Informing Transportation’s Future V 2.0 - Updating NCHRP’s *Foresight* Series Approach to Scenario Planning

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WHY A COMMISSION?

• Governor Baker signed Executive Order No. 579 to establish the Commission on the Future of Transportation in the Commonwealth

• Commission focused on five key areas:
  - Climate and resiliency
  - Transportation electrification
  - Autonomous and connected vehicles, including ride-sharing services
  - Transit and mobility services
  - Land use and demographic trends
COMMISSION CHARGE:
What are the implications for 2040?

Our framework was in three parts:

• 1st: focus on facts and trends
• 2nd: develop plausible scenarios for 20+ years from now
• 3rd: guidelines and recommendations to the Governor, Lt. Governor and other decision-makers

This effort was about balance:

• Not a review of projects, but provide guidelines for investments
• Not about today, but recommendations for actions, next steps now
• Not about revenues, though did identify financial impacts
• Members will often find generally available “mainstream or pop culture” articles, photos, and real-world examples from the internet compelling and interesting

• Academic sources may not be accessible enough to our everyday users

• Need to strike balance between types of sources
What are Driving Forces?
Driving forces are issues that we expect to play a large role in shaping the future for the topic we are examining. They usually contain a blend of two components:

- **Predictable Trends** – Trends are the elements of driving forces that possess considerable momentum and continuity and therefore are known and certain, at least for a particular period.

- **Uncertainties** – Elements of driving forces that may emerge in the future, but could follow different trajectories and therefore are unknown and hard to predict.
A Shift From Prediction To Preparation

POINT FORECAST
Planning for a short term point in time.

FUTURE SCENARIO PLANNING
Looking out decades and letting the future drive the planning.

Future Scenario 1
Future Scenario 2
Future Scenario 3
DRIVING FORCES FOR SCENARIO PLANNING

• By 2040, estimates show +/- 600,000 more people
• This is equivalent to adding another City of Boston
• Where will the jobs be?
• Where will the housing be?
• If transportation is about moving people and things, then this along with anticipated technology advances has profound implications
DEVELOP NARRATIVES FROM RESEARCH

- Two to Four Scenarios
- Challenging
- Differentiated
- Contain Alternatives Centered on the Focal Issue

- Plausible
- Internally Consistent
- Memorable
- Doesn’t Answer Focal Question Directly
Recommendation Brainstorming

- Develop recs specific to 2-3 scenarios
- What actions can be taken within transportation arena to address the challenges and seize opportunities in that scenario?
- Focus on impact/leap forward recs

Widespread tech adoption

- Vibrant Core
- Statewide Spread

Uneven tech adoption

- Gridlock
- Multiple Hubs

Jobs/housing are:

- more concentrated
- widely dispersed
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<thead>
<tr>
<th>Strategy works in all futures</th>
<th>Immediate <em>current or near-term need</em></th>
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<td><strong>Robust</strong> <em>no brainers</em></td>
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<tr>
<td>Strategy works in some futures</td>
<td>Deferred <em>no regret</em></td>
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<td><strong>Leap forward</strong> <em>influence the future</em></td>
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<td><strong>Hedging</strong> <em>potential regret</em></td>
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<td>Strategy works in no futures</td>
<td><strong>Dropped</strong></td>
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Not a separate experiment for each factor - not every outcome is analyzed. It is a tool to talk and challenge ourselves for equally likely and unlikely futures.

The scenarios outline futures that MassDOT and the larger set of decision makers can’t control – instead the focus is on the recommendations you offer for the transportation system in those futures.

The scenarios are your sandbox to develop recommendations. Info about and solutions for the transportation system don’t reside there.
REFINE AND FINALIZE RECOMMENDATIONS

• Relation to Scenarios
• Fact-based
• Process Points
• Leap-forward/Framing Ideas
• Review of Current Plans and Other Sources
• Homework
Lessons Learned That Could Inform Other DOTs
KEY CHALLENGES ESTABLISHED

• We can’t know the future
• Disruptive technological change is inevitable
• Massachusetts is growing and aging
• The existing transportation system is made up of transportation haves and have-nots
• Transportation needs vary across the Commonwealth and its communities
• The transportation system needs to move more people in fewer vehicles
• Land use and development decisions drive transportation patterns
• The transportation system needs to be de-carbonized
• Transportation infrastructure needs to be made resilient to a changing climate
• Needed investments need to be prioritized and paid for
Questions Raised

Recognizing transportation is driven by where people live, their commute to work, and how freight is delivered – which is in turn impacted by technology:

- What kinds of transportation systems will be needed?
- How might MassDOT and other organizations need to be reshaped to deliver those systems? E.g., more or less centralized?
- What investment strategies might be needed?
- What other sorts of policies (incentives for supporting infrastructure, electric grid, data delivery, affordable housing, etc.) might be needed?
1. Will your organization work differently in the future?
2. Will the economy stay global?
3. What is resilient infrastructure and how much does it cost?
4. What if there is no more driving, but Vehicle Miles Traveled (VMT) still rises?
5. Where are the next boom towns?
6. Will cars fill up or plug in?
7. What’s the relationship between more senior Americans and transportation?
TWO SETS OF DELIVERABLES

• 20-44(06) Report with lessons learned

• Commission in a Box materials:
  • Facts & trends slides
  • Working group “drivers” survey
  • Literature review
  • Massachusetts background books
  • Working group homework worksheet
  • Massachusetts final scenario narratives
  • Policy recommendations template
Where To Find Them

• Go to: