Big Data in Transportation
Opportunities

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“Using data effectively is not just about which database you use or how many data scientists you have on staff, but rather it’s a complex interplay between the data you have, where it is stored and how people work with it, and what problems are considered worth solving.”

DJ Patil and Hilary Mason

Data Driven: Creating a Data Culture
The Future or the Present?
Big Data in Real Time
Big Data in Near Real Time
Big Data in Short Time Horizons

CONNECTED VEHICLES: the Vehicle Data Translator

Vehicle Data
- temperature
- pressure
- velocity
- brake status
- steering
- traction control
- wiper status
- headlights status

Warnings sent to approaching vehicles

Data Processing Center (remote)

Doppler Radar (remote)

Weather Satellite (remote)

ESS (local)
Big Data in Longer Time Horizons
Big Data in Longer Time Horizons
Big Data in Transportation Plans
Big Data in Smart Cities

TECHNOLOGY ELEMENTS

Vision Element #1
Urban Automation

Vision Element #2
Connected Vehicles

Vision Element #3
Intelligent, Sensor-Based Infrastructure

INNOVATIVE APPROACHES TO URBAN TRANSPORTATION ELEMENTS

Vision Element #4
User-Focused Mobility Services and Choices

Vision Element #5
Urban Analytics

Vision Element #6
Urban Delivery and Logistics

Vision Element #7
Strategic Business Models & Partnering

Vision Element #8
Smart Grid, Roadway Electrification, & EVs

Vision Element #9
Connected, Involved Citizens

SMART CITY ELEMENTS

Vision Element #10
Architecture and Standards

Vision Element #11
Low-Cost, Efficient, Secure, & Resilient ICT

Vision Element #12
Smart Land Use
Big Data Right Now

**Traditional, Static Data Sets:**
Census of fatal crashes, railroad incidents, road/bridge conditions, long-term pavement performance, aviation, and more

Currently Available

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<tr>
<th>Year</th>
<th>CV Pilot: NYC</th>
<th>CV Pilot: Tampa</th>
<th>CV Pilot: Wyoming</th>
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**180+ Real-Time Data Sets:**
Basic Safety Messages (BSMs), Incident Identification, Simulated Data Environments, Trajectory, Road Weather, Archived Real-time Location, and more