SYMPOSIUM ON THE FUTURE NETWORKED CAR
GENEVA INTERNATIONAL MOTOR SHOW
3 MARCH 2016

King W Gee
Director
Engineering & Technical Services
American Association of State Highway and Transportation Officials (AASHTO)

UNECE   ITU

Big Data for Smart Cities

Symposium on The Future Networked Car
Geneva International Motor Show
3 March 2016

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American Association of State Highway and Transportation Officials

AASHTO

- American Association of State Highway and Transportation Officials (AASHTO)
- A nonprofit association (NGO) founded in 1914
- Members include:
  - Highway and transportation departments of the 50 states, the District of Columbia, and Puerto Rico
  - 41 Associate Members from Federal, State, and Local agencies and other countries
- Covers all five transportation modes:
  Air, Highways, Rail, Transit, and Water

Fully Connected Vehicle

Infrastructure Messages
Signal Phase and Timing,
Fog Ahead
Train Coming
Drive 35 mph
50 Parking Spaces Available

Vehicle Data
latitude, longitude, time, heading
angle, speed, lateral acceleration,
longitudinal acceleration, yaw rate,
throttle position, brake status,
steering angle, headlight status,
wiper status, external temperature,
turn signal status, vehicle length,
vehicle width, vehicle mass,
bumper height

Source: U.S. DOT

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Reality Check

- **Data is not Information**

- **Information is not Action**

- **Envisioning does not Ensure Realization**

- **Transformations Requiring Policy Rethinking**

- **Broader Policy Issues**
  - Beyond <u>Technical Policy</u> for Transportation
  - Cross-sectoral <u>Public Policy</u> for Mobility

- **"Chicken & Egg Problem"** → **Systems Thinking**

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Potentialities

- User Desired Functionalities

  - Seamless Multimodal Journey Options (Planning/Reliability)

- Private Offerings

  - Mobility Apps

  - New Services: Tesla "Summon"; Ford "Credit Link"
    Uber "Trip Experiences" API; etc.

- Public Agency Social Objectives

  - Safety & Mobility Benefits

- Public Agency Internal Opportunities

  - Crowd Sourcing of Condition Information

  - Vehicle Probe Data (WAZE "Connected Citizens" Partnership)
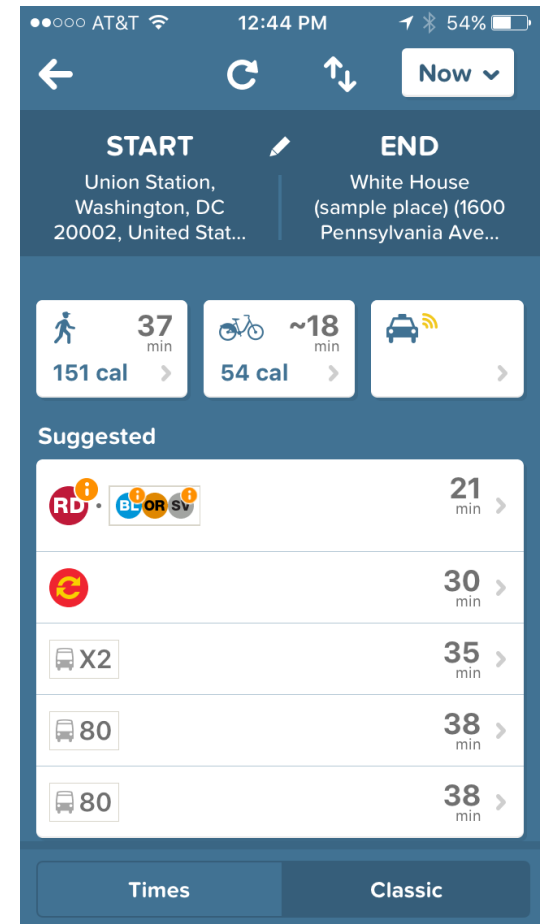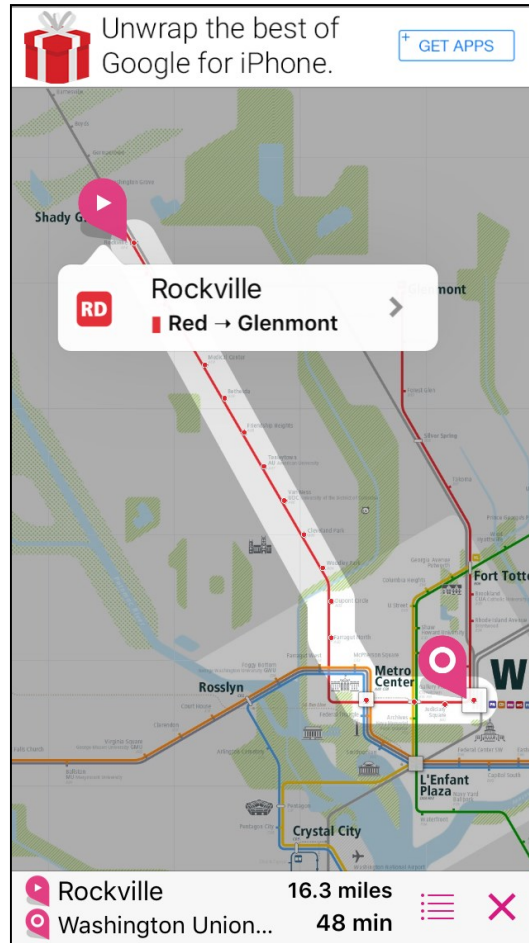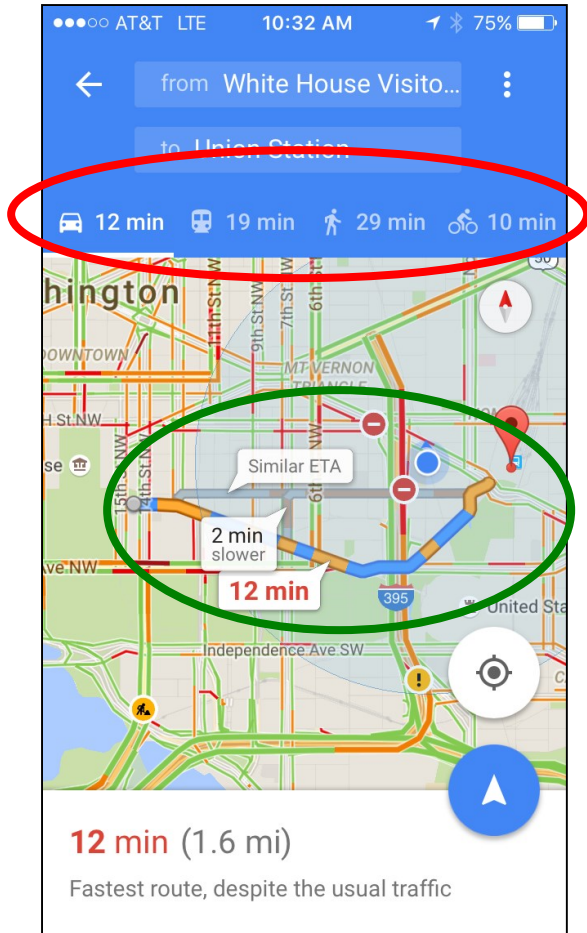
Regional Integrated Transportation Information System (RITIS)
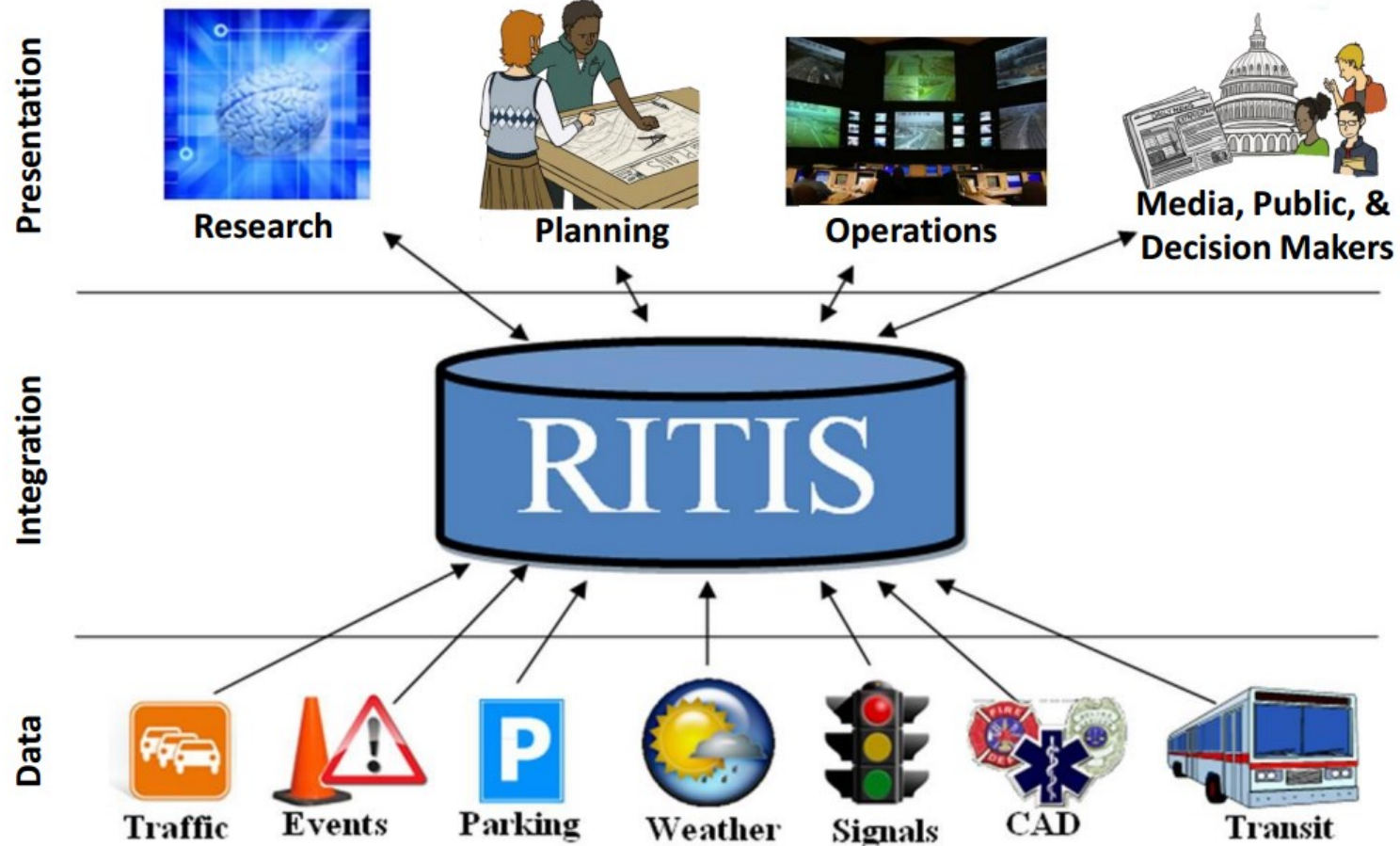
Source: CATT Lab, University of Maryland

Transportation Mobile App Examples

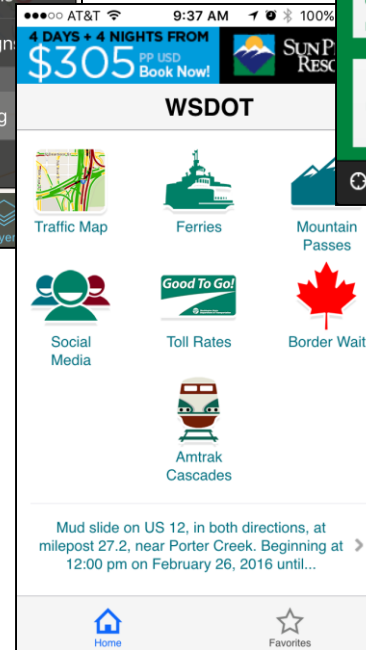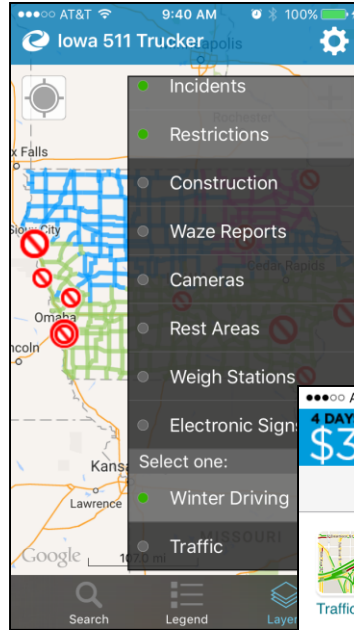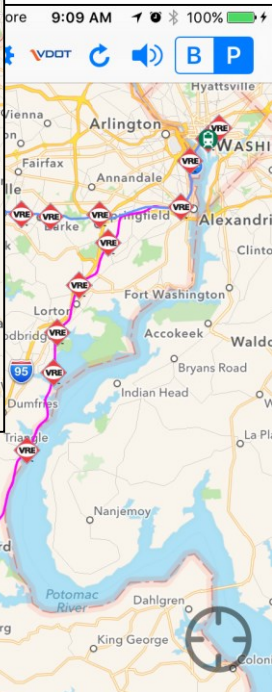# Transportation Mobile App Examples
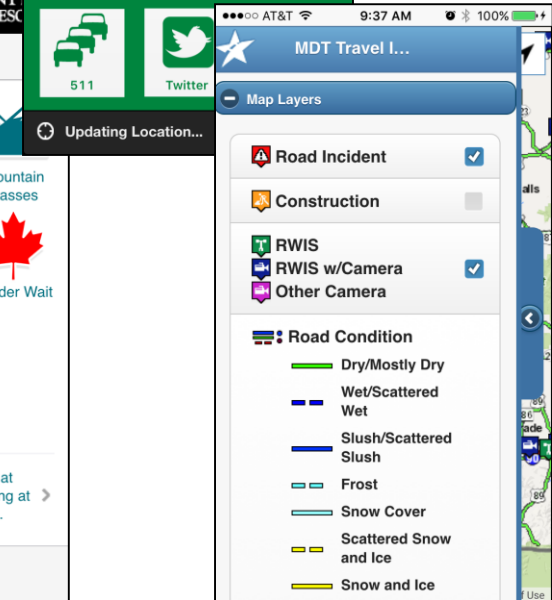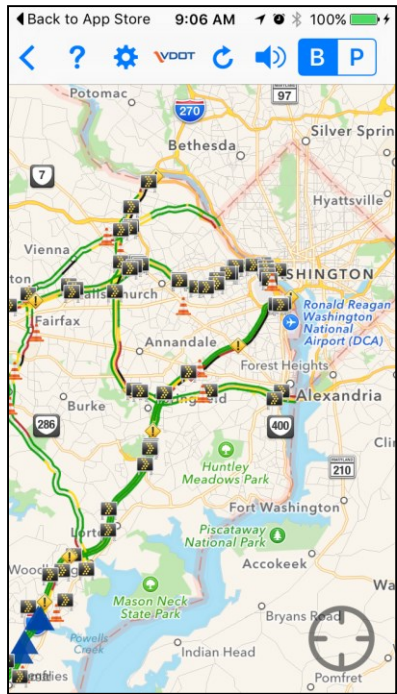
VIIC Dynamic Mobility Program

DOT Smart City Challenge

1,400 local officials, companies, academics and non-profits joined our webinars

800 people participated in our Smart City Forum

300 companies have expressed interest in partnering

77 applications received for the Smart City Challenge

5 Smart City Challenge Finalists to be announced in March at SXSW

1 Smart City Challenge Winner announced in June

ALASKA
Anchorage

OREGON
Portland

CALIFORNIA
Chula Vista
Fremont
Fresno
Long Beach
Moreno Valley
Oakland
Oceanside
Riverside
Sacramento
San Francisco
San Jose

WASHINGTON
Seattle
Spokane

NEVADA
Las Vegas
Reno

COLORADO
Denver

ARIZONA
Scottsdale
Tucson

NEW MEXICO
Albuquerque

OKLAHOMA
Oklahoma City
Tulsa

TEXAS
Austin
Lubbock

MINNESOTA
Minneapolis/St. Paul

IOWA
Des Moines

NEBRASKA
Lincoln
Omaha

WISCONSIN
Madison

INDIANA
Indianapolis

MICHIGAN
Detroit
Port Huron/Marysville

OHIO
Akron
Canton
Cleveland
Columbus
Toledo

PENNSYLVANIA
Pittsburgh

NEW YORK
Albany/Schenectady/Troy/ Saratoga Springs
Buffalo
Yonkers/New Rochelle/Mt. Vernon
Rochester

MASSACHUSETTS
Boston

CONNECTICUT
New Haven

RHODE ISLAND
Providence

NEW JERSEY
Jersey City
Newark

WASHINGTON, DC

MARYLAND
Baltimore

VIRGINIA
Richmond
Newport News
Norfolk
Virginia Beach

NORTH CAROLINA
Charlotte
Raleigh

SOUTH CAROLINA
Greenville

KENTUCKY
Louisville

GEORGIA
Atlanta
Brookhaven
Columbus

ALABAMA
Birmingham
Montgomery

MISSOURI
Kansas City
St. Louis

LOUISIANA
Baton Rouge
New Orleans
Shreveport

TENNESSEE
Chattanooga
Memphis
Nashville

FLORIDA
Jacksonville
Miami
Orlando
St. Petersburg
Tallahassee
Tampa

#DOTSmartCity
www.transportation.gov/smartcity

U.S. Department of Transportation

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USDOT Smart City Challenge

Technology Elements – Highest Priority

1. Urban Automation
2. Connected Vehicles
3. Intelligent, Sensor-Based Infrastructure

Innovative Approaches to Urban Transportation Elements – High Priority

4. Urban Analytics
5. User-Focused Mobility Services and Choices
6. Urban Delivery and Logistics
7. Strategic Business Models and Partnering Opportunities
8. Smart Grid, Roadway Electrification, and Electric Vehicles
9. Connected, Involved Citizens

Underlying Smart City Elements – Priority

10. Architecture and Standards
11. Low-Cost, Efficient, Secure, & Resilient Information & Communications Technology
12. Smart Land Use

ALASKA
Anchorage

OREGON
Portland

CALIFORNIA
Chula Vista
Fremont
Fresno
Long Beach
Moreno Valley
Oakland
Oceanside
Riverside
Sacramento
San Francisco
San Jose

WASHINGTON
Seattle
Spokane

MINNESOTA
Minneapolis/St. Paul

NEBRASKA
Lincoln
Omaha

INDIANA
Indianapolis

IOWA
Des Moines

WISCONSIN
Madison

MICHIGAN
Detroit
Port Huron/Marysville

OHIO
Akron
Canton
Cleveland
Columbus
Toledo

PENNSYLVANIA
Pittsburgh

NEW YORK
Albany/Schenectady/Troy/ Saratoga Springs
Buffalo
Yonkers/New Rochelle/Mt. Vernon
Rochester

MASSACHUSETTS
Boston

CONNECTICUT
New Haven

RHODE ISLAND
Providence

NEW JERSEY
Jersey City
Newark

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KENTUCKY
Louisville

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Brookhaven
Columbus

OKLAHOMA
Oklahoma City
Tulsa

MISSOURI
Kansas City
St. Louis

LOUISIANA
Baton Rouge
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Networked Car Challenges

- Turning Data → Information → Action
- Chicken & Egg Problem – PPP Needed
  - Vehicle and Infrastructure Investments
- Interoperability
- Mobility – Integration of Prior Silos
  - → Systems Approach
- Privacy & CyberSecurity
- Public Acceptance

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