Testimony of Mark K. Dowd
Subcommittee on Research and Technology
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Good morning Chairwoman Stevens and members of the Subcommittee on Research and Technology. My name is Mark Dowd and I am the Executive Director of Smart Cities Lab and a Visiting Scholar at University of California Berkeley. My testimony will focus on how small towns and suburban communities can begin the journey of providing safe and efficient smart mobility solutions.

First, it is important to understand that terms like smart mobility and smart cities are commercial terms that are not intended to exclude regions, suburban and rural communities, or counties. Instead the terms represent the convergence and strategic organization of innovation, digital technologies, and data for the purpose of advancing the goals of environmental sustainability, economic development, equity, efficient service delivery, and enhanced quality of life for individuals and society. Smart cities advance innovations in public policy and administration, which foster collaboration and partnerships focused on place-based and people-oriented solutions.

In the United States, the transport sector is the largest emitter of greenhouse gas (GHG) emissions. For this reason, smart cities and smart mobility are often closely related to GHG reduction strategies and low-carbon, land-use, and transportation policies. As such, it is not uncommon for smart mobility concepts to emphasize technology solutions. In recent years, the concept of smart cities has grown rapidly as communities are increasingly challenged to intelligently and efficiently use resources in support of innovation, government efficiency, and environmental sustainability. While precise definitions of "smart city" vary, smart cities frequently leverage innovation and the use of big data and innovative mobility strategies to manage an ecosystem of civic resources, including transportation systems; telecommunications; utilities; health and human services; public safety; and other community services.

As more fully set forth in my testimony below, I suggest some best practices for communities to work together to develop smart mobility options:

1. **Resisting the Gravitational Pull of Shiny Technology-Driven Solutions**. It is hard advice to follow but communities should resist moving too quickly to implement the attention-getting solutions that may work in other cities but may not be a good fit for your community.
2. **Understanding and Defining Your Communities' Needs and Challenges**. A critical first step is to develop consensus around the needs and challenges of your community and surrounding region, and then prioritizing those challenges. It far better to select, pilot, and then implement solutions when there is consensus in the community on the problem you are trying to solve.

3. **Collaborate and Partner with a Local or Regional University**. Universities and communities may speak very different languages, but your community can overcome its lack of expertise in various subject matters if it can find mutually beneficial ways to partner with your local or regional university. There are organizations like MetroLab Networks, and grant programs like the National Science Foundation's Smart and Connected Communities, that work to bring communities and universities together to solve challenges together.
4. **Conducting Deep Community Engagement.** It may be more difficult and more time consuming, but success is directly related to conducting deep community engagement prior to implementing expensive and complex solutions.
5. **Developing Regional or State-Wide Communities of Practice**. Often smaller communities and cities lack the expertise and capacity to engage in this space. It is only through collaboration that these communities, like Livonia, can start considering the efficacy of various mobility solutions to address your communities' needs. Peer-to-Peer collaboration and the public-sector stakeholder engagement process revealed that there is a lot of interest in collaboration, identification of case studies and best practices, and development of an implementation strategy to solve a variety of challenges. Allowing communities – through their public agencies -- to engage with each other in structured and non-structured environments, outside of the typical smart cities conference environment and not in the presence of private sector vendors, would result in the immediate benefit of being able to candidly share knowledge about what works and what does not with peers in other cities and public agencies.
6. **Breaking Down Silo Barriers**. Organizational and departmental barriers stifle innovation and create inefficiencies. Breaking down organizational silos is needed to foster innovation, knowledge, and collaboration with an array of community stakeholders including public agencies, non-profits, the private sector, and others. There is an increasing recognition of the need for partnerships, and a recognition that no one organization can do everything themselves.
7. **Not All Private Sector Companies Make Good Partners**. Many of the cities that I work with are inundated by salespeople with solutions seeking problems. It is better to work with the private sector to co-create solutions to the specific mobility challenges facing your community. For example, scooters may be great in Downtown Detroit, but they may not work in all parts of your community.
8. **Preparing the Workforce for an Automated Future**. There is a lot of concern that automation will displace jobs, and concern about the vast impact this will have on citizens and cities, including through impacts on employment and economic development. There is a desire for public agencies to proactively prepare for automation and leverage the

potential positive impacts. There is also a recognition of the need for workforce development and for ensuring that training and job placement keeps up with automation.

9. **Make Transportation Affordable.** Transportation is becoming less and less affordable for those who need it most. Not every family can afford $10-$20 Uber to and from the doctor. We are approaching perfect storm of changing transportation options as new technologies come on-line, transit agencies cutting service due to resource constraints, and the spatial mismatch of affordable housing and job centers. The consequence of this perfect storm is that transportation costs are becoming a larger percentage of household budgets and transit-dependent residents are faced with fewer options.

Smart City Challenge. These best practices are the direct result of my work with cities and communities over the past four years. I am proud of the fact I was the architect of U.S. Department of Transportation's (USDOT) Smart City Challenge, and that Secretary Foxx empowered me to lead a talented team at USDOT in executing the initiative from December 2015 to June 2016. The purpose of the Smart City Challenge was to increase cities' and communities' focus on the use of integrated data, technology, and innovation as tools for solving stubborn urban challenges related to mobility. Mid-sized cities were targeted for this competition as they were viewed as the cities with the greatest need of technology solutions to the challenges of aging infrastructure.

USDOT took a different approach to grant-making by awarding the entire $40 million to a single city (Columbus) rather than allocating this funding to multiple jurisdictions. The purpose of the challenge was to encourage cities to deploy these tools to plan for increased urbanization and growth that will put a significant strain on cities' capacity to deliver basic services. Paul Allen's Vulcan Inc. joined USDOT's Smart City Challenge by committing an additional $10 million to the winning city chosen through a USDOT selection process. The Smart City Challenge represents one of the first initiatives to advance understanding of smart cities and to recognizing how strategic partnerships among public sector agencies, institutions (e.g., community-based organizations, academia), and private sector technology providers can make cities more livable, efficient, environmentally sustainable, and equitable.

Eighty-one cities submitted 78 proposals for the USDOT's Smart City Challenge (a few cities were part of larger regional submissions). The 78 applicants faced a common set of urban mobility challenges and many proposed new approaches to solve these challenges. For example, 47 cities proposed projects to test the use of automated shuttles to connect travelers to their destinations. Atlanta proposed a network of multimodal transportation centers serving as hubs for mobility, economic development, and community activity. Two-thirds of the applicants proposed strategies to employ sensors and connected vehicles in order to collect data about

travel by vehicles, bicycles, and pedestrians. Many Smart City Challenge applicants incorporated into their proposals advanced transit systems, smart parking information systems to facilitate urban deliveries, and carsharing services enabled through traveler information systems, digital kiosks, and smartphone solutions.

Smart Cities Lab. Growing out of the success of the Smart City Challenge, we stood up the Smart Cities Lab (Lab) as a city-facing organization focusing on helping communities, cities, and regions decipher and engage in innovative mobility solutions. The Lab is comprised of 12 cities that have a wide range of populations (from under 100,000 people to 4,000,000 people), different growth patterns (dense to suburban), and diverse political compositions. As the founder and Executive Director of the Lab, my mission is to find ways for cities and communities to collaborate with each other to share what works, and what does not work, in the area of smart mobility and equity. It is true that smaller communities and cities often lack the expertise and capacity to engage in this space. It is only through collaboration that these communities, like Livonia, can start considering the efficacy of various mobility solutions to address your communities' needs.

Communities of Practice. Between 2017 and 2018, the Lab collaborated with our colleagues at the Texas Innovation Alliance (Alliance) to stand up four Communities of Practice (CoP) focused on smart mobility. The Alliance, who is focused on cities and regions in the State of Texas, and the Lab shared a common member (Austin) and we worked to integrate the cities from both organizations into a single collaborative network.

The concept of "Communities of Practice" (CoP), where a group of people share a craft or profession, was first proposed by cognitive anthropologist Jean Lave and educational theorist Etienne Wenger in 1991, who theorized that communities can evolve naturally around information sharing, as well as storytelling, because of common interest in a particular area, or around deliberately creating with the goal of gaining knowledge on a topic. The Alliance and the Lab learned from their cities and regions that their public agencies wanted an agency-only peer-to-peer network that would allow them to build a trusted space to share what works, and more importantly what does not work, with each other.

The CoPs focused on four smart mobility domains: Seamless Mobility; Real-Time Data; Energy and Sustainability; and Equity and Access. As part of the CoPs, the Lab and the Alliance: (1) sought input from the participating cities on content and programming; (2) established the effort as a city-led process (as opposed to a NGO-led process); (3) identified public agency co-chairs for each of the five CoPs; (4) built a governance structure for the multi-city network; and (5) established a steering committee to oversee the CoPs.

Each CoP typically meets once a month to discuss and share information including strategies and tactics for addressing the problem statements; what works and what needs improvement; best

practices; emerging issues and technologies; and updates on various initiatives. Since the April 2018 launch, the CoPs have yielded enthusiastic participation and a potent low-cost platform to share knowledge in real time and develop trust relationships among the cities. Today, the Lab and Alliance have over 265 people participating from 68 public agencies in 21 cities.

In conclusion, small cities and suburban communities can and should deploy smart technologies to improve their ability to provide safe and efficient mobility solutions provided they follow some best practices. These best practices are based upon my working directly with and for cities over the past four years.

Thank you, committee members and Chairwoman Stevens, for this opportunity to provide my testimony today.

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Mark K. Dowd is the founder and Executive Director of Smart Cities Lab, a nonprofit that provides a venue for cities to share what works and partner with the innovation community to forge new solutions to their stubborn challenges. He is also a Visiting Scholar at University of California Berkeley where he is working with cities to find innovative ways to accelerate the adoption of new mobility technologies. Mark also serves on the Urban Air Mobility Strategic Advisory Group.

Prior to starting Smart Cities Lab, Mark served several different roles in the Obama Administration. He was a Senior Advisor in the White House Office of Management and Budget and a Senior Advisor in the White House Council of Environmental Quality. Mark also was a member of President Obama's Hurricane Sandy Task Force and served for three years as a senior member of the President's Auto Task Force, where he worked on the historic restructuring of General Motors and Chrysler.

Mark also served as a Senior Advisor to U.S. Department of Transportation's Secretary Foxx and a Deputy Assistant Secretary for Research and Technology where he worked on issues related to technology and innovation. Mark is the architect of the Smart City Challenge that fundamentally changed the way American cities approach mobility.

He received the U.S. Environmental Protection Agency's Gold Medal as well as awards from the Department of Justice's Environment and Natural Resources Division, the U.S. Attorney's Office (Southern District) for his work on the GM and Chrysler bankruptcies, and the U.S. Department of Transportation for creating and executing the Smart City Challenge.

Mark's nongovernmental service includes the Director and Assistant General Counsel at the Association of Global Automakers where he worked on policy development for advanced vehicle technologies. Mark practiced law for thirteen years in New York City at the law firm of Schulte Roth & Zabel, specializing in transactions, restructuring, litigation, and regulatory matters as they relate to environmental and energy issues. Mark attended Rutgers College and Seton Hall University School of Law.