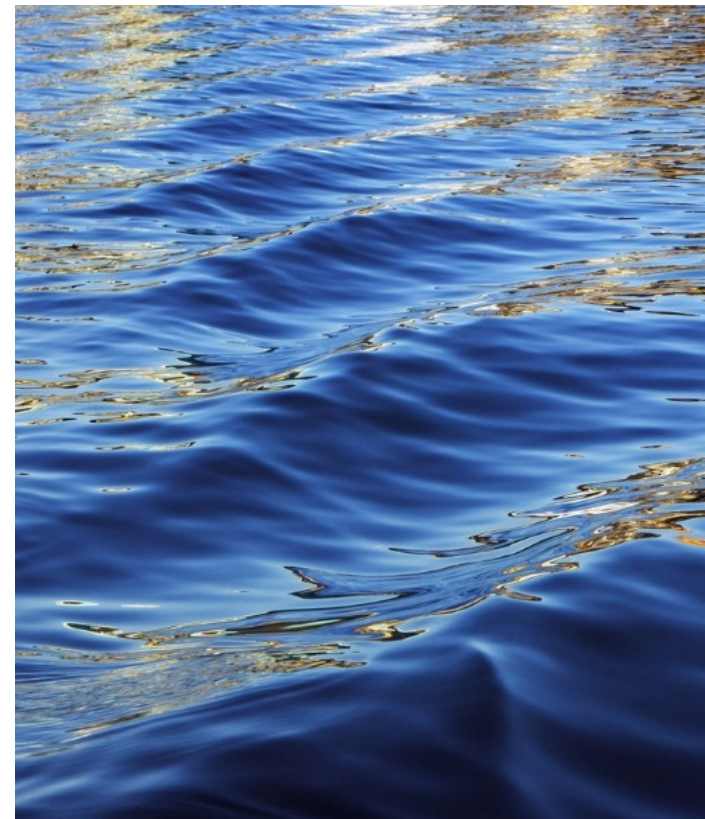




Emerging Trends in Transportation

EPA Presentation to NAS
June 16, 2020



TRB: Critical Issues in Transportation 2019

- Transformational Technologies and Services: Steering the Tech Revolution
- Serving a Growing and Shifting Population
- Energy and Sustainability: Protecting the Planet
- Resilience and Security: Preparing for Threats
- Safety and Public Health: Safeguarding the Public
- Equity: Serving the Disadvantaged
- Governance: Managing Our Systems
- System Performance & Management: Improving the Performance of Transportation Networks
- Funding and Finance: Paying the Tab
- Goods Movement: Moving Freight
- Institutional and Workforce Capacity: Providing a Capable and Diverse Workforce
- Research and Innovation: Preparing for the Future

<https://www.nap.edu/resource/25314/criticalissues/>

Clean Air Act Advisory Committee: Mobile Source Technical Review Subcommittee Current Topics



- Goods movement
 - Technology applications
 - Delivery system optimization
 - Data utilization



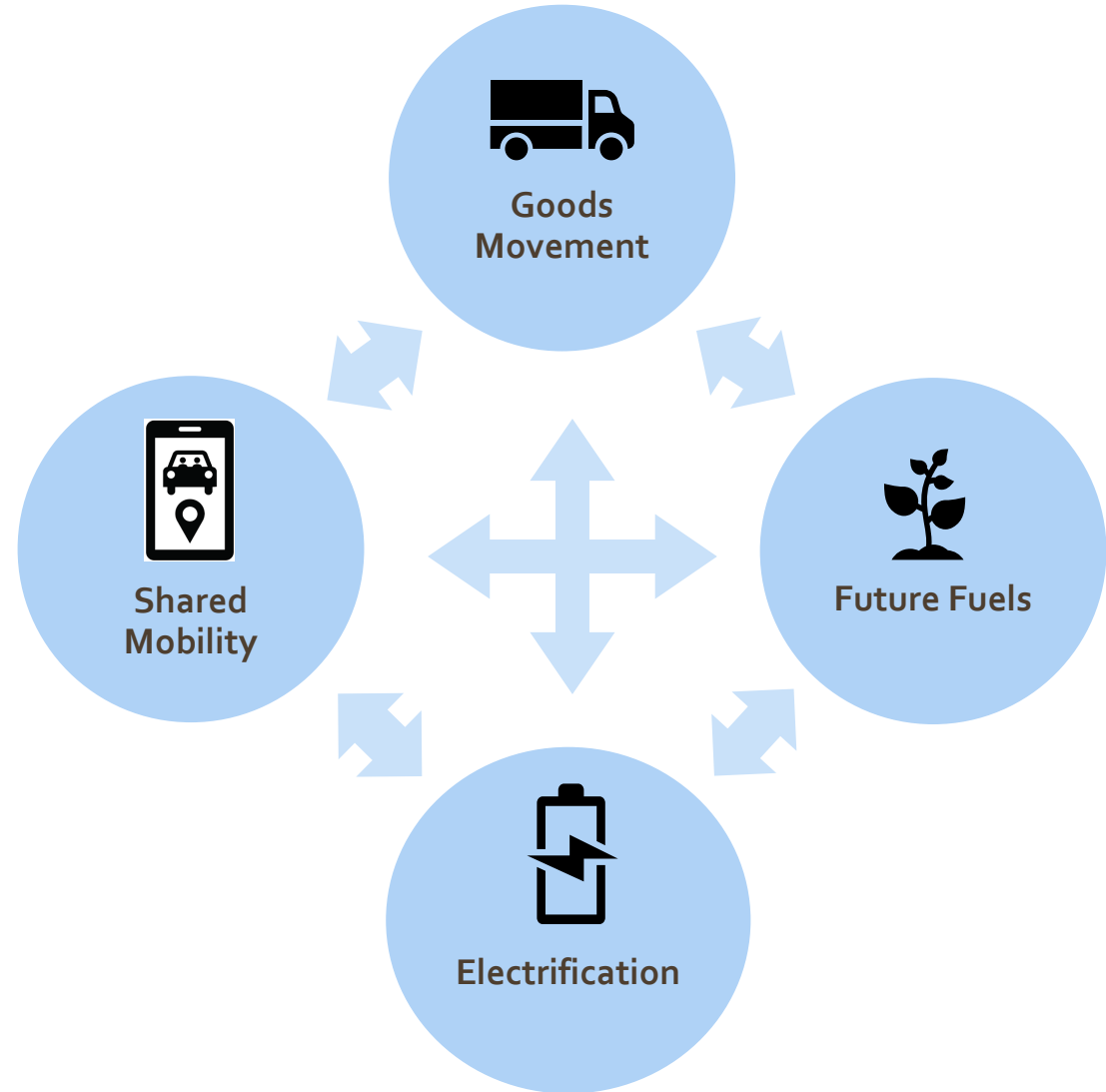
- Future Fuels
 - Role of liquid fuels
 - Upstream implications



- Electrification
 - Technology deployment and uptake
 - Charging infrastructure
 - Upstream implications
 - Displaced emissions



- Shared Mobility
 - Vehicle tailoring
 - Capacity optimization
 - System connectivity
 - Mode shifting



Complex Interactions as the System Evolves

- How can new mobility options transform society and transportation?
- What does beneficial shared mobility look like?
- Under what conditions can autonomous vehicles play a positive environmental role?
- What are the effects as ownership shifts from private to shared?
- Are there tipping points in the transportation paradigm?
- How can goods movement evolve in an environmentally positive direction?
- What are the implications of integrating goods and people movement?

What are the potential system-wide impacts of disruptive approaches, singly and in combination?

System Effects: Electrification

- As we look to the future of transportation, it will become increasingly important to capture system effects.
- Not only are more of the emissions pushed upstream of the tailpipe, but using a static snapshot of historical grid electricity emissions could overlook important interactions between large scale transportation electrification and how the future grid evolves.
 - What if significant portions of transportation demand is flexible, and allows the grid to optimize the allocation of existing resources?
 - What if EVs can encourage increased deployment of renewables if charging can be done when renewables would otherwise be curtailed?
 - How will increased transportation demand interact with state emissions caps?

Emerging Transportation Trends: Implications

EPA would appreciate the NAS Committee's insights on emerging transportation trends and future mobility paradigms.

- What are the opportunities and challenges?
- What factors are most important for positive environmental outcomes?
- What approaches could EPA consider to address those factors?
- What kinds of regulatory structure could best achieve environmental benefits in the face of these emerging trends?
- How can we address system effects of a changing transportation paradigm?