

Smart City Roadmap 1.0

City of Saratoga Springs, NY



Saratoga
Springs
("Smart City")

NYSTEC
YOUR INDEPENDENT TECHNOLOGY ADVISOR



Realizing the Smart City Vision

As the Commissioner of Finance, and as an information specialist and librarian, the notion of a smart city struck a chord with me. What makes a city “smart”? What are the opportunities and challenges to realizing a vision for a smart Saratoga Springs?



Connectivity is key. Internet access at globally competitive speeds is no longer an optional luxury. In other words, broadband has become an essential resource—no different than any other utility—for residents, businesses, service providers, and government. For Saratoga Springs to become a smarter city, we must do more to make the internet accessible at faster speeds throughout the city. And we must work together so that individual smart city projects act in concert, with the goal of empowering all citizens to succeed. Becoming a smarter city will promote efficiency, economic development, and equality.

After establishing a Smart City Commission, the City of Saratoga Springs partnered with NYSTEC, a local not-for-profit technology advisor, to work with us to create a consensus, embracing initiatives aimed at improving the quality of life for everyone in Saratoga Springs. The result is this roadmap, which I am pleased to share with you.

Saratoga Springs is the proud home of a socially and environmentally aware community. As we move forward, I welcome you to examine the smart city initiatives presented in this roadmap, and to reach out to the sponsors who are championing the projects that resonate with you. Working together, great things can be accomplished.

Best,

A handwritten signature in black ink that reads "Michele Madigan". The signature is fluid and cursive.

Michele Madigan

Commissioner of Finance
City of Saratoga Springs, NY

Empowering Community Success

At NYSTEC, we strive to empower our clients' success. And when those clients, in turn, empower the success of their local communities, we could not be prouder.



Partnering with the City of Saratoga Springs to establish a smart city vision is not just important work. It's also deeply personal for those of us who have close ties to the city. We asked: What would a "smarter" Saratoga Springs look like? How do we get there? What challenges do we face—and how do we overcome them?

The answer to these questions is the Saratoga Springs Smart City Roadmap. It is not just a vision of future growth, innovation, and sustainable success but also a consensus on how to best realize this vision. The roadmap is a plan—short, medium, and long term—of how to transform the Saratoga Springs of today into a smarter city. We are working toward unlimited residential broadband, ubiquitous public Wi-Fi, sustainable energy, state-of-the-art transit, and much more.

The key driver of this roadmap is the Smart City Framework, which includes 17 initiatives as well as related projects that are in the planning stage or already under way. You'll learn more about these initiatives, including who is leading them—so if you want to get involved, you'll know where to begin.

Thank you for your interest in a smarter Saratoga Springs. I encourage you to explore the promise and possibilities of what it means to be a smart city—and to join us on this path of growth, innovation, and sustainable success.

Best,

A handwritten signature in blue ink that reads "Michael Walsh". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

Michael Walsh
President & CEO, NYSTEC

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Executive Summary

In February 2016, a Smart City Commission was created to help set Saratoga Springs on a path to becoming a smarter city. After partnering with NYSTEC,¹ the City of Saratoga Springs and Smart City Commission kicked off the Smart City Project and established its vision for a smarter Saratoga Springs. The project culminated with the publication of this roadmap, which introduces the Smart City Framework and lays out short- and long-term actionable strategies.

The framework, which was developed with the input of citywide stakeholders, supports the Saratoga Springs Smart City Vision. There are five domains in the framework: Better Public Services, Connected Community, Education & Training, Environmental Innovation, and Intelligent Infrastructure. These domains are aligned with the guiding principles of the 2015 Saratoga Springs Comprehensive Plan.

The main focus of this roadmap is on the five domains and their corresponding 17 initiatives as well as related projects, many of which are either already under way or are in the planning stage.

¹New York State Technology Enterprise Corporate (NYSTEC) is a not-for-profit, independent technology advisor headquartered in Rome, NY, with offices in Albany and New York City.



Background: A Roadmap to Tomorrow

City of Saratoga Springs Comprehensive Plan

Many cities have a comprehensive plan that presents a vision of the city, provides a strategy for realizing that vision, and sets policies for the growth and development of specific geographic areas. Saratoga Springs adopted its Comprehensive Plan in 2001 and updated it in 2015.

Guiding Principles

The City of Saratoga Springs 2015 Comprehensive Plan includes four guiding principles: Economic Strength & Stability; Environmental Health & Resiliency; Transportation & Mobility; and Community Character. These guiding principles will serve as a beacon as Saratoga Springs implements its smart city strategy.

The Smart City Commission

In February 2016, Saratoga Springs Commissioner of Finance Michele Madigan announced the formation of a Saratoga Springs Smart City Commission comprising a diverse community membership, with the goal of helping set Saratoga Springs on a path to becoming a smarter city.

Teaming for Tomorrow

The City of Saratoga Springs partnered with NYSTEC, an independent technology advisor, to form the Smart City Project Team. Working closely with the Smart City Commission, the project kicked off in March 2016.

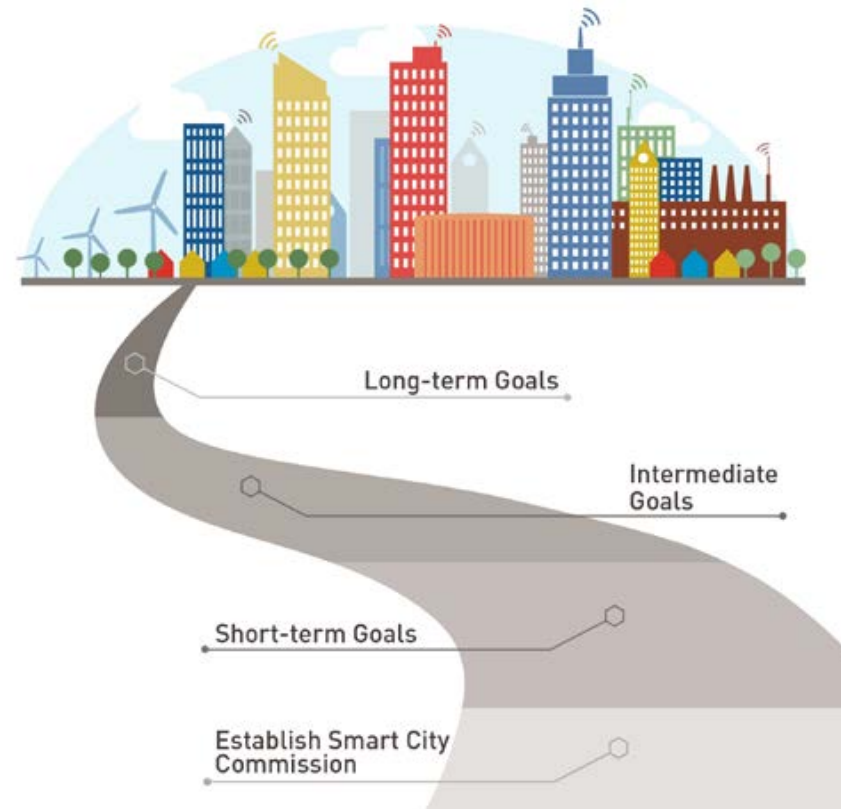
As of September 2016, the following individuals served on the Smart City Commission:

Lynn Bachner, City of Saratoga Springs
Bill Duffy, Skidmore College
Don Flinton, Saratoga Springs Public Library
Todd Garofano, Convention & Tourism Bureau
Paul Gasparini, Member at Large
Tim Holmes, Member at Large
Kim Ireland, National Grid
Matt Jones, Saratoga County Chamber
Kevin Kling, City of Saratoga Springs
David L'Hommedieu, Saratoga Springs City School District
Michele Madigan, City of Saratoga Springs
John Mangona, Saratoga Hospital
Chris Markham, SUNY Empire State College
Tom Newkirk, Convention & Tourism Bureau
Todd Shimkus, Saratoga County Chamber
Chris Thompson, Technology Business Owner, Saratoga Springs
Martin Vanags, County Prosperity Partnership
Matt Veitch, Saratoga County
Art Ware, Member at Large

Setting the Direction: The Roadmap Approach

To get from the city of today to the city of tomorrow, there needs to be a roadmap, or strategy. The Smart City Project Team followed this approach:

- 1. Establish a smart city vision for Saratoga Springs**
- 2. Recognize existing community plans along with new values and interests**
- 3. Conduct in-depth interviews with key stakeholders**
- 4. Research existing broadband infrastructure availability**
- 5. Evaluate smart city initiatives and funding streams from other cities**
- 6. Raise awareness of Saratoga Springs' smart city initiatives**
- 7. Deliver the Smart City Roadmap for the Saratoga Springs community**



Saratoga Springs Smart City Vision

What is a smart city? It is dependent on technology but it is not defined by that technology. A smart city is an information hub that empowers citizens, supports businesses, and inspires community innovation.

A smart Saratoga Springs will embrace new, creative solutions that ensure the City operates more efficiently, attracts and encourages businesses, and improves overall quality of life—all while leveraging and enhancing its unique history and culture.

“This is important not only to our economic viability but also to the health, safety, and welfare of our citizens and visitors.”

– MICHELE MADIGAN
SMART CITY COMMISSION CHAIR



Saratoga Springs Smart City Vision

A Smart Saratoga Springs Will...

- Be more productive and more efficient
- Provide a better experience to visitors
- Offer a higher quality of life for residents
- Stay competitive with other cities
- Encourage students to stay or return after graduation
- Drive business, open doors, and create new opportunities

To Realize This Vision, the City Must...

- Identify and maintain funding streams
- Foster an environment of cooperation, collaboration, and commitment
- Attract and retain knowledge workers
- Overcome the digital divide
- Reduce timeframes to generate results faster



The Smart City Framework

The Saratoga Springs Smart City Vision encompasses five key domains.

Better Public Services

Embracing new ideas and smart technology will improve public services throughout Saratoga Springs.

Connected Community

Making technology more readily available will empower citizens to be connected and foster innovative collaboration.

Education & Training

Providing students with greater access to technology today will help them become the knowledge workers of tomorrow.

Environmental Innovation

Coordinated efforts from private- and public-sector organizations will help promote sustainability.

Intelligent Infrastructure

Internet access at competitive speeds will enable Saratoga Springs to achieve its smart city goals.

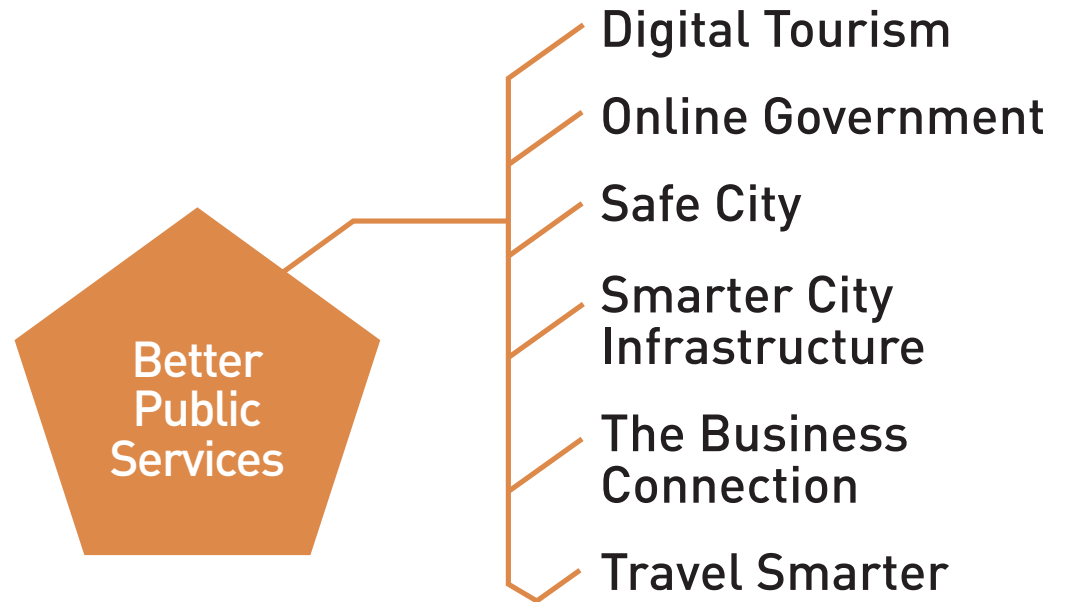




Better Public Services

Public service is the keystone of any municipality. Operating teams of well-trained personnel diligently work so that residents, businesses, and visitors have access to the services they need, from public safety to public works.

Embracing new ideas and smart technology will improve public services throughout Saratoga Springs, making them more efficient and seamless for consumers and operators alike.



DOMAIN CHAMPIONS
City of Saratoga Springs
National Grid



ViewSaratoga.com

View the Saratoga you may not know.



Saratoga Springs is a first-class tourist destination for “Health, History, Horses,” and much more. Tourism is a key component of the local economy, so it is critical that Saratoga Springs remain a prime destination of choice in Update New York. The Saratoga Convention & Tourism Bureau (SCTB) is just one example of the economic development engines of Saratoga Springs that work to promote and market the city—preparing visitors for an experience like no other!

Achievements

- The SCTB deployed an interactive mobile/web application to help visitors find their way to attractions, services, entertainment, and events.
- The City installed QR codes on replica quarter-mile posts from the Saratoga Race Course along Broadway in Downtown Saratoga Springs to provide tourist information with the click of a button.

Goals

- Support preservation efforts through Saratoga Preservation Foundation
- Community leaders to provide an even better on-street experience through Smart City Roadmap initiatives and projects (such as Public Wi-Fi, Complete Streets, and Smart Parking)



TIMEFRAME

IMPLEMENTED

- On-street QR codes
- Interactive tourist mapping (ongoing)

SHORT TERM

- Event simulcasts via drone
- Citywide app to include tourist information

SPONSOR

**Saratoga Convention
& Tourism Bureau**

As the public sector continues to empower constituents to stop waiting in line and instead transact and collaborate online, the City of Saratoga Springs wants to follow suit, moving beyond efficiencies to overall reform and development. E-government applications enhance the effectiveness of service delivery, support government procedures, and increase citizen participation—while saving money for taxpayers.

Goals

- Create a better business environment
- Improve service delivery and the social welfare of citizens
- Increase productivity and efficiency of government agencies
- Enable cost savings for taxpayers as well as government agencies



TIMEFRAME

IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none">• Basic information provisions, such as online documents (ongoing)• Automated services (ongoing)	<ul style="list-style-type: none">• Citywide app	<ul style="list-style-type: none">• Government 2.0 policies• G-government (GIS/GPS application for e-governance)

SPONSOR

City of Saratoga Springs

Saratoga Springs has approximately 12,000 homes and businesses. The population of 28,000 soars more than 250% in the summer. The Saratoga Public Safety Division is responsible for protecting residents, businesses, and visitors from crime, disorder, fire, hazards, and natural disasters. In today's rapidly changing world, it is increasingly important that the infrastructure and technology needed to support public safety initiatives are in place to support day-to-day functions.

Goals

- Ensure crime rates remain low
- Continue to make Saratoga Springs a safe environment
- Utilize technology to support first responders
- Engage the community in public safety improvements
- Increase broadband speeds to support transfer of data and other critical communications



TIMEFRAME

IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none"> • CCTV surveillance monitoring (ongoing) • Police bodysuit cameras (ongoing) 	<ul style="list-style-type: none"> • Broadband improvements (police bodysuit cameras) • Online citizen awareness and education • GPS-enabled tracking • Streamlined first-responder tools and policies 	<ul style="list-style-type: none"> • Sensor-based public safety applications • Increased use of cybersecurity tools • Public panic buttons and SOS mobile apps

SPONSOR

City of Saratoga Springs -
Public Safety Division

DPW is responsible
for the operation,
maintenance, and repair
of approximately
142 miles
of water and
80 miles
of sewer underground.

Smarter City Infrastructure

Better
Public
Services

Located on the border of the Adirondacks, Saratoga Springs averages 64 inches of snowfall and more than 40 inches of rainfall per year. The Saratoga Springs Department of Public Works (DPW) maintains the city's infrastructure, managing Saratoga's water, wastewater, transportation, landfill, fleet, environmental, and renewable power systems around the clock. Smart technology such as Advanced Metering Infrastructure (AMI) would not only cut costs but also enable DPW to work more efficiently.

Goals

- Utilize technology to improve public-works-related functions
- Enable real-time monitoring of snow plows so that citizens can find the best route to their designated destination
- Utilize AMI for real-time monitoring and cost savings
- Incorporate planned and future communications infrastructure through a notification system to local agencies and service providers about current and upcoming roadway projects



TIMEFRAME

IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none">• Roadway projects (ongoing)	<ul style="list-style-type: none">• Snow removal technology upgrades• Leaf pickup monitoring and transparent street scheduling• DPW notification system	<ul style="list-style-type: none">• Advanced Metering Infrastructure (AMI)• Citywide app and sensors for increased DPW efficiency

SPONSORS

City of Saratoga Springs; Saratoga Springs Department of Public Works; NYSDOT



As urbanization increases, businesses must also grow and adapt to efficiently provide goods and services. Leveraging smart technology will help strengthen Saratoga's business foundation and continue to support the local economy.

[illegible]

- ## TIMEFRAME

LONG TERM

- City of Saratoga Springs;
Saratoga Springs Downtown
Business Association (DBA)**

Travel Smarter

Saratoga Springs is committed to improving traffic flow and air quality, saving fuel, and reducing travel times. When technology is coupled with the needs of the community, the result is an increasingly enjoyable experience traveling in the city—for any occasion.

Complete Streets

Saratoga Springs has one of America's Best Downtowns, 94 miles of sidewalks, an award-winning Main Street, a compact urban form, and a city that has been designated a Bronze-Level Walk Friendly Community. The Saratoga Springs Complete Streets Plan smartly builds on this foundation, improves safety, connectivity, and accessibility for pedestrians, bicyclists, motorists and transit users. The Complete Streets Plan incorporates the needs of all modes of transportation and, as a result, improves the safety, health, economy, and environment of a community. Automated usage data, site visits, and community input are collected and analyzed to form an action-oriented plan that helps maintain and improve the healthy and active lifestyles currently enjoyed by Saratoga Springs residents and visitors.

Goals

- All capital projects on streets and roadways to include appropriate elements of Complete Streets for all modes of travel
- Integrate Complete Streets within ongoing infrastructure management, both public and private
- Include Complete Streets in the development review process
- Educate professional staff and residents through professional training and outreach
- Demonstrate the value of Complete Streets through catalyst projects on significant streets throughout the city



TIMEFRAME

IMPLEMENTED

- Public engagement and draft plan

SHORT TERM

- Final plan
- Implement through standalone, integration, and catalyst projects

SPONSOR

Saratoga Springs Planning Department

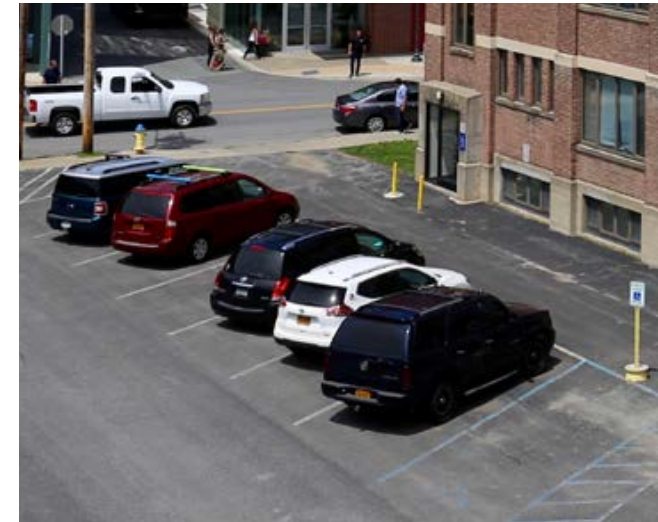


Smart Parking

Like any first-class tourist destination, the population of Saratoga Springs can mushroom on any given day. Events outside the city as well as Downtown can make it difficult to find parking. To address the parking challenge, the City plans to use traditional and smart technologies—and has already begun implementation. For example, Saratoga Springs has invested in online interactive mapping, mobile applications such as ParkMe, and traditional improvements to signage to provide clearer information about Downtown locations and to reduce congestion and confusion. Moving forward, the City will look at smarter approaches to parking, including the use of sensors, expanded broadband, and real-time parking availability through mobile devices.

Goals

- Utilize existing infrastructure and maximize existing, often underutilized, parking spaces
- Continue to monitor and understand root causes of the parking challenge
- Reduce congestion, gas consumption, and wasteful greenhouse gas emissions by getting motorists to open parking spaces more quickly
- Look to smart data, software, sensors, and mobile device integration



TIMEFRAME

IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none">• Establish Parking Task Force 1.0• Create parking apps, online and mobile (ongoing)	<ul style="list-style-type: none">• City Way-Finding program• Continued use of emerging parking technologies• Wire new parking lots to support smart parking apps and infrastructure	<ul style="list-style-type: none">• Continued investment in alternatives for motorists• Consider funding through innovative pricing and public-private partnerships

SPONSOR

Saratoga Springs Parking Task Force 2.0

Smart Transit

Saratoga Springs offers numerous transit services, both private—such as Saratoga Taxi—and public. Capital District Transportation Authority (CDTA), for example, is the premier public-transit provider in the Capital Region, offering regular route bus service, shuttle systems, and paratransit services, as well as (via subsidiaries) the Saratoga Springs Train Station and the Northway Xpress Commuter Service. For years, CDTA has led the region in the design of intelligent, efficient, and sustainable programs, such as Complete Streets design, enhanced intelligent transportation systems, and growth of alternative fuel and transportation modes. CDTA's close work with the City and County of Saratoga, residents, businesses, and community groups is mirrored in many of the City's plans and policies.



Goals

- Complete Saratoga route restructuring to improve connectivity and efficiency
- Introduce digital taxi service
- Improve trolley service
- Introduce bike share program
- Implement extensive intelligent transportation system (ITS) upgrade, including more than 20 technologies that will improve overall quality of transit in Saratoga
- Coordinate with DPW and the City's Complete Streets projects
- Expand the definition of transit and include modes from fixed transit lines to autonomous vehicles

TIMEFRAME

IMPLEMENTED

- Route restructure
- Enhance trolley service
- Digital taxi service app

SHORT TERM

- Bike share program
- ITS upgrades
- Coordination with Complete Streets projects and citywide app

SPONSORS

City of Saratoga Springs; CDTA;
Saratoga Taxi

Traffic Management

As mobility continues to grow, so does the density of vehicle movement. Traffic congestion results in massive delays, increased fuel wastages, and monetary losses. Saratoga Springs is working to improve traffic flows throughout the city so that citizens and visitors can get to their desired locations smoothly and safely.

Goals

- Offer a way-finding program to provide clearer information about Downtown locations, reduce congestion and confusion, and make the city more attractive to businesses and visitors
- Implement Complete Streets initiatives to provide a safe and accessible city street network
- Improve the flow of traffic through Downtown
- Identify opportunities for improvement in the Central Urban Traffic Control System

TIMEFRAME

IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none">• Broadway Corridor Study• LED upgrade project (ongoing)• Traffic signal replacement projects (ongoing)	<ul style="list-style-type: none">• Way-finding program (under way)• Streamlined e-government ticketing system• Traffic signal replacement projects	<ul style="list-style-type: none">• Central Urban Traffic Control System improvements

SPONSORS

**City of Saratoga Springs; CDTA;
Saratoga Springs Department of
Public Works; NYSDOT**



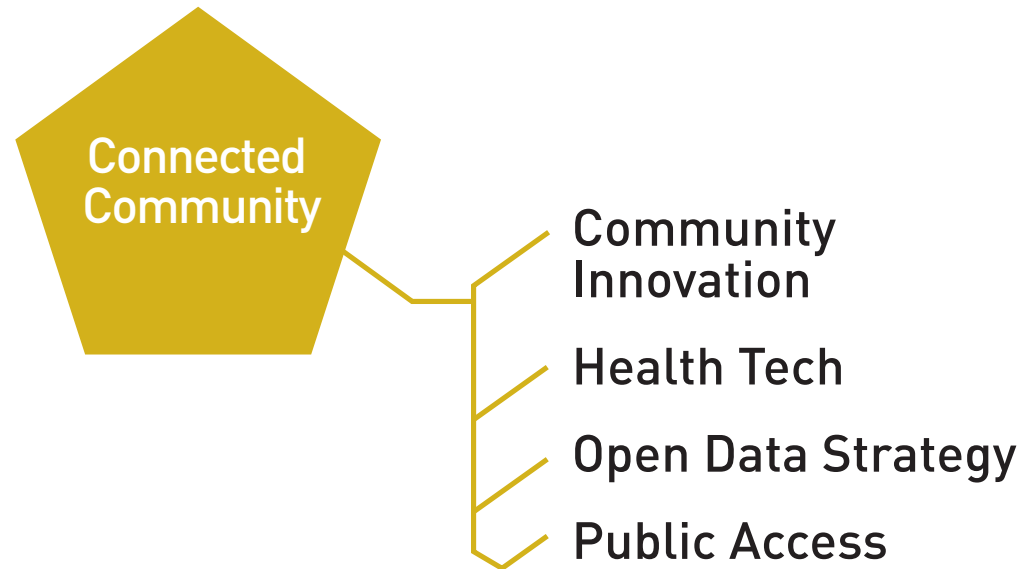
Making technology more readily available will foster innovation and accelerate economic growth.

Pictured here: Smart City Commissioner Tim Holmes at the Saratoga Springs Smart City Forum and Showcase.

Connected Community

A connected community makes technology more readily available, promotes innovation, and invests in essential public services from public libraries to hospitals. Key to the Saratoga Springs success story is its broad network of public, private, not-for-profit, and related community organizations. Together, these groups have built a community that thousands are proud to call home.

Looking ahead, a smart Saratoga Springs will build on this foundation, investing in open data and technology while also driving innovation through community groups and events.



DOMAIN CHAMPIONS

Saratoga Convention and Tourism Bureau
Saratoga Springs Public Library
Saratoga Hospital
Saratoga Chamber of Commerce
Technology Group
Community Leaders



Community Innovation

Downtown Saratoga Springs includes historic décor and buildings, restaurants, boutiques, art galleries, and museums. The city offers numerous venues for the performing arts, festivals, horse races, and health spas. But the lifeblood of Saratoga Springs is its socially and environmentally aware community—and at its heart is innovation.

Equestricon

In August 2017, Saratoga Springs will host Equestricon, the first-ever international horse racing convention and industry trade show. This inaugural event will be held at the Saratoga Springs City Center, with the goal of providing entertainment and exciting discussion in numerous formats to fans, horseplayers, and stakeholders. Activities in the planning stages include live music, a racing arcade, networking with racing stars, a social media lounge, and product and technology demonstrations.

“There is no better place for this one-of-a-kind celebration of the sport than Saratoga Springs,” says Mayor Joanne Yepsen. “We are excited to write the newest chapter in this city’s rich racing history and we are confident that Equestricon will bring together local businesses, our residents, and the larger racing community.”

Goals

- Bring together all aspects of horse racing
- Build an industry foundation to unite fans, horseplayers, and stakeholders
- Become a forum and showcase for advances in racing aftercare, technology, marketing, and fan development

TIMEFRAME

SHORT TERM

- Host inaugural Equestricon August 2017

LONG TERM

- Become annual forum and showcase for advances in racing aftercare, technology, and more

“To bring together the many facets of the horse racing universe here in Saratoga Springs, while the most popular summer meet in the country is taking place, further shines the light on racing’s most iconic and enduring destination.”

– TODD GAROFANO
PRESIDENT, SARATOGA CONVENTION
& TOURISM BUREAU
SMART CITY COMMISSIONER

SPONSOR

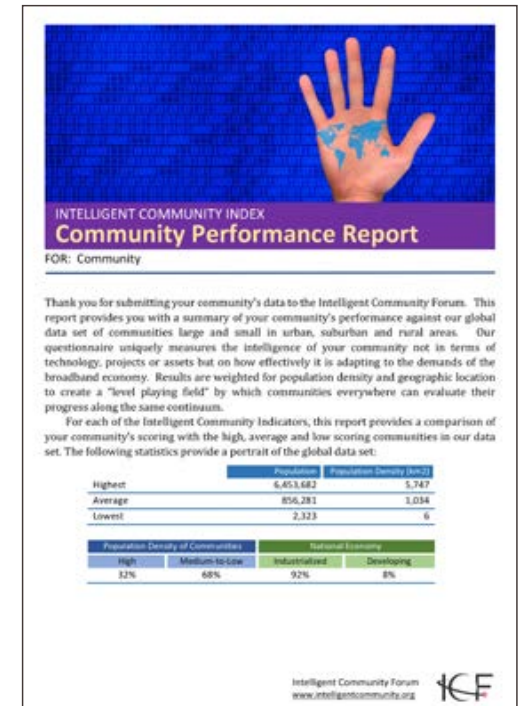
Saratoga Convention & Tourism Bureau

Intelligent Community Forum: Smart21

Every year, the Intelligent Community Forum (ICF) awards 21 cities from across the globe the opportunity to become the nation's most Intelligent Community of the Year. The ICF evaluates each city based upon six intelligent community indicators: Broadband; Knowledge Workforce; Innovation; Digital Equality; Sustainability; and Advocacy. Saratoga Springs submitted an application to the Smart21—and along the way, uncovered best practices to help forge a cost-effective path to achieving smart city goals.

Goals

- Become a model smart city, leveraging high-speed broadband services to enhance the quality of life for all residents, businesses, and visitors
- Determine cost-effective ways to implement smart city initiatives while addressing the unique needs of the citizens of Saratoga Springs
- Develop Smart City Roadmap to highlight smart city initiatives and projects currently under way or in the planning stage



TIMEFRAME

IMPLEMENTED

- Application for Smart21 submitted in September 2016
- Smart City Roadmap

SHORT TERM

- Receive and review written report comparing Saratoga Spring's performance to ICF's global data set

SPONSOR

City of Saratoga Springs

The Tech Center

Saratoga Springs has an active tech scene, fueled by an extensive network of events, organizations, and businesses. Saratoga TechTalks and Saratoga TechOUT have been leading the way, hosting regular monthly networking events for technology professionals. In addition, there are annual tech-savvy events, such as Startup Weekend, the Smart City Forum and Showcase, Startup Saratoga, and Skidmore's Kenneth A. Freirich Business Plan Competition.

Support for the tech scene comes from numerous organizations throughout the region, including the Upstate Alliance for the Creative Economy, Accelerate 518, Capital Region Innovation Hotspot, NYSTEC, and NYS Capital Region I-Corp Site Program, as well as the City itself. And startups have a wealth of opportunities from seasoned mentors, because Saratoga Springs is ranked as one of the 10 Best Places to Retire in New York.

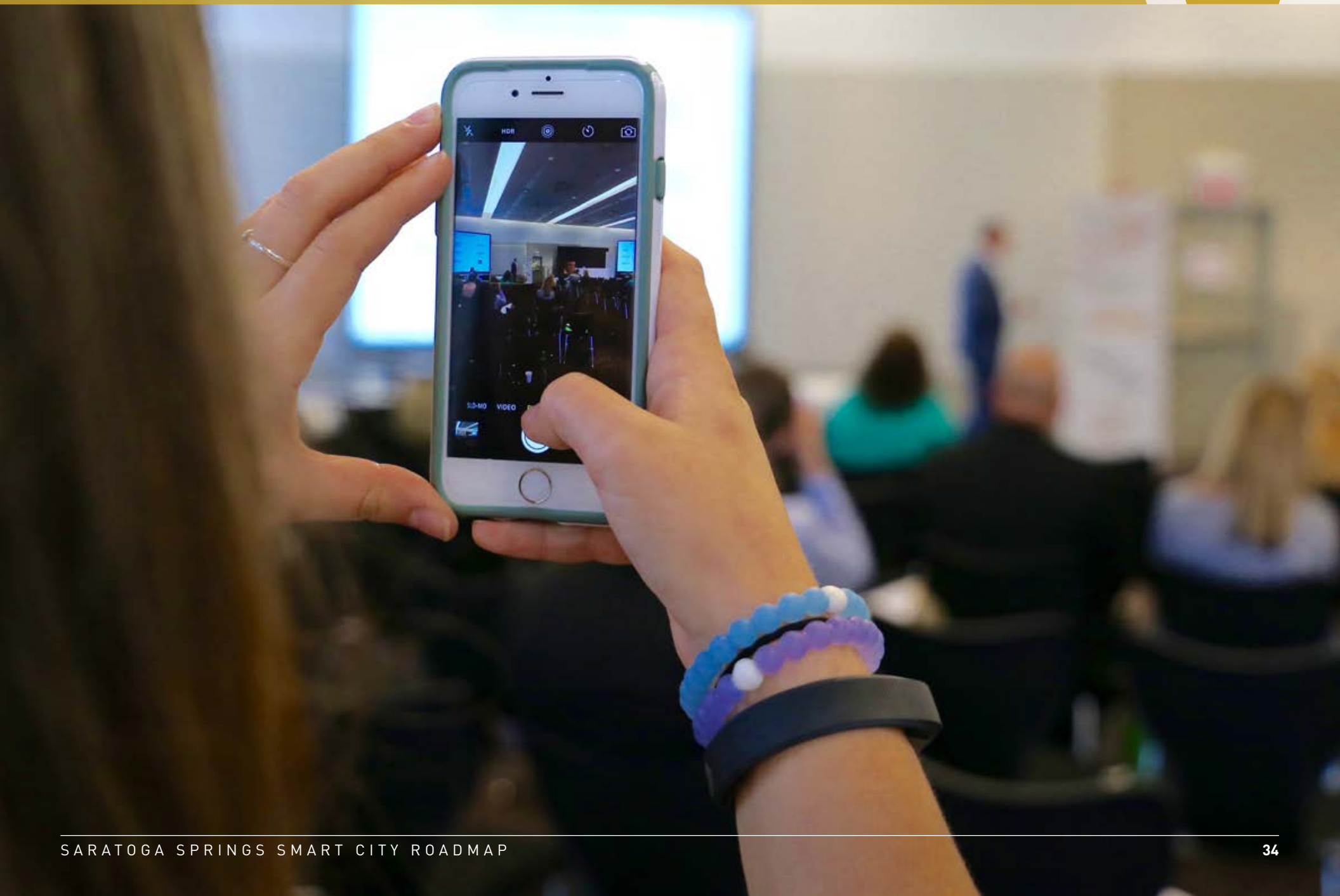
Goals

- Retain and attract top talent in business and technology by offering the resources and infrastructure required for their ventures
- Provide ongoing support for events and organizations that promote innovation, entrepreneurship, and community involvement
- Continue to foster a sense of community between individual companies
- Provide startups with underutilized space within government buildings for co-working and maker space
- Strengthen the innovation network with greater government presence and support

TIMEFRAME		
IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none">• TechOUT• Saratoga	<ul style="list-style-type: none">• Saratoga Go! apps competition• Underutilized space provided to startups	<ul style="list-style-type: none">• Greater government presence

SPONSORS

**Various organizations;
City of Saratoga Springs**



Smart City Forum and Showcase

The Saratoga Springs Smart City Forum and Showcase was held at the Saratoga Springs City Center on July 14, 2016. Nearly 200 people registered for this free eight-hour event, which was cosponsored by the Saratoga Springs Smart City Commission and the City of Saratoga Springs. Attendees spanned numerous industries and sectors, including government, energy, education, infrastructure, IT solutions, technology solutions, and communications.

The event had three components: an enterprise forum, during which speakers presented on various smart city topics and themes, such as spotlighting smart city initiatives around the globe; a broadband provider panel, which discussed how a city needs a broadband foundation to enable its residents, businesses, and visitors to leverage smart technologies; and a startup showcase, featuring innovative entrepreneurs who are delivering smart city solutions to communities.

Presentations

Presentation slides and recordings are available online² so that the public has continuous access to the knowledge and experience of smart city leaders, visionaries, and entrepreneurs.

²<http://www.igniteuny.com/smartcity/>

SPONSORS

**Various organizations;
City of Saratoga Springs**

“Information technology will continue to transform the way we deliver healthcare at Saratoga Hospital and across the nation. It will quickly link us to critical information that will advance patient care and treatments, enhance safety, improve the patient experience, and protect the patient privacy while improving the overall health and well-being of individual patients and our Saratoga community as a whole.”

– JOHN MANGONA
VICE PRESIDENT, CHIEF INFORMATION
& COMPLIANCE OFFICER, SARATOGA HOSPITAL
SMART CITY COMMISSIONER

Saratoga Hospital is a multiple-award-winning local choice for healthcare, serving the Saratoga region for more than a century. With more than 450 physicians and other medical professionals on staff, Saratoga Hospital offers care in a broad range of medical specialties. The hospital is the region's leading provider of outpatient services, from urgent and primary care to state-of-the-art imaging, pain management, diabetes care, rehabilitation, and more. It combines the latest technology with a personal, supportive approach. For example, the hospital deployed SmartBoards throughout to early identify and meet the needs of high-risk patients in the emergency department and inpatient units.

Goals

- Improve clinical quality and patient safety
- Increase clinical integration
- Smartly connect information technology infrastructure and security
- Efficiently and effectively manage business and administrative functions
- Encourage person-centered care that incents prevention, coordination, or integration of patient care

Saratoga Hospital
was named one of the
nation's Most Wired
Healthcare Providers
by *Hospital & Health
Networks* magazine.

TIMEFRAME

IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none"> • Hixny system integration 	<ul style="list-style-type: none"> • Encourage patient use of secure online patient portal • Improve PHI sharing for emergency use 	<ul style="list-style-type: none"> • Offer telemedicine options • Implement target smart technologies • Support transition to value-based payments

SPONSOR
Saratoga Hospital

“A smarter Saratoga will have a shared vision by all stakeholders. There should be a ubiquity of information and data. The network should support various applications, from charging stations to e-government.”

– CHRISTOPHER MARKHAM
CTO, SUNY EMPIRE STATE COLLEGE
SMART CITY COMMISSIONER

Open Data Strategy

Connected
Community

An often overlooked component of any smart city strategy is data. Whether it is online government transactions or a smart parking application, a city cannot get “smarter” without the data needed to make intelligent decisions. Smart cities around the world are choosing to open up the data sets they collect, especially public records. Data is an asset to any smart city, and open data policies fuel innovation.

Goals

- Identify government best practices on how to open up data
- Engage community, businesses, and other stakeholders
- Identify needs and pair with dataset assets
- Develop a plan that includes licensing considerations, availability, discoverability, and application programming interfaces
- Continuously engage with users

Over **1,375** data catalog
items containing over
160 million records
are currently accessible for
reuse across **64** government
entities and **10** categories.

– *OpenNY Annual Report*

TIMEFRAME

SHORT TERM

- Identify best practices
- Engage stakeholders
- Develop plan

LONG TERM

- Implement, engage, enhance,
and maintain

SPONSOR

City of Saratoga Springs

Public Access

Organizations from the United Nations to the Gates Foundation are investing significant resources to help close the digital divide. Saratoga Springs has the same commitment to fostering digital equality. Key to this success: a vibrant economy, a socially aware community, and a wealth of organizations, businesses, and government officials committed to making a difference.

Community Organizations

It has been said that Saratogians do not hold parties—they hold fundraisers! Residents are proud of their giving and of the extensive network of community groups that lead the cause, such as the Adult and Senior Center of Saratoga, Saratoga Reads, The Giving Circle, Shelters of Saratoga, and the Franklin Community Center. These groups work to narrow the digital divide, with the aim of closing the digital divide.

Goals

- Provide access to those who do not have computers at home
- Expand access to technology via neighborhood community centers, particularly in underserved rural neighborhoods where broadband is unavailable
- Close the digital divide while making tighter connections with community and business groups
- Utilize smart technologies to help identify and share information across organizations, institutions, and government departments

“Closing the digital divide goes beyond technology. It includes simple things like providing PO boxes to the homeless.”

– LEO GEOFFRION
VP OPERATIONS,
THE GIVING CIRCLE

TIMEFRAME

IMPLEMENTED

- Technology access via community organizations

SHORT TERM

- Expand access into select neighborhoods
- Improve sharing of data for those in need

SPONSORS

Various community groups; educational facilities; Saratoga Springs Public Library

The Saratoga Springs Public Library works to inform, inspire, and entertain Saratoga Springs while narrowing the digital divide and serving as an information hub for the community.

Library Media Center

The mission of the Saratoga Springs Public Library is to inform, to inspire, and to entertain. It provides access to the universe of knowledge through a variety of materials, programs, and services. It is staffed by more than 100 people, and approximately 50 volunteers donate about 2,200 hours of their time at the Information Desk, Local History Room, Computer Training Center, Teen Room, and in other ways.

Demand for technology-oriented programs and services at the library continues to grow. It offers access to computers and wireless internet connectivity throughout the building, as well as free computer training and classes to help citizens and visitors prepare for the future. The library will continue to narrow the digital divide while serving as a hub for the Saratoga Springs community.

Goals

- Saratoga Springs Public Library serves as a hub for anyone in need of access to technology including dedicated computer space, training, computers, printers, and Wi-Fi
- Expand programs, multi-media, technologies, meeting and maker space. Narrow the digital divide while making tighter connections with community and business groups
- Increase broadband speeds to support more advanced technologies such as live-casting for virtual meetings
- Serve as a community hub, both physical and virtual

TIMEFRAME

IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none">• Technology hub for all	<ul style="list-style-type: none">• Expand programs, multimedia technologies, and meeting and maker space• Increase broadband speeds	<ul style="list-style-type: none">• Physical and virtual community hub

SPONSOR

Saratoga Springs Public Library



Enabling learning that is active, personalized, and interdisciplinary will promote creative collaboration—and build the societal potential of tomorrow's knowledge workers.

Education & Training

Technology in education is ushering in a new model of connected teaching. Smart cities around the world are leveraging online and open educational resources to accelerate the rate of learning, reduce costs, and better utilize instructor time. For communities such as Saratoga Springs, technology supports this innovation, from online and virtual learning to flipped classrooms.

Looking ahead, K-12, higher education, and coordination between educational institutions and the Saratoga Springs community will provide students with innovative instruction, helping prepare them to become the knowledge workers of tomorrow.

Professional
Development
Smarter Schools

Education
& Training

DOMAIN CHAMPIONS

Saratoga Springs City School District

Skidmore College

SUNY Empire State College



Professional Development

Building the knowledge workforce of the future requires focus beyond the classroom. Preparing college- and career-ready students with skills and abilities that are aligned with today's and tomorrow's employers requires cooperation and coordination between K-12, higher education, businesses, and the Saratoga Springs community.

Goals

- Continued support of interrelationships that exist between K-12, higher education, businesses, and the community
- Foster coordination between the Saratoga Springs City School District and local/regional businesses
- Promote K-12 participation in community culture opportunities
- Maintain opportunities for higher education students' involvement in the community

Career Exploration and Internship Program (CEIP) is developed to fit individual student career interest. Students are required to complete at least 54 hours at the internship, during which time they learn interview tips, perform a mock interview, write resumes, and do research on the career or field they are interested in.

– Saratoga Springs City School District

TIMEFRAME

IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none">• Skidmore city/campus programs• Career Exploration and Internship Program (CEIP)	<ul style="list-style-type: none">• K-12 participation in community culture	<ul style="list-style-type: none">• Encourage and support interrelationships between K-12, higher education, business, and the community

SPONSOR

Saratoga Springs City School District

Smarter Schools

Access to technology is critical to building smarter schools. But technology by itself isn't the answer. Knowing why and how to use technology to support student learning is what matters. In Saratoga Springs, it's not about technology for technology's sake—it's about instruction.

K-12

For five of the past six years, the Saratoga Springs City School District (SSCSD) was ranked in the Top 10 out of 84 school districts in New York's Capital Region and has been the top-ranked city school district in the survey every year.

SSCSD educates approximately 6,400 students each year, has a student to teacher ratio of 13:1, and has a graduation rate of more than 90%. A large part of this success is due to its innovative programs, including one of the largest pre-engineering programs in the country. Students also have many technological opportunities, from one-to-one device programs to the use of state-of-the art video production studios. SSCSD also benefits greatly from its deep ties to the community—ties that support career readiness, work-study, and related programs.

Goals

- Create, utilize, and support information technology integration opportunities that incorporate SSCSD technology standards
- Increase utilization of information technology resources to support differentiated instruction and student-centric learning
- Optimize districted technology systems to foster growth and support learning, communication, and data
- Improve network infrastructure, reliability, security, accessibility, and staffing to support information technology needs and cultivate an effective learning environment

“It is not our goal to simply digitize instruction, but rather to explore why and how technology impacts instruction.”

– DAVID L'HOMMEDIU
ASST. SUPT., IT & OPTL.
INNOVATION,
SARATOGA SPRINGS CITY
SCHOOL DISTRICT
SMART CITY COMMISSIONER

TIMEFRAME

IMPLEMENTED

- Project Lead the Way
- Expanding technology resources to support instructional best practices

SHORT TERM

- Expand student help desk
- Increased residential broadband for students

SPONSOR

Saratoga Springs City School District



Higher Education: SUNY Empire State College

Empire State College (ESC) is a State University of New York (SUNY) institution located in Saratoga Springs. The college is focused on nontraditional teaching and learning. College faculty mentors guide learners through an individual degree program within 12 broad areas. The college serves mostly working adults pursuing degrees onsite at 35 locations in New York and abroad, as well as online. Multiple locations along with online and blended instruction, commitment to individualize learning for all students, and dedication to making education accessible and successful for busy adults are among the principal factors defining the technology goals of the college.

Goals

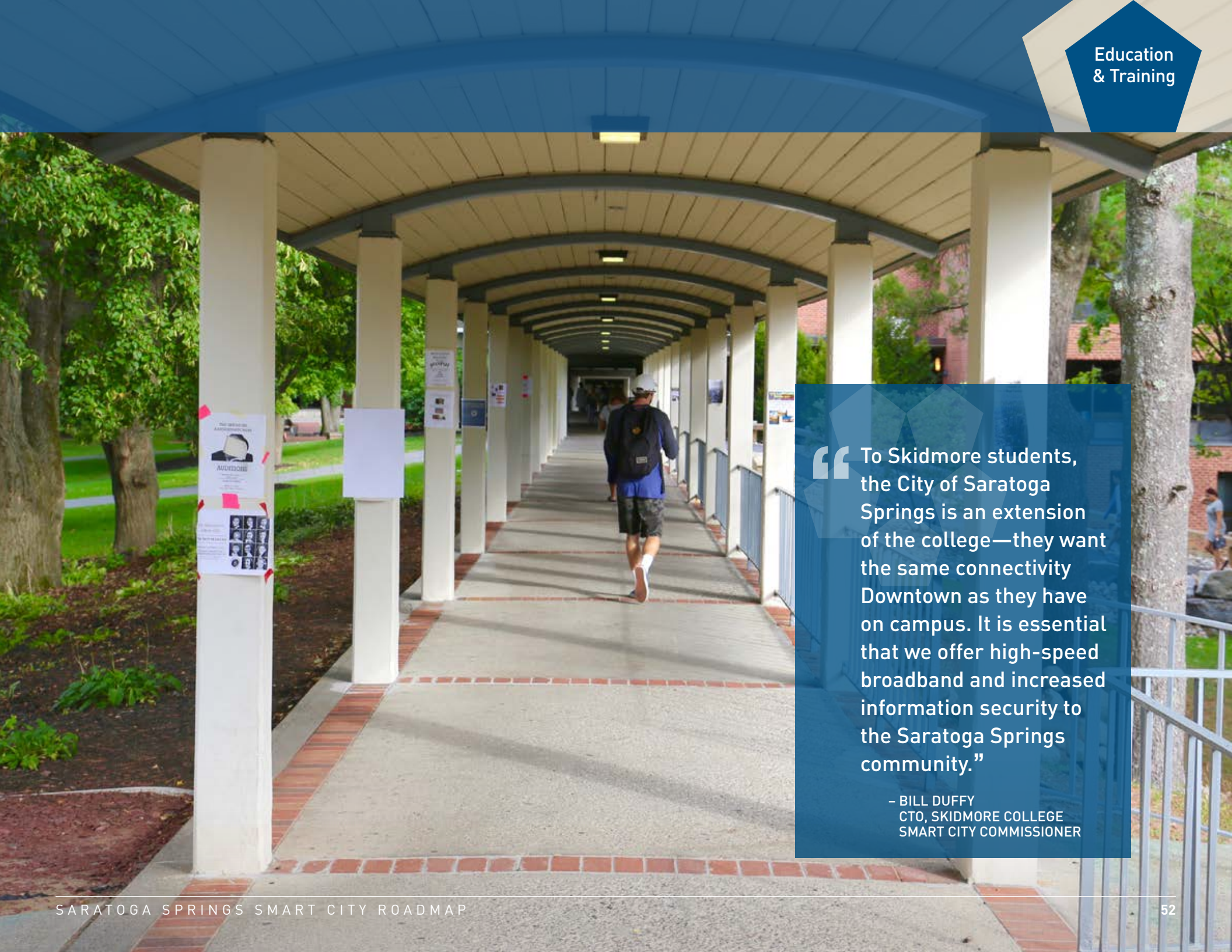
- Utilize broadband/fiber networks to support blended learning across New York State campuses, abroad, and online
- Deploy advanced learning applications such as Technology Enhanced Active Learning (TEAL), Immersive Cloud Learning (ICL), and Bring Your Own Device (BYOD) programs
- Continue with implementation of Integrated Technologies Strategic Plan

TIMEFRAME

IMPLEMENTED	SHORT TERM	INTERMEDIATE TERM
<ul style="list-style-type: none">• Utilize broadband/fiber networks• Deploy advanced learning applications	<ul style="list-style-type: none">• Implement Integrated Technologies Strategic Plan	<ul style="list-style-type: none">• Extend wireless Downtown to Congress Park and Empire State College campus

SPONSOR

SUNY Empire State College



“To Skidmore students, the City of Saratoga Springs is an extension of the college—they want the same connectivity Downtown as they have on campus. It is essential that we offer high-speed broadband and increased information security to the Saratoga Springs community.”

– BILL DUFFY
CTO, SKIDMORE COLLEGE
SMART CITY COMMISSIONER

Higher Education: Skidmore College


Founded more than a century ago, Skidmore College is known for its interdisciplinary approach to learning, collaborative faculty-student research, and off-campus study program. Skidmore benefits immensely from being located in the vibrant city of Saratoga Springs. As part of its mission, the college seeks to contribute to the quality of life in the city through its positive impact in areas such as the economy, cultural life, and volunteerism.

Goals

- Continue to invest in city/campus life through programs such as Sustainable Skidmore, Saratoga Reads, the Skidmore-Saratoga Memory Project (SSMP), and the John B. Moore Documentary Studies Collaborative
- Support smart city initiatives to provide continuous connectivity to students both on and off campus
- Improve off-campus public safety through smart applications
- Support student use of advanced broadband technologies such as livestream

TIMEFRAME			
IMPLEMENTED	SHORT TERM	INTERMEDIATE TERM	LONG TERM
• Investment in city/campus life (ongoing)	• Off-campus public safety	• Connect wireless Downtown along North Broadway to Skidmore campus	• Advanced broadband applications

SPONSOR
Skidmore College

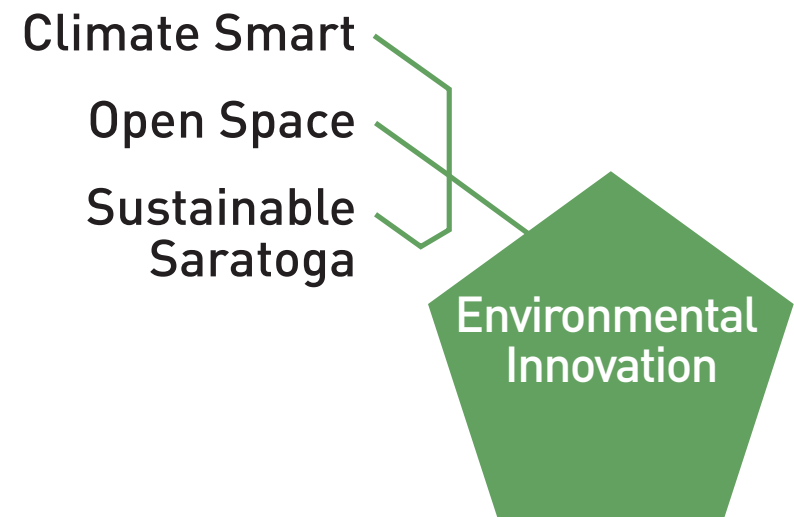
A photograph of a park path with large trees and a street lamp. The path is paved and curves through a lush green park. Large, mature trees line the path, casting shadows on the grass. A black street lamp with a white globe stands on the left side of the path. In the background, a green trash can is visible on the right side of the path. The overall scene is bright and sunny, with dappled light filtering through the leaves.

Coordinated efforts from private- and public-sector organizations will help promote sustainable practices and the protection of natural resources.

Environmental Innovation

The concept of promoting both sustainable practices and the protection of natural resources has deep roots in conservation and land management—disciplines practiced for decades by government, community groups, and environmentally aware citizens of Saratoga Springs.

Legislation alone cannot ensure a sustainable environment. Coordinated efforts across government, private, and not-for-profit organizations work together to fight pollution, protect and enhance the environment, and optimize the efficient use of natural resources. Saratoga Springs is a case study in how public-private partnerships succeed.



DOMAIN CHAMPION
Sustainable Saratoga

“Today’s generation knows it’s smart to recycle. They want to recycle even when they are on the go. The single-stream program is an entry point to recycle when people are away from home.”

– MICHELE MADIGAN,
SMART CITY COMMISSION CHAIR

PICTURED HERE WITH CANS BEING
RECYCLED AT WASTE CONNECTIONS

Building and achieving a more sustainable Saratoga Springs requires support at all levels of government, as well as coordinated effort between the City, community groups, businesses, and citizens. Numerous programs are already under way, such as the Climate Smart Communities Pledge—which provides a framework for advocacy and action, from the reduction of greenhouse gas emissions to the increase in use of renewable energy—and Single-Stream Waste Collection and Recycling—which will make the collection of recyclables at crosswalk collection containers simple and easy.

In Process

- **Spa Solar Park** - Being developed on the City-owned landfill, the park will provide a large proportion of Saratoga's power needs
- **Solarize Saratoga** - A partnership by the City's Climate Smart Task Force, Sustainable Saratoga, and Green Conscience, a local business that sell sustainable goods
- **The Climate Smart Communities Pledge (CSC)** - Outlines a plan for reducing Saratoga's greenhouse gas emissions and will advance energy and economic benefits through technical assistance, potential funding and strategies for going green
- **Comprehensive Downtown Single-Stream Waste Collection and Recycling** - The program will decrease the amount of waste in landfills by recycling materials through an efficient single-stream recycling process

Goals

- Develop Climate Action Plan and achieve Climate Smart Communities certification
- Continue conversion of city traffic and street lights from incandescent to LED
- Use existing public-private partnerships as a platform for ongoing climate smart initiatives, from urban forestry management to Complete Streets

TIMEFRAME

IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none"> • Adopt CSC pledge • Solarize Saratoga (ongoing) • Spa Solar Park development (ongoing) 	<ul style="list-style-type: none"> • Downtown recycling • Climate Action Plan/Climate Smart Communities Certification • LED conversion 	<ul style="list-style-type: none"> • Utilize technology to manage and track program results

SPONSORS

City of Saratoga Springs; various community groups and partners



Saratoga Springs is the “City in the Country,” an ideal that is reflected in the City’s recently revised Comprehensive Plan. A key objective of the plan is to protect open space resources that constitute a vital economic component and a valuable environmental, aesthetic, and recreational amenity. Government, businesses, residents, and community groups actively preserve and enhance the Saratoga natural environment, farmland, and a wealth of parks. Like many other initiatives, resources are maintained through a combination of public and private ownership. Institutional examples include Yaddo and Skidmore College; the City offers Congress Park, several neighborhood parks, and multi-use trails; State and private-sector holdings include more than 2,000 acres at Saratoga Spa State Park, the equine polo fields, harness and thoroughbred tracks, and golf courses.

Goals

- Implement the City’s Comprehensive Plan to promote the preservation and enhancement of natural features, rural viewsheds, linkages, farmland, and public and private recreation areas
- Update the City’s adopted Open Space Plan (2002) periodically
- Complete the Saratoga Greenbelt Trail, a visionary 24-mile network that will form a continuous loop with interconnected feeder streets and trails throughout the city
- Help landowners conserve their farmland, woodlands, and natural habitats through Saratoga PLAN

TIMEFRAME

IMPLEMENTED

- Comprehensive Plan updated

SHORT TERM

- Continued development of Greenbelt Trail
- Periodically update Open Space Plan

LONG TERM

- Preserve and enhance Open Space through public-private organizations

SPONSORS

City of Saratoga Springs;
various community groups and partners



Sustainable Saratoga

Sustainable Saratoga is a not-for-profit organization that promotes sustainable practices and the protection of natural resources through education, advocacy, and action, for the benefit of current and future generations in the Saratoga Springs area. Since 2008, Sustainable Saratoga has been a leader in promoting awareness of environmental issues and what the Saratoga Springs community can do to minimize ecological impact while maintaining a high quality of life.

Goals

- Implement Urban Forest Master Plan by working on many fronts, including education and advocacy for the preservation and expansion of Saratoga's urban forest
- Support housing and urban policies that reduce environmental impacts and make the Saratoga community more livable for everyone
- Develop initiatives such as Bring Your Own Bag Saratoga which attempts to change retailers' and consumers' dependence on single-use plastic shopping bags
- Increase energy efficiency, reduce energy waste, and develop renewable energy sources through the Climate and Energy committee, education, advocacy, and action

TIMEFRAME

IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none">• Adopt Urban Forest Master Plan	<ul style="list-style-type: none">• Ongoing implementation of Urban Forest Master Plan• Review Urban Forest Master Plan	<ul style="list-style-type: none">• Ongoing support for sustainable policies and programs

SPONSOR

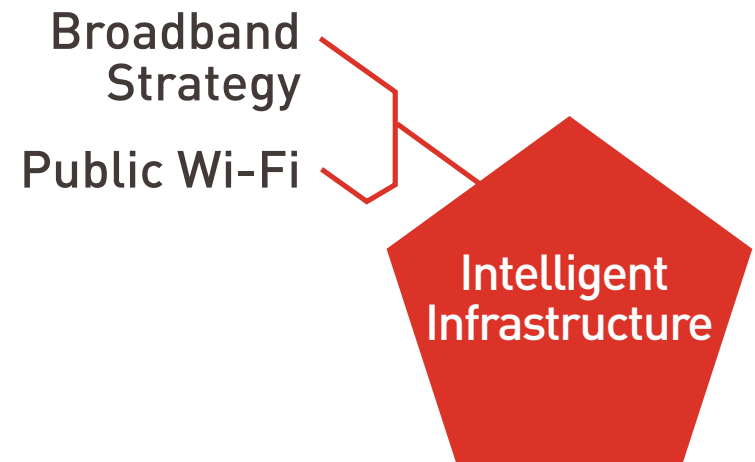
Sustainable Saratoga



Saratoga Springs aspires to become a “gig city” with ubiquitous public Wi-Fi. This Downtown overlay shows a notional wireless broadband infrastructure, highlighting public Wi-Fi access points and signal strength.

Intelligent Infrastructure

Today's world is all about connectivity. Whether it's for work, home, school, or personal relationships, having a high-speed broadband connection to the internet is no longer an optional luxury but an essential resource for residents, businesses, visitors, service providers, and government. A smart Saratoga Springs will work to offer broadband infrastructure that enables its citizens to succeed.



DOMAIN CHAMPIONS

City of Saratoga Springs
Saratoga Chamber of Commerce
Technology Group
Community Leaders

Broadband Strategy

Throughout the world, people are becoming increasingly aware of the need for increased broadband speeds. Saratoga Springs is no exception. As the city strives to compete for business, residents, and tourists, having competitive broadband speeds will become crucial.

Faster Internet: Commercial

A fast, reliable internet connection is critical for many business functions. Broadband allows businesses to overcome distances and expand their reach using their current resources, and they no longer need physical locations to market and sell their products and services. Connectivity also puts small businesses on even footing with larger businesses without needing access to their resources or finances. The City will work with providers to better understand existing speeds, pricing tiers, and availability, and to determine what is needed to ensure that Saratoga Springs becomes a broadband leader in New York, encouraging existing business to grow and new businesses to come to the area.

Goals

- Provide low-latency, high-speed internet access for office buildings, shopping centers, hotels, sporting venues, and other commercial premises at competitive pricing
- Bridge the gap between commercial and residential broadband to allow business professionals to work anywhere
- Be one of the Top Five cities in Upstate New York to offer broadband speed universally accessible to businesses
- Determine solutions to increase broadband adoption rates by educating the citizens of Saratoga Springs and working toward low-cost broadband options

TIMEFRAME		
IMPLEMENTED	SHORT TERM	LONG TERM
<ul style="list-style-type: none">• Better understanding of existing providers and services (ongoing)	<ul style="list-style-type: none">• 1Gbps or higher commercial fiber network• Multiple commercial options for all businesses• Continued growth through partnerships and innovation• Fiber providers receive information about road infrastructure upgrades	<ul style="list-style-type: none">• Become a leading city in the country for commercial broadband

SPONSORS

**City of Saratoga Springs;
broadband provider partner(s)**

Faster Internet: Residential

As Saratoga Springs seeks to meet current and future broadband demands, multiple options will need to be explored to ensure that the best interests of the community are met. Having access to reliable high-speed broadband at low costs will be the main priority.

Time Warner Cable (TWC), the primary residential broadband provider in Saratoga County, has recently merged with Charter Communications and Bright House Networks to form Spectrum. There were conditions associated with this merger—one of which was to upgrade its network across the State to offer internet download speeds of at least 100 Mbps by the end of 2018 and 300 Mbps by yearend 2019.

Due to advances in the high-bandwidth transmission protocol Data over Cable Service Interface Specification (DOCSIS), incumbent cable providers can offer faster speeds to consumers with minimal infrastructure buildouts, which allows for a faster implementation than new construction builds. The City will continue to monitor Spectrum's progress to ensure that merger requirements are met while exploring other potential solutions.

So stay tuned: faster broadband speeds will be coming to the residents of Saratoga Springs.

Goals

- Increase residential broadband download speed to 100 Mbps by end of 2018 and to 300 Mbps by end of 2019
- Increase broadband availability for homes in the surrounding areas that are currently unserved/underserved (specifically within the Saratoga Springs School District)
- Determine solutions to increase broadband adoption rates by educating the citizens of Saratoga Springs and working toward low-cost broadband options

TIMEFRAME

SHORT TERM

- 100 Mbps by end of 2018

LONG TERM

- 300 Mbps by end of 2019
- Increase residential provider competition
- Become a 1Gig+ City

SPONSORS

City of Saratoga Springs; New York State
Broadband Program Office;
broadband provider partner(s)

Public Wi-Fi

Gone are the days when you had to be on your desktop computer at home to be connected to the internet. Saratoga Springs is committed to delivering wireless broadband in public spaces to keep all citizens and visitors connected.

Thanks to advances in technology, wireless speeds can be competitive with traditional wired speeds. Providing Wi-Fi access on Broadway and surrounding areas can allow users mobile access to a single, secure network—allowing them to access, share, and use data on a variety of different applications.

Goals

- Provide continuous coverage on Broadway
- Provide a secure wireless network for City applications
- Provide an easy-to-access open network for internet access
- Allow Saratoga residents and visitors to share and access data without relying on unreliable disparate networks for access

“Three to five years ago, students had maybe two devices that were generally hardwired. Today, new statistics suggest that students carry an average of four mobile devices with them, and they want to be able to leave campus and stay connected.”

– BILL DUFFY
CTO, SKIDMORE COLLEGE
SMART CITY COMMISSIONER

TIMEFRAME

SHORT TERM

- Public Wi-Fi Strategy Plan
- Public Wi-Fi on Broadway

LONG TERM

- Wi-Fi Expansion

SPONSORS

City of Saratoga Springs; Saratoga County
Chamber of Commerce;
broadband provider partner(s)

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Smart City Project Team

City of Saratoga Springs

Michele Madigan

COMMISSIONER OF FINANCE

Kevin Kling

INFORMATION TECHNOLOGY
SYSTEMS MANAGER

Lynn Bachner

DEPUTY COMMISSIONER OF FINANCE

NYSTEC

Michael Walsh

PROJECT ADVISOR

Bill McBride

PROJECT DIRECTOR

Nathan Roberts

PROJECT CO-MANAGER

Tom Myers

PROJECT CO-MANAGER

Jackie Kessler

CONTENT STRATEGIST

Jack Carpenter

PHOTOGRAPHER & VIDEOGRAPHER

Brucie Rosch

GRAPHIC DESIGNER

Framework Domain Champions

Better Public Services

Kevin Kling

CITY OF SARATOGA SPRINGS,
INFORMATION TECHNOLOGY
SYSTEMS MANAGER

Kim Ireland

NATIONAL GRID, PROGRAM MANAGER

Connected Community

Matthew Jones

SARATOGA COUNTY CHAMBER OF
COMMERCE, BOARD CHAIR

Todd Garofano

SARATOGA CONVENTION
& TOURISM BUREAU, PRESIDENT

Donald Flinton

SARATOGA SPRINGS PUBLIC LIBRARY,
COMPUTER SERVICES MANAGER

John Mangona

SARATOGA HOSPITAL,
VICE PRESIDENT, CHIEF INFORMATION
& COMPLIANCE OFFICER

Tim Holmes

SARATOGA SPRINGS SMART CITY
COMMISSION, MEMBER AT LARGE

Education & Training

David L'Hommedieu

SARATOGA SPRINGS CITY SCHOOL
DISTRICT, ASSISTANT SUPERINTENDENT

Christopher Markham

SUNY EMPIRE STATE COLLEGE,
CHIEF TECHNOLOGY OFFICER

William Duffy

SKIDMORE COLLEGE,
CHIEF TECHNOLOGY OFFICER

Environmental Innovation

Harry Moran*

SUSTAINABLE SARATOGA, BOARD CHAIR

Intelligent Infrastructure

Kevin Kling

CITY OF SARATOGA SPRINGS,
INFORMATION TECHNOLOGY
SYSTEMS MANAGER

Art Ware

SARATOGA SPRINGS SMART CITY
COMMISSIONER, MEMBER AT LARGE

Chris Thompson

WORKORDER.ES, FOUNDER & CEO

Contact Information

Michele Madigan

SMART CITY COMMISSION CHAIR
(518) 526-9377
michele.madigan@saratoga-springs.org

Michael Walsh

PRESIDENT & CEO, NYSTEC
(518) 431-7027 - desk
(518) 852-3406 - mobile
mwash@nystec.com

*Confirmation in progress



The Smart City Project Team,
March 2016

Smart City Roadmap 1.0

October 2016

Saratoga
Springs
("Smart City")

