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Advancing Smart Communities

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Smart Cities Pavilion

Dynamic exhibitions highlighting some of the world's best examples of Smart City solutions. Exhibiting communities in the Pavilion are:

- Montreal, Quebec (Canada)
- Columbus, Ohio (USA)
- Austin, TX (USA)
- Christchurch (New Zealand)
- Copenhagen (Denmark)
- Singapore

Demonstrations will illustrate how transformative transportation and integrated mobility solutions are the epicenter of Smart Cities' critical infrastructure to provide a better, more equitable quality of life for citizens with and through the themes of:

- Urban Mobility
- Engaged Citizenry
- Smart Security
- Economic Cluster
- Smart Democracy

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References



Deloitte.

Smart Cities

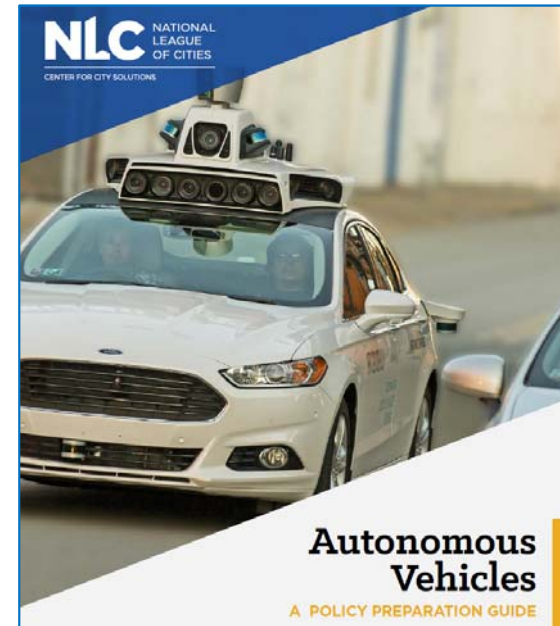
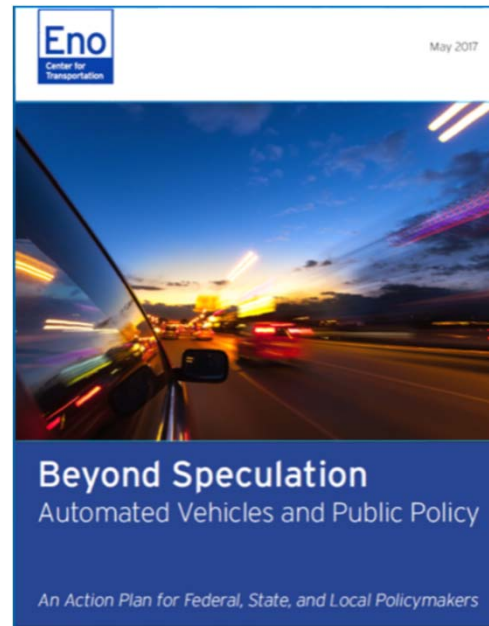
How rapid advances in technology are reshaping our economy and society

ITS  AMERICA

THE ROAD AHEAD

Intelligent and Transformative Transportation

The Next Generation of Mobility – A Public Policy Roadmap for 2017





SMART COMMUNITIES

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What do we mean with 'smart cities'?

A city is smart when investments in (i) human and social capital, (ii) traditional infrastructure and (iii) disruptive technologies fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance.

Deloitte.

Smart Cities

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What are Smart Communities?



Smart communities (SCs) are intended to create environments where more residents succeed.

SCs integrate information communications and technology solutions across 3+ different functional areas of a city.

SCs identify and solve problems by enabling smarter individual-level decisions by both city officials and residents.

Transportation is at the center of smart communities and their Internet of Things.

The transportation network and its smart sensors need to enable not just smart things but smarter decisions.





Beyond Traffic: The Smart City Challenge



Technology Elements (Highest Priority)



Vision Element #1
Urban Automation



Vision Element #2
Connected Vehicles



Vision Element #3
Intelligent, Sensor-Based Infrastructure

Innovative Approaches to Urban Transportation Elements (*High Priority*)



Vision Element #4
User-Focused Mobility Services and Choices



Vision Element #5
Urban Analytics



Vision Element #6
Urban Delivery and Logistics



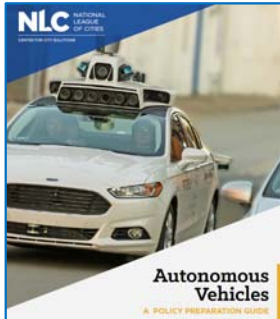
Vision Element #7
Strategic Business Models & Partnering



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



Vision Element #9
Connected, Involved Citizens



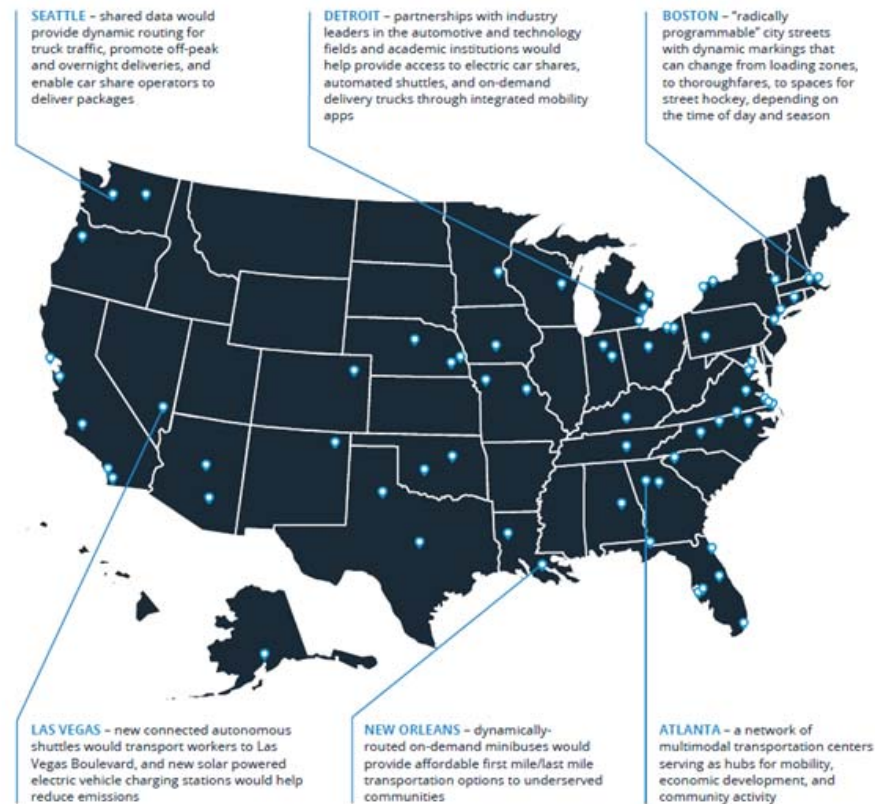
While widespread deployment of autonomous vehicles is not here yet, **nearly every major car manufacturer has set a deadline of producing fully autonomous cars by 2021**, with China's Baidu aiming for 2019 and Tesla aiming for the end of 2017.

7/15/17: Google launched Austin TX test

9/16/17: Uber launched AV test program in Pittsburgh

2017: Waymo's Phoenix area, larger fleet focuses on having individuals use them as personal vehicles (100 deployed)

Where are Smart Communities?



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Europe

Demo 10 cities by 2020

India

Plans 100 SCs; 13 fast tracked

Asia-Pacific

Expected to have 32 of the 88 SCs worldwide by 2025

China

Establishing 285 SC pilots

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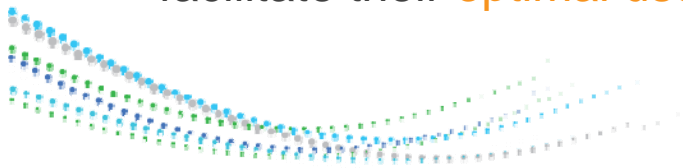
Why & How Smart Communities?



Rapid Urbanization & Climate Change are the main drivers.

Asian countries realized the need to attract private sector participation to fast track infrastructure.

US challenge is how to maintain legacy infrastructure systems & facilitate their optimal use.





Support Proposals that Integrate Federal “Smart Communities” Programs and Provide Resources Where Appropriate:

Support legislative efforts that would improve coordination of smart community programs across the Federal government. Provide State and Local governments with technical assistance and resources to help foster the deployment of smart community technologies. Support STEM education and training required for the development and operation of smart communities. Support the necessary R&D to enhance the functionality—including cybersecurity and privacy protections—of smart community technologies.

A man in a suit is seated at a large, curved desk in a modern office. He is looking at several computer monitors. The desk is equipped with a keyboard, a mouse, and a multi-line office phone. In the background, a large wall-mounted display shows a complex traffic map with red and green lines, alongside several live surveillance camera feeds of city streets. The office has large windows on the left side, letting in natural light.

TECHNOLOGIES

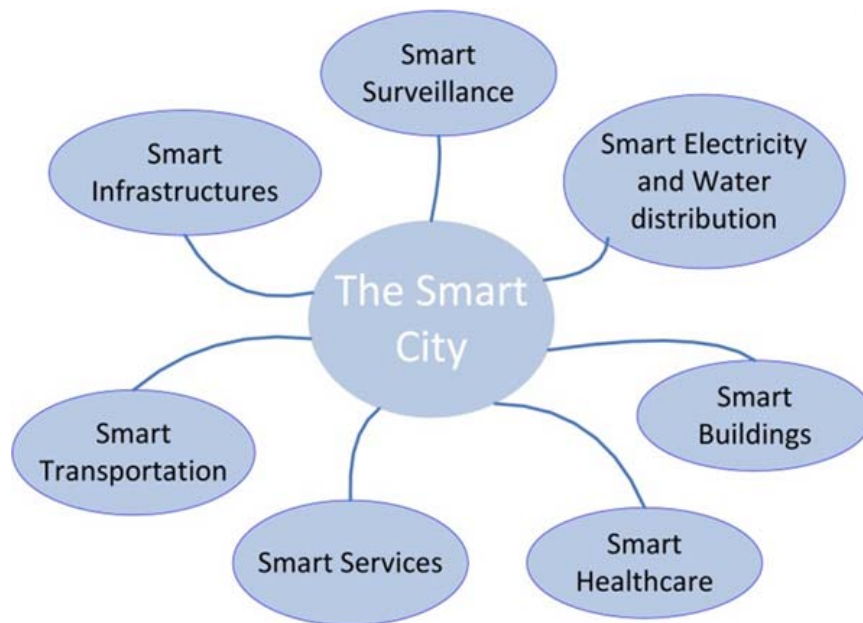
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Sensors Everywhere

Deloitte.

Smart Cities

How rapid advances in technology are
reshaping our economy and society



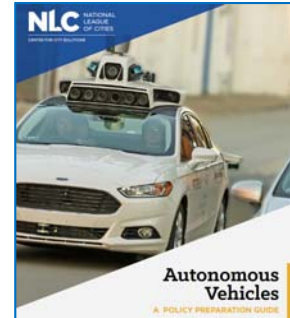
Availability of state-of-the-art open networks and digital connectivity are the foundational infrastructure of smart cities.

Smart cities require massive use of sensors.

Increasingly, vendors of objects that are used in public space will equip their products with multi purpose sensors.



The pace at which AV technology has developed and deployed has surpassed expectations and predictions. Pilot projects are operating on roadways in certain communities today.



As **new technologies mandate an increased infrastructure investment**, cities should place themselves to take advantage of these trends, ensuring that any **new infrastructure investments better position their cities to support and integrate autonomous vehicle technology.**



This will include efforts to **invest in data storage and processing capacity, sensor networks and broadband**, and ensuring that streetscapes and right of ways can best **accommodate AVs in ways that enhance the benefits for all residents.**



Establish the Foundation for the Deployment of Vehicle-to-X Safety and Mobility Communications:

Advance a Federal standard for passenger vehicle V2V and push USDOT guidance on V2I to ensure smooth deployment of Dedicated Short Range Communications (DSRC) by addressing vehicle interoperability, security, and privacy. Advance same standards for trucks and buses. Establish paths for upgrading V2V and V2X standards when next generation wireless systems, such as 5G, are deployed in telecom networks over the long term, addressing same issues as above.

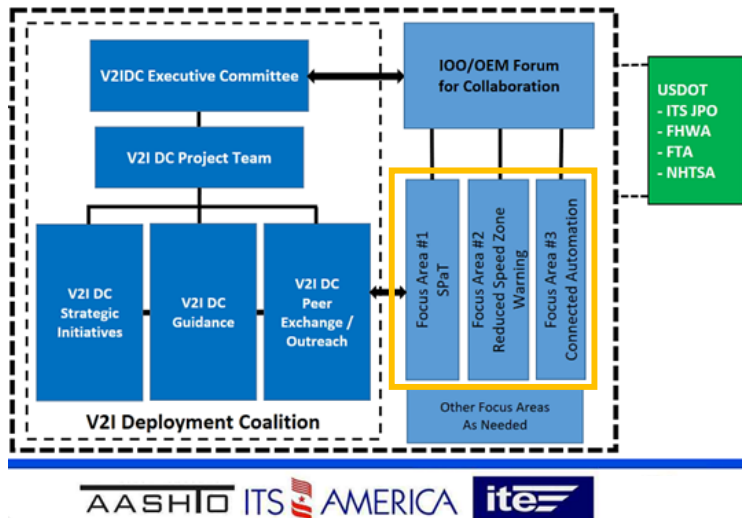
Build Broadband Infrastructure and Secure Spectrum to Support Advanced Vehicle and Transportation Infrastructure Technologies:

Include broadband networks in any infrastructure legislation, including broadband funding for rural or otherwise hard-to-serve areas. Support a technology-driven approach to spectrum sharing between Wi-Fi and DSRC that allows Wi-Fi use in the 5 GHz band, but in a way that preserves the safety and utility of DSRC without unduly burdening road users and transportation infrastructure operators..

V2I Deployment Coalition Website

www.transportationops.org/V2I/V2I-overview

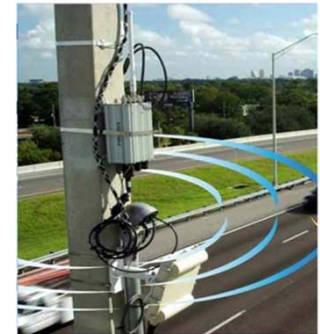
Phase 2 V2I DC Structure



SPaT Challenge Update

Challenge state and local public sector transportation Infrastructure Owners & Operators (IOOs) to **deploy DSRC infrastructure with SPaT broadcasts** in at least one coordinated corridor or network (approximately 20 signalized intersections) in each state by January 2020.

Additional V2I Applications that build on SPaT are also encouraged!



20 Intersections in 50 states by 2020!



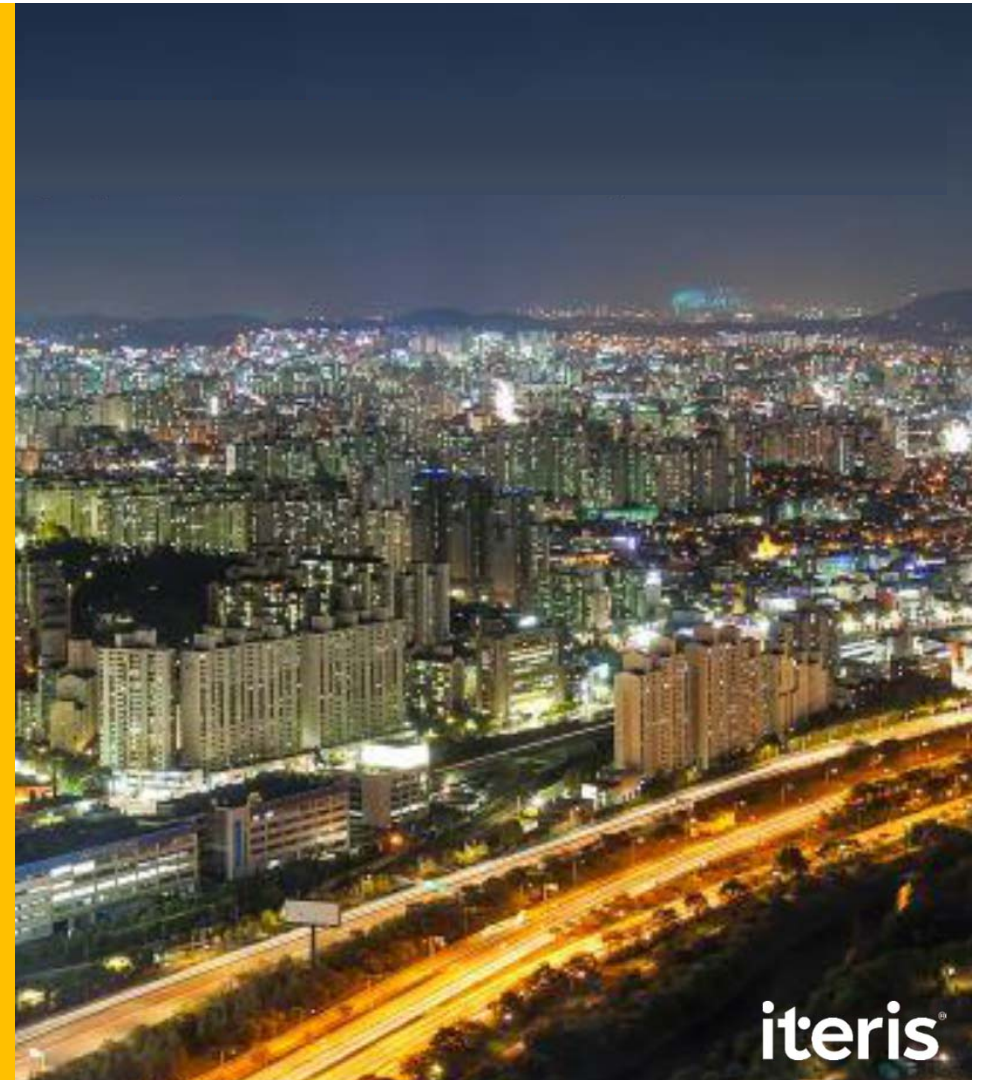
Communicate the Benefits and Facilitate Deployment of Smart Community Technologies:

To increase support by elected officials and policymakers as well as the general public, show how ITS can improve everyday life. Use the narrative to inspire and make the business and economic case for a safer, faster, more equitable, efficient, and sustainable transportation system.

Smart Communities

Five stages of information value creation:

1. Create data capture via smart sensors
2. Communicate via broadband transmission of information
3. Aggregate information from different sources
4. Analyze to discern insights leading to prescriptions for action
5. Act to maintain or change a physical event or state





Identify Innovation Champions at the Local Level and Educate Them on the Tools for Experimentation:

Encourage communities to allow Chief Technology Officers or other appropriate officials to use Other Transaction Authority, pilot programs, and similar programs to bypass onerous, time-consuming procurement procedures. Encourage the FHWA to enable better flexibility in the States by using performance level conditions measures instead of the traditional measures. Examine Federal restrictions on sole sourcing. Study means to add flexibility to communities (e.g. States, Cities, MPOs, etc.).

Thank You!

Questions?

