Reinventing Transportation in our Connected World

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Reinventing Transportation

Demographic Trends
• Accelerated Global Urbanization
• Greater strain on infrastructure and finances

Operations & Policy Trends
• Performance and data driven investment decisions
• Alternative funding and financing

Technology Trends
• Connectivity Revolution
• “Big Data” / Open Data
• Vehicle electrification & “smart grid”
• Greater Vehicle Automation
“Next” Technologies
Connected Vehicles

- Current State
  - Advance Notice of Proposed Rulemaking on August 18, 2014
  - Final rule on V2V expected in 2016
  - AASHTO “Footprint Analysis” for infrastructure applications
  - Connected Vehicle Pilot Deployment Program
Vehicle Automation

A laser sensor scans 360 degrees around the vehicle for objects.

A processor reads the data and regulates vehicle behavior.

Radar measures the speed of vehicles ahead.

An orientation sensor tracks the car’s motion and balance.

A wheel-hub sensor detects the number of rotations to help determine the car’s location.

Source: Google

Raoul Rañoa / @latimesgraphics
Impacts on Road Agencies

Scenario 1:
Connectivity through DSRC and mobile technologies is enabling integrated payment systems, real-time performance feedback, and communications between the vehicle and the infrastructure to empower the traveler with information, enable seamless journeys, and increase traveler convenience, mobility and safety.
Scenario 2:
Public agencies are being inundated with data. They will need enhanced capabilities to collect, store, aggregate, analyze, and present the data in new ways for performance-based decision-making, transparency and accountability. This also means they will need to bolster data and network security systems.
Impacts on Road Agencies

Scenario 3:
The staff make-up of public agencies will be different because of rapid technological change. Agencies will need to hire staff with skills in network administration, data analysts, network security professionals, and the like.
Impacts on Road Agencies

Scenario 4:
Connectivity is breaking down the barriers between modes of travel and creating new mobility options for people. We are entering a shared mobility era. Mobility as a service and mobility bundles may replace what we experience today in terms of car ownership and payment systems. Highway agencies may find themselves in the mobility business.
Scenario 5: Vehicle automation and connectivity will change how our highways are designed and operate. The book will need to be rewritten. We will be able to fit 4 lanes into our current 3-lane cross-sections, lane capacities will increase dramatically, and signs and signals may become obsolete.
Get Ready for Disruption

- We live in a dynamic, disruptive time
- Our challenge – to avoid inertia, look forward, and embrace the changes that are coming
- Partnerships needed – we face the same disruptive future
- Technology at the root of this disruption, but it also will pave the way to future solutions
Thank You!

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