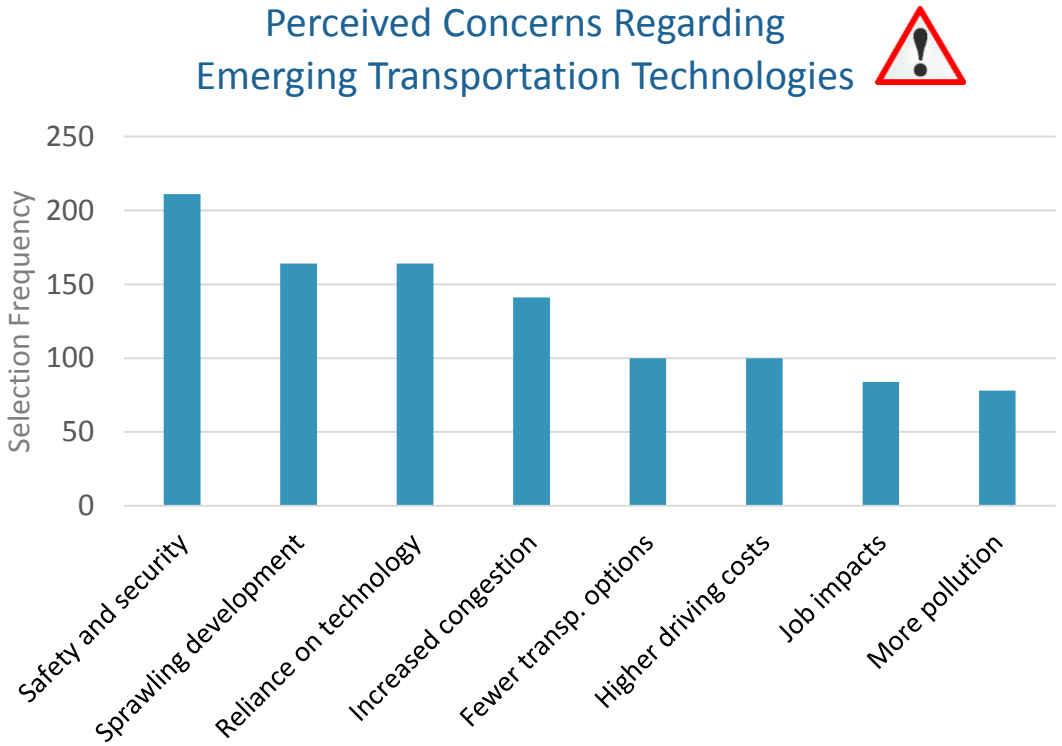
Respondents could select 3 items



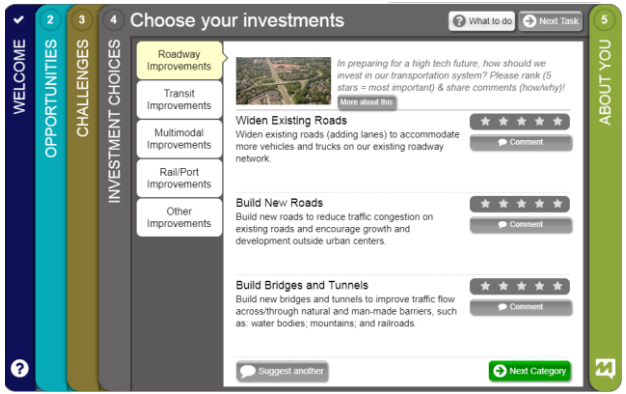
Technology Concerns

- 1,042 Rankings for eight categories
- 33 Comments

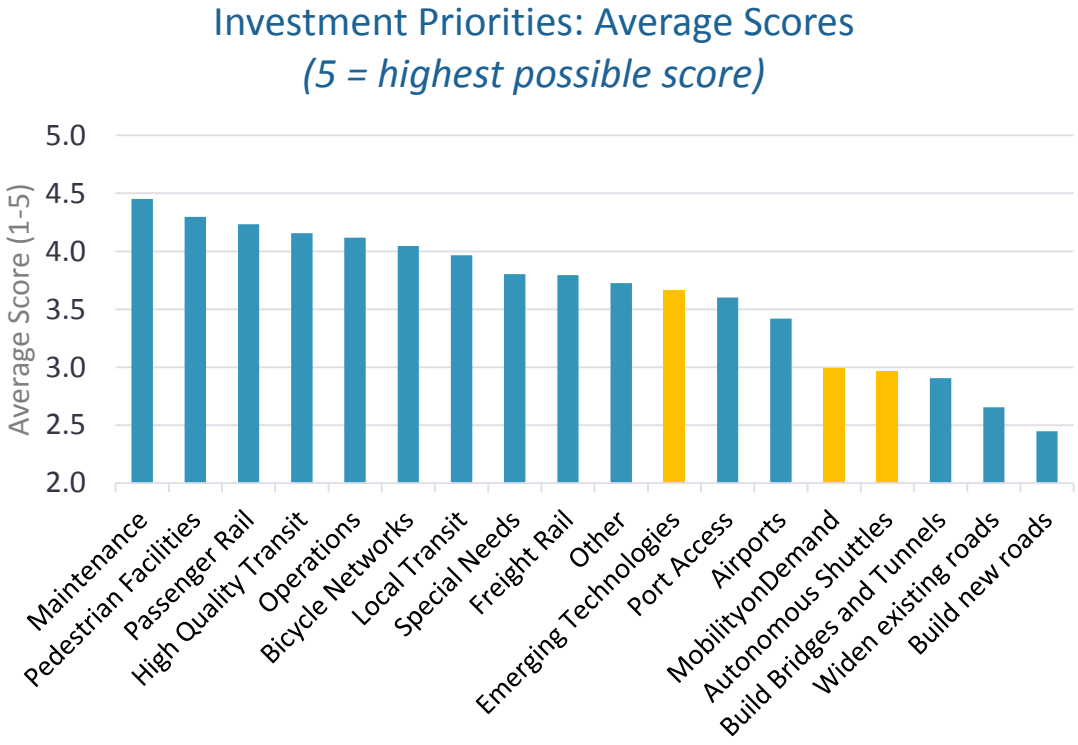
Respondents could select 3 items



Investment Priorities



- 6,102 Total Rankings
- 573 Comments
- Emerging technologies, mobility on demand, and autonomous shuttles all ranked outside the top 10



How do we plan for uncertainty?

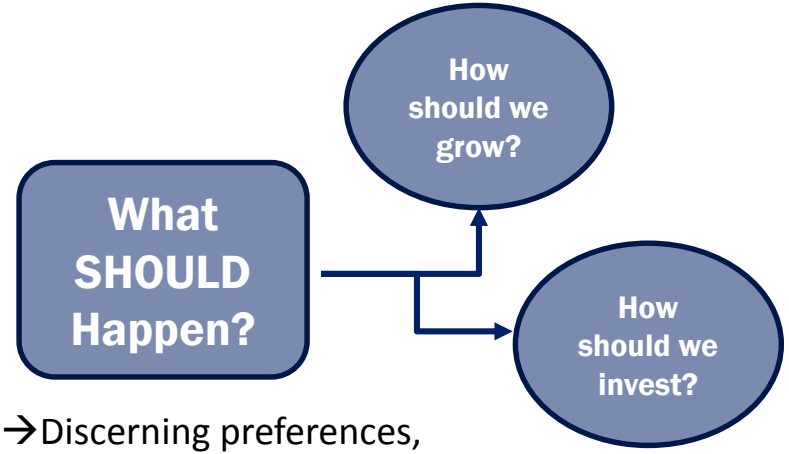
Preparing for Uncertainty: Scenario Planning

OVERVIEW

Scenario Planning for Uncertain Times

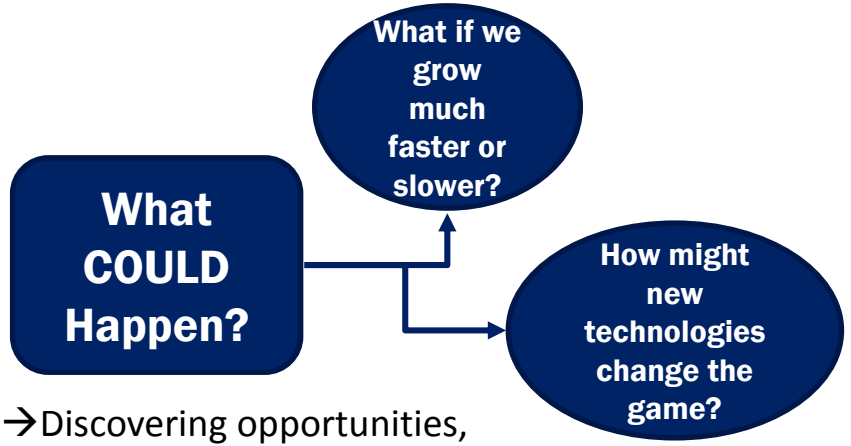
Scenario Planning Approaches

Normative scenarios envision what SHOULD happen?



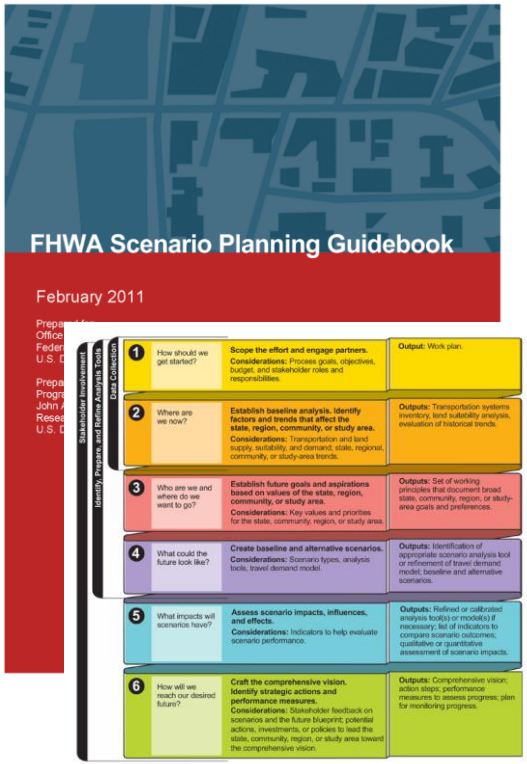
→Discerning preferences, articulating values, shaping vision, strategizing preferred outcomes

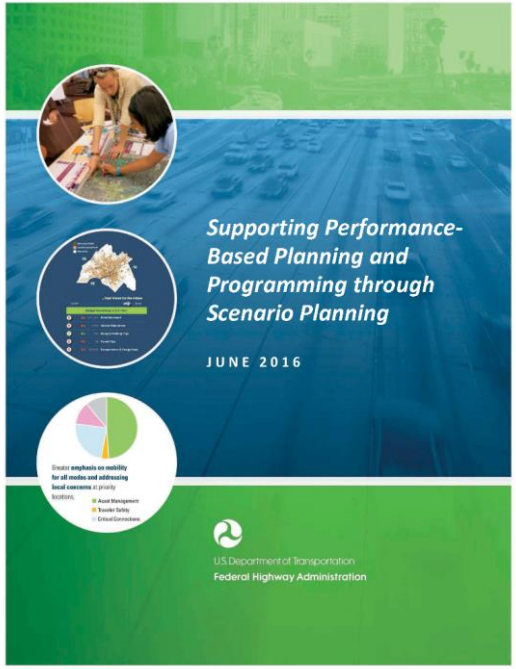
EXPLORATORY scenarios ask what COULD happen?

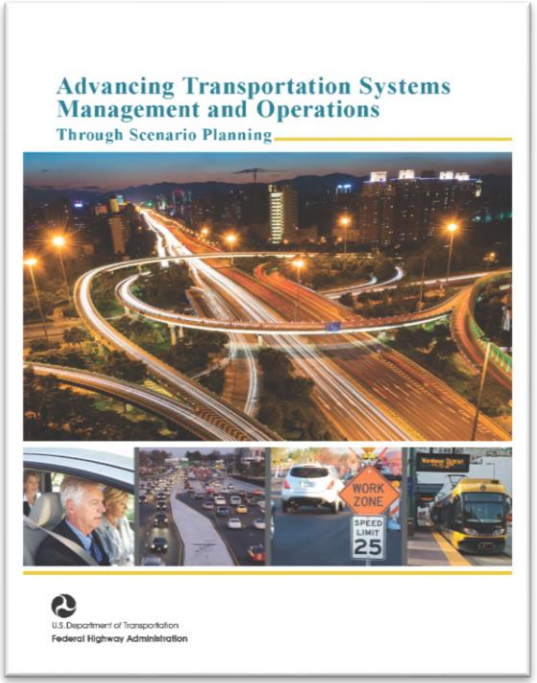


→Discovering opportunities, identifying risks, shaping tactics, optimizing chances of success

FHWA Scenario Planning Guidance







Stay tuned for new publications on "NextGen" Exploratory Scenario Planning…

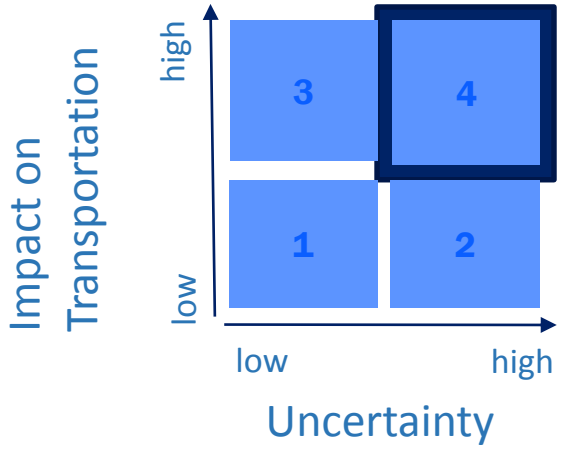
Start with Drivers

DRIVERS
(What drives change globally)

- DEMOGRAPHIC
- ECONOMIC
- TECHNOLOGICAL
- ENVIRONMENTAL

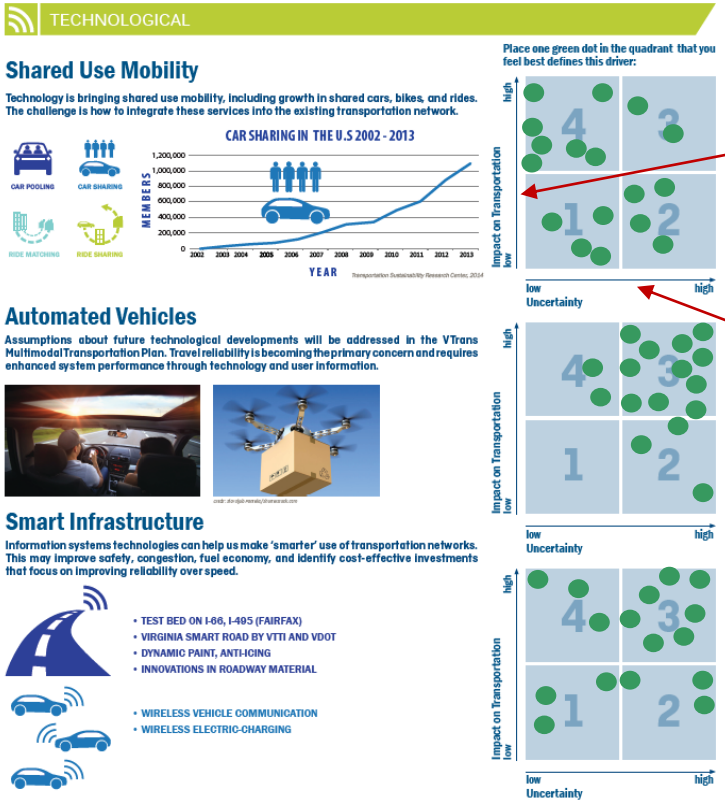
TRANSPORTATION OUTCOMES
(How global change can affect transportation)

- DEMAND/BEHAVIOR
- SUPPLY / DELIVERY
- OPERATIONS / PERFORMANCE
- SYSTEM /USER COSTS



Assessing Drivers

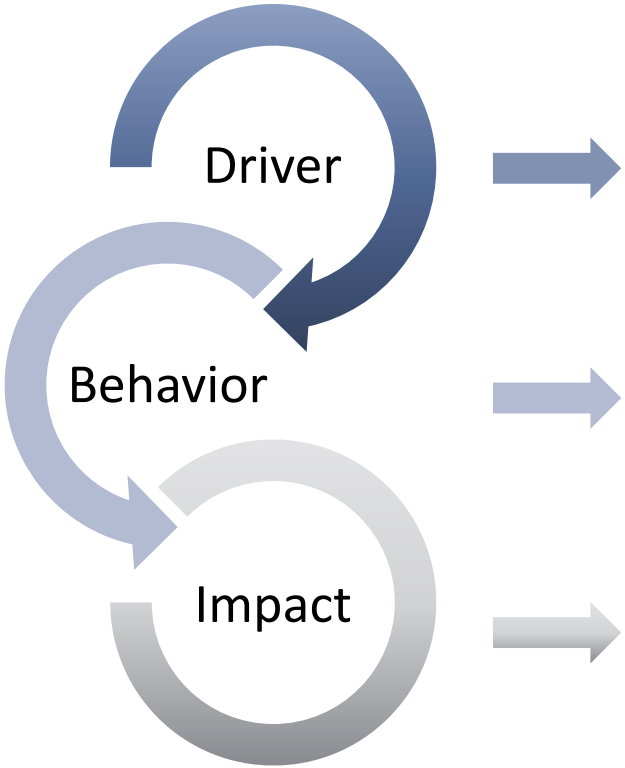
Example of Public Input Received on Technology Drivers



Y-Axis – Impact on Transportation

X-Axis – Degree of Uncertainty

Chain of Logic from Inputs to Outputs

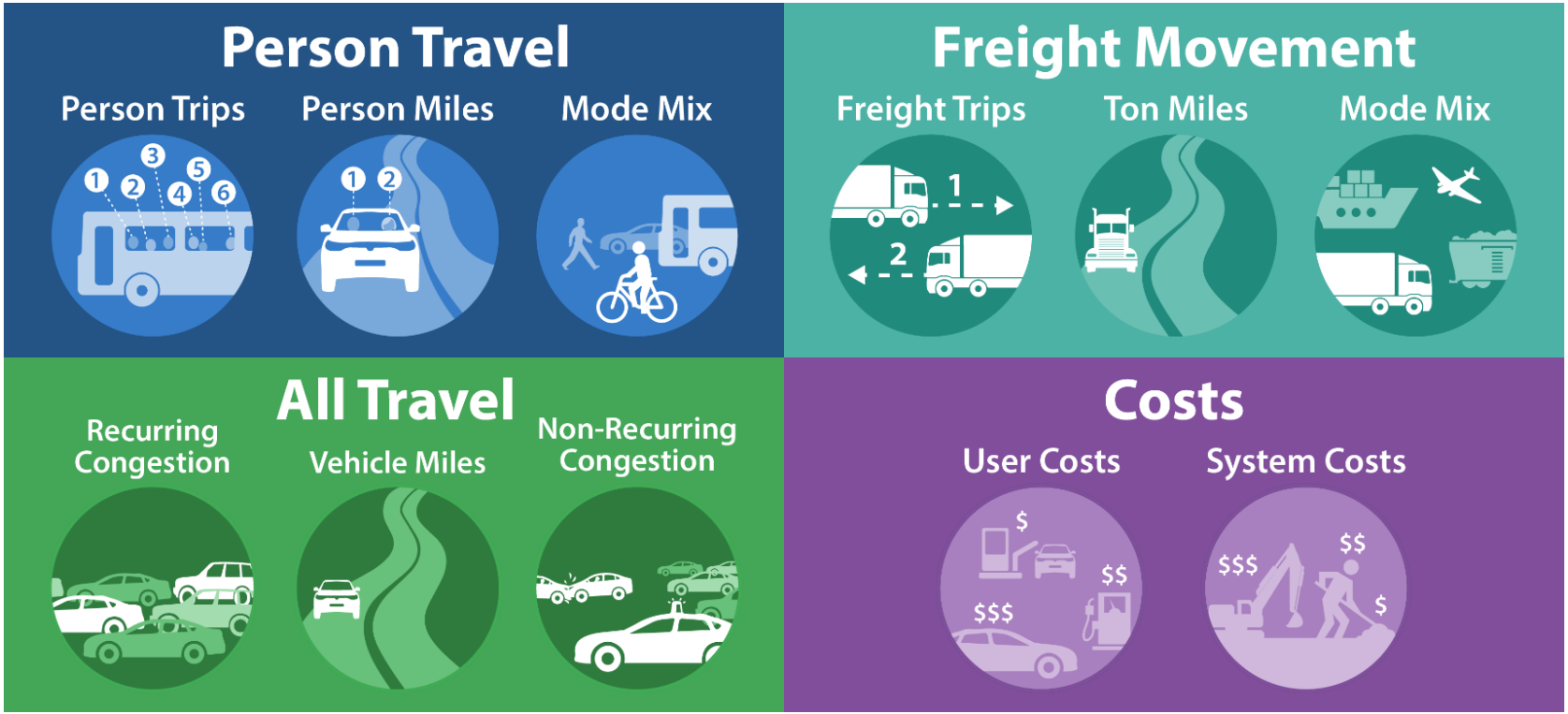


Research, data analysis, extract data from models

Research, expert input, public input

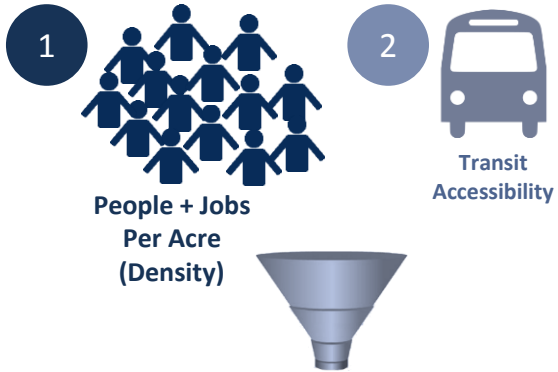
Research, data analysis, apply models

Potential Scenario Planning Outputs



Linking Land Use and Transportation

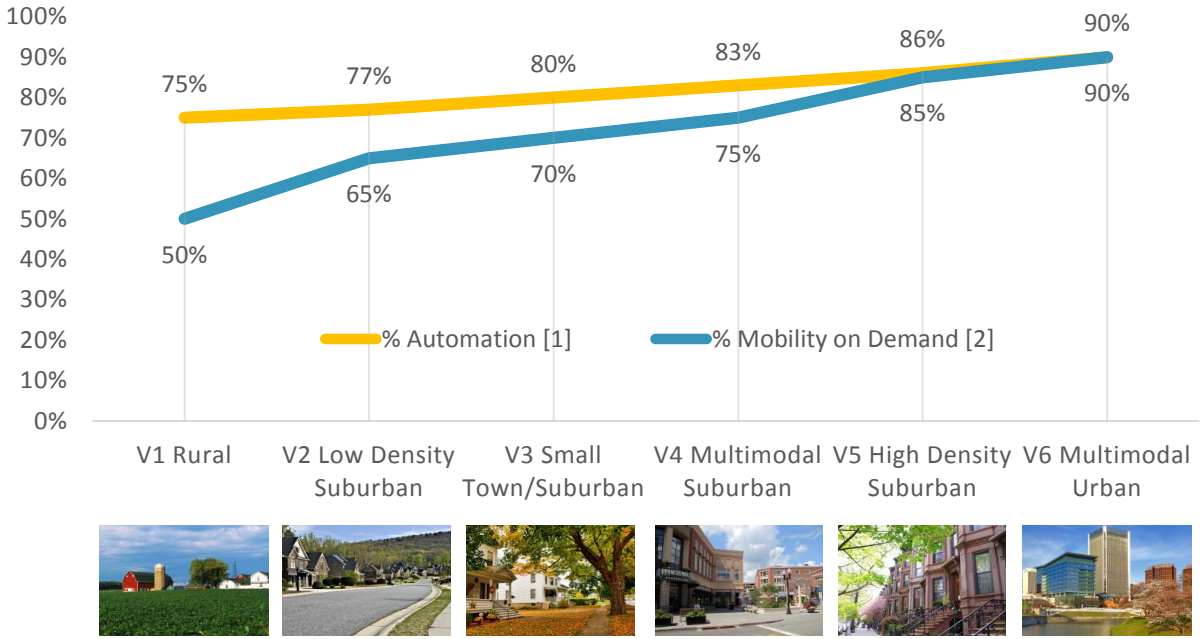
Two Key Criteria to Define Placetypes



The VTrans2040 Placetypes reflect areas with noticeable differences in travel behavior as it relates to land use patterns. Each place type varies by ***mode split*** *and* ***VMT per capita***

V1 – Rural	V2 – Low-Density Suburban	V3 – Small Town/ Suburban	V4 – Multimodal Suburban	V5 – High Density Suburban	V6 – Multimodal Urban

Linking Land Use and Transportation - Example



[1] [2] Information above was inspired by public input

V2V connectivity. I-95 Corridor Coalition

Scenario Overview

High Growth Industrial

- Less Urban
- Higher VMT Assumptions

Industrial Renaissance

High Growth High Tech

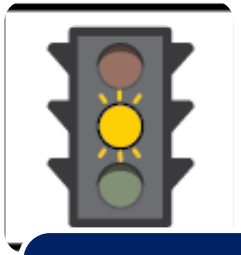
- More Urban
- More Multimodal

Techtopia

Moderate Growth

- Older Demographics
- Walkable Places

Silver Age



Reduced Growth

- Federal Spending Reduced
- Slower adoption of technology

General Slowdown

Key Findings:
How can we prepare for the future?

Anticipate Increased Demand

- Automated and on-demand vehicles will unleash growth in travel demand
- Foreseeable changes in travel behavior with connected and automated vehicles (CAV) will increase travel demand
- Tech. innovations in the economy as well as transportation will spur growth in freight traffic

Technology Will Enhance System Performance

- Safety improvements will reduce congestion from incidents
- Information will improve efficient use of the whole system
- Vehicles will become safer, smaller, and able to travel closer together

Timing is Key – Balancing these two sides of the technology future is critical

Design is also Key – Walkable and multimodal places have the most balanced outcomes

Takeaways by Placetype

V1 – Rural	V2 – Low-Density Suburban	V3 – Small Town/Suburban	V4 – Multimodal Suburban	V5 – High Density Suburban	V6 – Multimodal Urban	V7 – High Density Urban
						

Recurring congestion on two-lane rural roads

More VMT on local streets and collectors

More trips in high density suburban/urban areas

Operational Improvements
Innovative intersection design, dedicated CAV lanes on highways

Demand Management
*ITS, carpools, vanpools park & ride, transit, and peak travel restrictions

Complete Streets
w/ flexible route transit

Complete Streets
w/ integrated, full-spectrum transit

Risks Specific to Transit

- Mobility-on-demand could threaten transit viability
- Mobility-on-demand pricing could have equity implications
- Decoupling transit and land use planning could affect urban form, with additional consequences
- Rising transportation demand could cause additional congestion (and pollution)
- Local streets and other two-lane roads may have challenges accommodating higher demand

Opportunities

- Coordination of transportation, land use and community design can establish the roles of transit and mobility on demand to meet local objectives
- Early adoption of CAV technology in transit can support more efficient, cost effective and accessible public transportation
- Funding to support transit can be bolstered by partnerships with private sector entities on sharing trip-making data generated from CAVs, Smart Corridors, etc.

It's all Related

Thank You!

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