Metropolitan Mobility Network

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Potential changes that could significantly transform *when, how and why* people are traveling and goods are being moved.
Future Changes Likely to Impact Transportation

• **Personal mobility** is likely to evolve from vehicle ownership toward increased use of shared, on demand, possibly autonomous vehicles.

• **Goods movement** is likely to be impacted by technological changes, including:
  - Distributed additive manufacturing (also known as 3D printing),
  - Vehicle automation and automated delivery, and
  - The further automation of goods production and distribution
Future Changes Likely to Impact Transportation

The availability of **new types of data** will likely result in new approaches to:

- Providing and using transportation services,
- Managing the transportation system,
- New organizational arrangements for service provision and facility management, and
- New approaches to financing services and infrastructure.

*Personal and organizational access to data is already driving change.*
Future Changes Likely to Impact Transportation

- Metropolitan regions worldwide are and will continue to face unprecedented challenges from the impacts of major global trends including:
  - Climate change,
  - The future availability and cost of fuels,
  - The development of new technologies and energy sources, and
  - Changing demographics and lifestyle expectations, changes in land use patterns, and limitations in current transportation finance methods.
Implications for Transportation

- There is little doubt that some combination of these drivers will have an impact on either or both:
  - Demand for transportation
  - Transportation service provision
- CHANGES ARE ALREADY OCCURRING DUE TO THESE DRIVERS
An Evolving Timeline . . .

A speculative look “down the road”

WILD CARDS:
• Commercial vehicle automation
• Waterborne automation
• Railroad & transit automation
• Distributed manufacturing
• E-commerce

Present to 2025
- CAVs becoming legal & testing/ piloting continues
- Continued evolution of Shared Mobility

2020s
- CAVs introduced in services where drivers are a cost factor
- Increasing levels of automation in the privately-owned vehicles
- Shared Mobility increasingly impacts private vehicle ownership

2030s
- Fully automated CAVs become a significant portion of private vehicle fleet
- Private vehicle fleet remains mixed with varied levels of automation
- Continued evolution of Shared Mobility and away from private vehicle ownership
- Level of automation likely insufficient for advanced traffic management

2040s
- Major share of vehicles are fully autonomous
- Level of automation may be sufficient for advanced traffic management and higher levels of Shared Mobility
Elements of Shared Mobility

Figure 1: Key Areas of Shared Mobility
A complication:

The Hype Cycle

Amara's law:
"We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run"

-- coined by Roy Amara, past president of The Institute for the Future.