



SCHENECTADY

INTEGRATING *Innovation* IN GOVERNMENT



Envisioning a Smart City Dashboard

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Schenectady Smart City Dashboard
LEED for Cities



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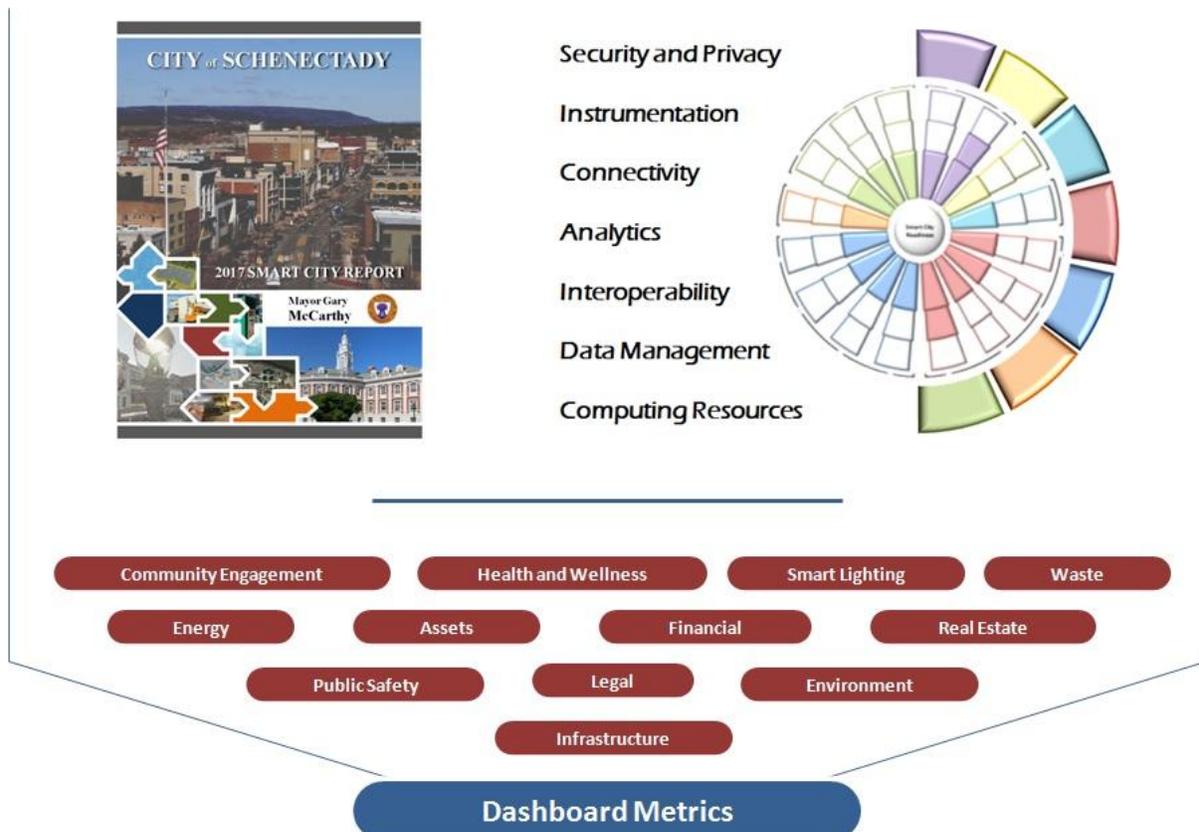
Schenectady Smart City Dashboard

Municipal Resources in Motion

Public engagement, environmental sustainability, and lasting infrastructure are only a few of the things cities like Schenectady need to take into consideration when determining how to measure effectiveness of services provided. Identifying methods to quantify variables from municipal operations and incorporate them into the decision making process is a primary focus.

Dashboard Development

The broad concept of Smart Cities is centered on sustainability, efficiency, and improved quality of life by utilizing new technology and innovative methods of problem solving. It focuses on finding solutions to typical problems through a new lens by understanding that the future of local government's role in its community heavily relies on the increased use of proactive methods of resource management. Utilizing information and reporting methods from existing initiatives, city-wide data can be used to create visual tools to identify strengths, weaknesses, and areas for improvement. The City is now developing a Smart City Dashboard to help with this effort: the goal of this dashboard is to allow the City to concisely observe dozens of variables across all departments to identify underlying trends to more effectively manage resources. Key themes from Smart City initiatives will create the foundation for this dashboard.



Dashboard Indicators

Variables identified to be part of the first iteration of this dashboard include the following:

CATEGORY	METRIC	UNIT(s)
Energy	Buildings / Infrastructural Assets	kWh, Therms, mtco2e, USD
	Vehicles / Other Assets	kWh, gal, mtco2e, USD
Assets	Repair / Maintenance Costs	No, USD
	Asset Types	No, USD
	Asset Efficiency Reports	kWh, gal, hrs, USD, % eff
Financial	Parking Enforcement	No, USD, % type
	Permits	No, USD
	Water/Sewer Accounts	No, USD
	Waste Collection Accounts	No, USD
	Taxes	No, USD, %
	Parks / Facilities	No, USD, %
	Funding / Aid	No, USD
Infrastructure	Materials	ton, USD
	Inspections / Upgrades	ft, USD, %
	Roads / Sidewalks Paved	mi, USD
	Parking	No
Real Estate	Property Sales	No, USD, % type
	Vacant Property	No, USD, % type
	Demolitions	No, USD, % type
	City-wide Property Types	No, % type
Waste	Solid Waste Collected	ton
	Single Stream Recycle	ton, USD
	Waste Water Treatment Plant Operations	ton, mgal
	Street Sweeping Collected	ton, mi
Community Engagement	Website Analytics	No, % type, other
	Public WiFi	No, GB
	Online Municipal Payments	No, USD, % type
	Online Citizen Requests	No, % type
Health and Wellness	City Events / Challenges	No
	Age Coefficients	No, y/o, %
	Retention Rate	yr, %
Legal	Operations Overview	No, USD, % type
Public Safety	Crime	TBD
	EMS / Fire Response	No, % type
	Traffic Incidents	No, % type
Smart Lighting	Streetlight Sensors	lx, lm, F°, C°, mph, count, dB, other
Environment	Regional Weather	F°, C°, in

LEED for Cities

Background

LEED for Cities is a pilot program created by the U.S. Green Building Council designed to demonstrate a city's commitment to sustainability, human health and economic prosperity through certification. The program provides a globally consistent framework that evaluates a city based on metrics and outcomes as a result of current efforts and activities. Cities participating in the program use Arc, a digital performance platform, to benchmark, track and monitor water consumption, energy use, waste, transportation and human experience. Arc generates a performance score out of 100 and enables cities to educate residents, visitors and business owners about progress and priorities. LEED for Cities participants are working to create smarter cities that improve quality of life and sustainability performance.



LEED for Cities demonstrates economic, environmental and social responsibility:

- Tracking performance in Arc allows cities to compare and benchmark progress against regional and global averages;
- Show a commitment to a higher quality of life by focusing on improving air and water quality, reducing pollution and CO2 emissions, and demonstrating resident equity and engagement;
- Leverage certification to attract business, residents, visitors, talent and investments
- Support climate action goals and build sustainability awareness.

Arc delivers a single platform for data and reporting:

- Supports carbon emissions and sustainability reporting;
- Evaluates safety and security efforts;
- Communicates city/community sustainability goals and performance; and
- Increases stakeholder engagement in city planning and enables external sharing of initiatives.

Cost effective program:

- Provides access to a data platform that interconnect departments;
- Assimilates vision and goals from departments;
- Tracks actionable plans and projects; and
- Assesses hundreds of parameters to track performance.

Performance Indicators

The performance based certification measures outcomes in the following categories:

CATEGORY	METRIC	UNIT
Energy	1. Greenhouse Gas Emissions (CO ₂ equivalent)	Tons/Year/Person
Water	2. Water Consumption	Amount/Year/Person
Waste	3. Municipal Solid Waste Generated	Amount/Year/Person
	4. Municipal Solid Waste Diverted from Landfill	% of Total Amount Collected
Transportation	5. Distance Traveled in Individual Vehicles Daily	Distance per Day
Human Experience		
Education	6. Population with (at least) a High School Degree	% of Population 25 Years And Over
	7. Population with (at least) a Bachelor's Degree	% of Population 25 Years And Over
Equitability	8. Median Gross Rent as % of Household Income	%
	9. Income Differential/Gini coefficient	Number between zero (0) and one (1)
Prosperity	10. Median Household Income	US Dollars per Year
	11. Unemployment rate	% of Population 16 Years And Over
Health & Safety	12. Median Air Quality Index (AQI)	Number between zero (0) and 500
	13. Air Quality Days Unhealthy for Sensitive Groups	Number of Days between (0) and 365
	14. Violent Crime	Per capita per Year

To generate a performance score in Arc, participants input data across five categories and provide additional information to achieve points to increase the base score.

- 40-49 is Certified
- 50-59 is Silver
- 60-79 is Gold
- 80-100 is Platinum

Overlap and Comparison

LEED for Cities and the Schenectady Smart City Dashboard have similar goals; measure and track city performance and resource use indicators to empower city officials with information that can help improve sustainability, quality of life, economic development and citizen engagement in their respective communities.

Focus areas like energy, water, waste and public safety have common metrics in both systems and are a great starting point to understand how these two models can benefit from the other. In the case of energy, one main purpose is to determine how much energy (kWh, therm, etc.) a city is using to run its operations and in what specific way is that energy used to deliver services provided. By narrowing in on the detailed use of varying assets (buildings, vehicles, other), cities can identify ways to reduce energy use through effective resource management practices. The data collected in both approaches can help identify ways to create positive outcomes, such as:

- Developing methods to right-sizing municipal fleets
- Implementing building upgrades to reduce communities' greenhouse gas emissions
- Identifying ways to help citizens actively engage in city operations
- Creating complete street visions that incorporate various methods of transportation
- Engaging community support to increase recycling and reduce waste

