U.S. Department of Transportation

Beyond Traffic: The Smart City Challenge

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“Beyond Traffic 2045”

The USDOT’s new 30 Year Framework for the future addresses many of the issues around Smart Cities and provides additional food for thought

Source: USDOT

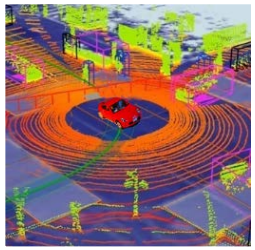
- How will we move?
- How will we move things?
- How will we move better?
- How will we adapt?
- How will we align decisions and dollars, and invest the trillions of dollars our transportation system needs in the smartest way possible?

http://www.dot.gov/BeyondTraffic

Advanced Technologies and Smart Cities

Technology convergence will revolutionize transportation, dramatically improving safety and mobility, enhancing ladders of opportunity, and reducing environmental impacts

- Connected Vehicles
- Vehicle Automation



Connected-Automated Vehicles

- Internet of Things
- Machine Learning
- Big Data
- Sharing Economy

Smart Cities

Benefits

- Order of magnitude safety improvements
- Reduced congestion
- Reduced emissions and use of fossil fuels
- Improved access to jobs and services
- Reduced transportation costs for gov't and users
- Improved accessibility and mobility

The Smart City Challenge

- Encourage cities to put forward their **best and most creative ideas** for innovatively addressing the challenges they are facing.
- The Smart City Challenge will address **how emerging transportation data, technologies, and applications can be integrated with existing systems** in a city to address transportation challenges.

The USDOT's Vision for a Smart City

- The USDOT recognizes that each city has unique attributes, and each city's proposed demonstration will be tailored to their vision and goals.
- The USDOT's vision for the Smart City Challenge was "to identify an urbanized area where advanced technologies are integrated into the aspects of a city and play a critical role in helping cities and their citizens address challenges in safety, mobility, sustainability, economic vitality, and address climate change."
- To assist cities, the USDOT identified twelve (12) vision elements that are intended to provide a framework for Applicants to consider in the development of a city's proposed demonstration without making each item a requirement for award.

USDOT Smart City Challenge

Vision Elements

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

USDOT Partners

- Autodesk
- Mobileye
- NXP
- Amazon Web Services
- Alphabet's Sidewalk Labs
- Paul Allen's Vulcan, Inc.
- U.S. Department of Energy

The Smart City Challenge

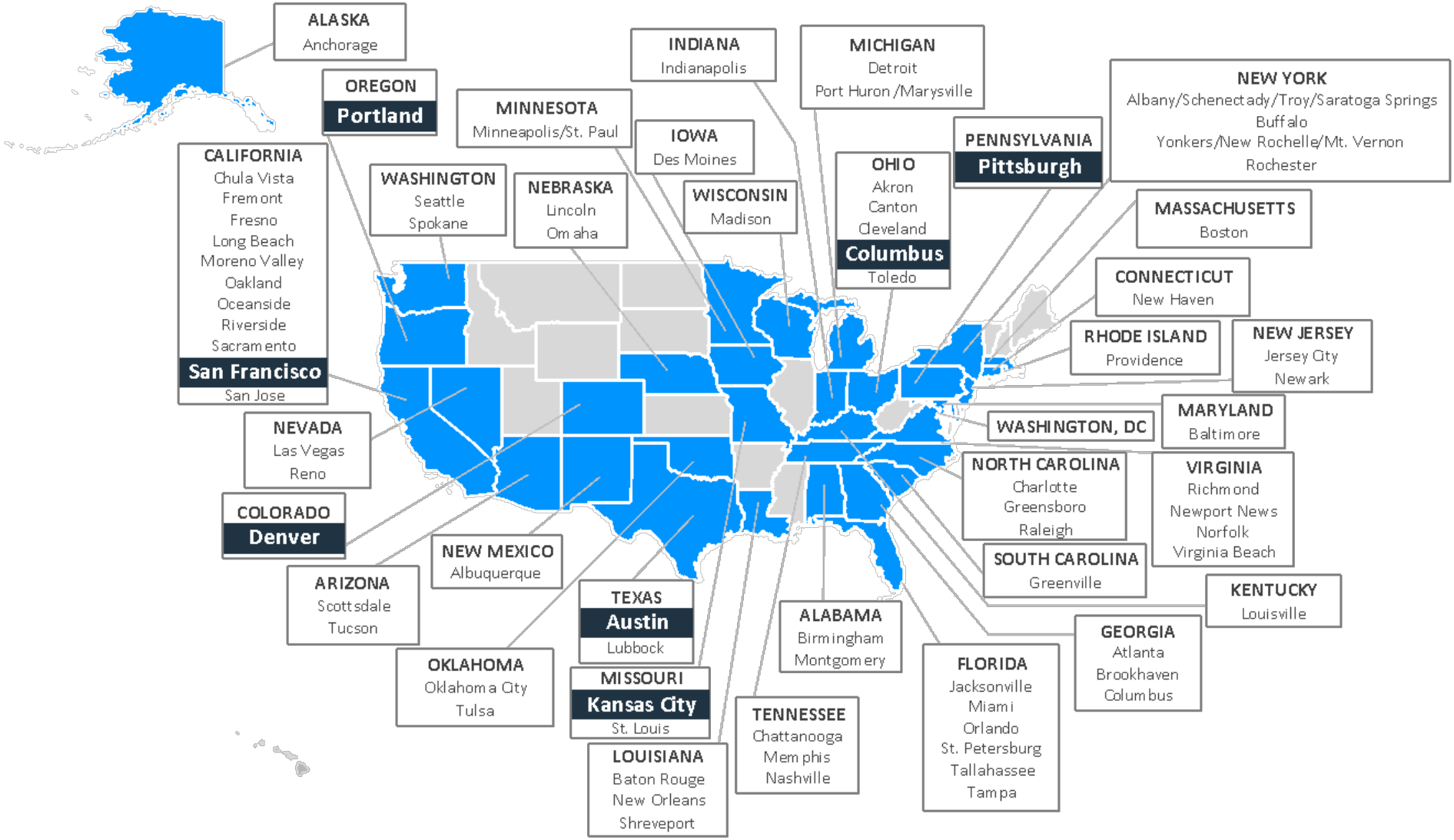
Phase 1 (Deadline February 4, 2016):

- Support concept development and planning activities
- 78 Applicants; Seven Smart City Challenge Finalists
- $100K each

Phase 2 (Deadline May 24, 2016):

- Smart City Challenge Finalists
- Support implementation of their proposed demonstration
- $50 Million
  - U.S. Department of Transportation: $40 Million
  - Vulcan Foundation: $10 Million

Smart City Challenge Finalists



Some “Challenges” Cities are Facing

1. Ensuring that all members of the community benefit from technological improvements
2. Providing first-mile and last-mile service for transit users
3. Combining and streamlining payment systems, including for those without smartphones
4. Integrating the sharing economy into a suite of mobility options
5. Enhancing trip planning services to help users make efficient choices
6. Determining the current state of travel conditions
7. Improving bicyclist and pedestrian safety
8. Facilitating the movement of goods into and within a city
9. Coordinating data collection and analysis across systems
10. Reducing inefficiency in parking systems and payment
11. Limiting the impacts of climate change and reducing carbon emissions
12. Improving traffic signal operations
13. Increasing avenues to partners & adapting to new business models

The Winning City

- Specific goals of the Smart City Challenge Demonstration include:
  - Identifying the challenges and needs of the citizen and business community.
  - Determine which technologies, strategies, applications, and institutional arrangements demonstrate the most potential to address the challenges.
  - Demonstrate, quantify, and evaluate the impact of these advanced technologies, strategies, and applications.
  - Examine the technical, policy, and institutional mechanisms needed for realizing the potential of these strategies and applications.
  - Assess reproducibility of interoperable solutions for technology and knowledge transfer to other cities facing similar challenges.
  - Follow systems engineering best practices and utilize available architectures and standards to develop interoperable, reproducible systems with national extensibility.
  - Work with Federal partners and programs focused on providing technical and financial resources for optimizing the usage of advanced and affordable clean transportation options.

Next Steps

- **Communities of Practice** will assist cities in advancing smart city strategies and concepts (e.g., connected vehicles, user-focused mobility services, etc.)
- Additional Funding Opportunities
  - **Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Grants:** $60M annually in competitive grants between 2016 and 2020 for the development of model deployment sites for large scale installation and operation of advanced transportation technologies to improve safety, efficiency, system performance, and infrastructure return on investment. http://www.grants.gov/custom/viewOppDetails.jsp?oppId=282433
  - **Mobility on Demand (MOD) Sandbox:** Provides a venue through which integrated MOD concepts and solutions are demonstrated in real-world settings. FTA seeks to fund $8M for project teams to innovate, explore partnerships, develop new business models, integrate transit and MOD solutions, and investigate new, enabling technical capabilities. **Proposals Due: 7/5/16** https://www.transit.dot.gov/research-innovation/mobility-demand-mod-sandbox-program

For More Information

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Smart City Challenge Website
www.transportation.gov/smartcity