



CREATING A REPLICABLE SMART CITY MODEL FOR SMALLER CITIES

GARY MCCARTHY, CITY OF SCHENECTADY

As Mayor of Schenectady, a small city in Upstate New York, I know firsthand the challenges cities face in deploying new and necessary technology within our budget constraint. In the world of fast paced, connected systems, small to medium-sized cities are struggling more than ever to incorporate new technology and infrastructure for their citizens at a rate that can be sustained with informed, long term investment strategies. Streamlining city processes and enabling city-wide collaboration can be an extremely difficult process.

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Cities must also deal with increasing complexities: the need for efficiency standards across departments that utilize different data for decision making; resource demands of citizens, businesses, and city operations; increasing status quo of what businesses need to attract new jobs in innovative fields; and, budgetary constraints that minimize purchasing potential of new technologies that could aid in solving city wide issues. These are just a few variables among many that the City of Schenectady is working to address as we work towards a replicable smart city model - a model in which cities our size can begin to tackle the challenges of incorporating intelligent city processes at a rate that offers the return on investment necessary to make these initiatives a reality.

The City of Schenectady's roughly 66,000 residents rely on our interconnected ecosystem every day to live, work, and thrive. Small and medium-sized cities deal with many of the same issues large cities do such as traffic management, resource constraints, safety and security concerns, and the need for continuing economic growth. Although we deal with these issues on a relative scale to our population, it is important to realize that much of the urban growth seen in recent years is in small and medium-sized cities like Schenectady.

From recent estimates, nearly half of the world's urban dwellers reside in urban communities with fewer than 500,000 residents. According to the 2010 US Census, the majority of the US population lives in smaller, non-rural communities.

Following the private sector's increasing focus on the IoT (Internet of Things) and the IoE (Internet of Everything), cities all around the globe are beginning to turn to new systems and applications that promise millions in savings or revenue, and improved livability of communities. Soon, the implementations these cities make today will become a new standard for well performing cities tomorrow. Small to medium-sized cities need to find innovative ways to create real savings and benefits for their citizens while facing the daily budget and resource crunch. An environment rich in innovation and creativity is necessary to ensure a strong future for our urban centers: adapt or be left behind.

This is where Schenectady sees opportunity. We created the *Schenectady Smart City Advisory Commission*, which brought together public and private sector leaders from various fields. They created a roadmap which helps guide our decision making by identifying 10 key pillars of smart city progress for our local community. We have also been working on various projects that incorporate smart city ideals into existing departmental functions such as multiple street lighting and infrastructure pilots, routing software and fleet management processes, sustainability and resiliency initiatives, citizen engagement programs, government efficiency and standardized information practices that help deter urban blight, clean fleet initiatives and collaborations with private and public sector partners across many industries. These initiatives all come together to form a continuously evolving project pipeline that we use to help us determine where to invest our time and resources next.

In the case of our street lighting and infrastructure pilots, we have replaced current HID lighting in our downtown area with Smart LED lighting technology, video technology, sensor placement and Wi-Fi deployment. With a total of 38 lighting fixtures replaced, and 13 video cameras equipped with analytic capability, this pilot project allows the City to start collecting and researching data to further prove the benefits of a city-wide street lighting and infrastructure re-haul. Using data collected from this pilot, we have determined the City can save over \$370,000 in energy costs per year solely from lighting upgrades.

Our next step will be to build on this pilot with the same technology in a neighborhood business corridor. Deploying this 21st century infrastructure will help us improve public safety, enhance a major park development program, and support school and youth programming at a local elementary school, a middle school, and a new Boys and Girls Club.

Working alongside local businesses like Transfinder also helps pave the road for private-public partnerships that offer mutual benefits to our citizens by increasing the effectiveness of city services. Following the 2015 budget process, our City Administration began researching various options to utilize GPS tracking and fleet management software. The proposed solution involved software and routing analytics from Transfinder as well as a GPS tracking system and preventative maintenance analytics from Zonar. The resulting pilot program utilizes electronic record keeping for City vehicle maintenance and status updates, real time diagnostic information, and intelligent and responsive routing. When used together, these tools have allowed the City to form a baseline to cut future costs of gasoline use, vehicle maintenance expenditures, idling costs and unnecessary miles driven.

The key themes to each of Schenectady's Smart City projects have been creating broad partnerships to ensure community engagement and success, data driven governance to prove return on investment, efficient use of resources, and willingness to try new ideas and share information to create synergy and develop new best practices. Embracing a culture of innovation has been difficult at times; however, collaborating with innovation hubs, such as the recently opened Electric City Innovation Center, helps us stay connected to an entrepreneurial community that constantly brings new ideas to the table, changing the way we think about providing more efficient government services.

As we have seen with this collaboration, people from all sectors, industries, ages and backgrounds gather together to learn about city operations and find ways to positively affect citizens' lives behind the scenes. Their efforts combine with ours to foster a growing ecosystem of innovation focused on bringing new technology and business to our community.

We realize that many of the projects we are working on are not in and of themselves revolutionary, however we believe it is vital to take steps forward. Instead, like many other cities our size, we are looking for ways to improve the delivery of services that show tangible results for our residents and pave the way for future investments. Through building partnerships, tracking data, and investing in multiple strategies, we have seen diversified success and savings that show a new replicable smart city model for small and medium-sized cities.



GARY MCCARTHY has served as Mayor of the City of Schenectady since 2011. McCarthy also previously served on the Schenectady City Council, the Schenectady Municipal Housing Authority, Schenectady Industrial Development Agency, and Metroplex, where he helped bring a new focus on economic revitalization. As Mayor, Gary has stabilized the City's finances by reducing the tax levy and improving the City's bond ratings. McCarthy co-chairs the Center for Economic Growth's Capital Region Local Government Council (LGC), serves as Second Vice President of New York State Conference of Mayors' Executive Committee, and was one of the first mayors in the nation to complete the Mayors Challenge to End Veteran Homelessness.