2019 ITS-NY Annual Meeting

June 13-14, 2019

"ITS Applications: Technology Advancements and the Human Connection"

Panel 4: Advanced Technology in Smaller Communities

Panel Moderator:

- Dr. Arthur T. O'Connor, PE, Sr. ITS/Operations Engineer, USDOT/FHWA – New York City Metropolitan Office

Speakers:

- "Use of ITS for Managing Travel for the 2018, 1995 & 1986 US Golf Opens." Walter Dunn, PE, President and Founder, Dunn Engineering Associates, P.C.
- "Smart City and Electric Mobility." Arunkumar Vedhathiri, Director of Innovation, National Grid Albany, NY
- "Ride LivINgston: A Mobility Management Website for Trip Planning." Megan Crowe, AICP, CFM, Senior Planner, Livingston County (Geneseo), NY
- "Technology Advancements in Saratoga Springs." Michele Madigan, Commissioner of Finance, City of Saratoga Springs, NY

Use of ITS for Managing Travel for the 2018, 1995, and 1986 US Opens

WALTER DUNN, P.E.

DUNN ENGINEERING ASSOCIATES, P.C.

ITS NY ANNUAL MEETING

SARATOGA SPRINGS, NY

JUNE 14, 2019

JUNE 12-15, 1986

SHINNECOCK HILLS GOLF CLUB

SOUTHAMPTON, NY

JUNE 12-18, 1995

SHINNECOCK HILLS GOLF CLUB

SOUTHAMPTON, NY

JUNE 11-17, 2018

SHINNECOCK HILLS GOLF CLUB

SOUTHAMPTON, NY

Long Island, New York

Sunsets on the Dunes

Atlantic Ocean

Osprey Nest

Rural Event Characteristics

- RURAL OR RURAL/TOURIST AREA
- HIGH ATTENDANCE EVENTS ATTRACTING EVENT PATRONS FROM A REGIONAL AREA
- LIMITED ROADWAY CAPACITY SERVING AN EVENT VENUE
- AREA LACKING REGULAR TRANSIT SERVICE
- EVENTS HAVING EITHER A TIME SPECIFIC DURATION OR CONTINUOUS DURATION

Event Planning Team Roles & Responsibilities

Stakeholders

AGENCIES

- USGA (STAFF & VENDORS)
- NYSDOT / INFORM
- SUFFOLK COUNTY / DPW / AIRPORT
- TOWN OF SOUTHAMPTON EMS / TRANSPORTATION

LAW ENFORCEMENT

- SOUTHAMPTON TOWN POLICE
- NYS POLICE
- SUFFOLK COUNTY POLICE & SHERIFF DEPARTMENTS
- MTA / LIRR
- VILLAGE OF SOUTHAMPTON POLICE

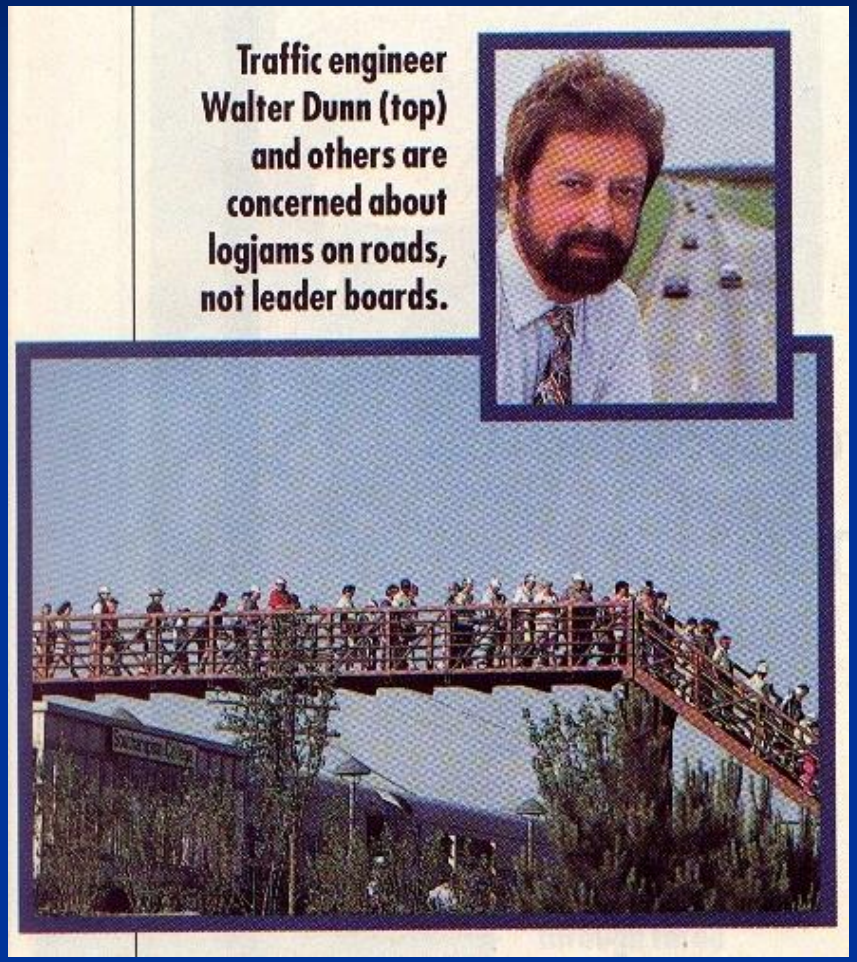
Stakeholder Challenges

- MITIGATE IMPACTS OF EVENT-GENERATED TRAFFIC
- POTENTIAL FOR HEAVY VOLUME OF TRANSIT VEHICLES & PEDESTRIAN FLOWS
- COORDINATE TRAVEL MANAGEMENT ACTIVITIES WITH EVENT OPERATOR & OVERALL PLANNING TEAM
- AVAILABLE STAFF RESOURCES & SUPPORT SERVICES
- INFRASTRUCTURE LACKING AT EVENT SITE TO MANAGE TRAFFIC AND PROVIDE SUPPORT SERVICES

Major Concerns

- COINCIDENCE OF EVENT WITH HEAVY RECREATIONAL SUMMER TRAFFIC
- ONLY TWO CROSSINGS OVER SHINNECOCK CANAL
- ONLY ONE MAJOR EAST/WEST ROADWAY
- HEAVY AM & PM PEAK HOUR EXISTING TRAFFIC (TRADE PARADE)

Media Attention



Traffic engineer Walter Dunn (top) and others are concerned about logjams on roads, not leader boards.

The only serious hiccup to the proceedings might come on the roads leading to the remote club. There were remarkably few problems in '86, but two factors contributed to that: Daily attendance was limited to 18,000; and many residents of the island, fearing gridlock, simply fled for the week. Traffic engineer Walter Dunn was responsible for the smooth flow in 1986 and returns in that capacity this year. With attendance increased to as many as 25,000 a day in 1995, the chances are the leader boards won't be the only place where frequent logjams occur.

"I think we can handle the new numbers," says Dunn. "But it could be interesting."

At Shinnecock, one should expect nothing less. ■

Work Efforts

- PREPARATION OF FEASIBILITY STUDY
- DEVELOPMENT OF TRAFFIC MANAGEMENT PLAN
- PREPARATION OF DESIGN PLANS
- SUPERVISION AND LAYOUT OF IMPLEMENTATION
- OPERATION OF EVENT

Goals of Managing Travel for PSES

- ACHIEVE *PREDICTABILITY*
- ENSURE *SAFETY*
- MAXIMIZE *EFFICIENCY*
- MEET PUBLIC & EVENT PATRONS EXPECTATIONS
- KEEP TRAFFIC MOVING

Changes from 1986 to 1995 to 2018

- TRAFFIC VOLUMES
- ATTENDANCE: 18,000 TO 25,000 TO 30,000+ WITH 4,500 VOLUNTEERS
- NO. OF PARKING LOTS
- CONSTRUCTION AT GABRESKI AIRPORT, RELOCATION OF HAMPTON JITNEY, ADDITION OF INTERNAL ROUND-ABOUT
- RELOCATION OF BUS DROPOFF / PICK-UP

Changes from 1986 to 1995 to 2018

- PEDESTRIAN OVERPASS(ES): 1 TO 1 TO 2
- C.R. 39 ROADWAY IMPROVEMENTS
  - ’86- 2 LANES MADE INTO 3 REVERSIBILE LANES
    - AM = 2 EB, 1 WB & PM = 1 EB, 2 WB
  - ’95- 3 LANES (1 EB & 2 WB)
  - ’18- 4 LANES (2 EB & 2 WB WITH 2-WAY CENTER LANE FOR LEFT TURNS)

PEDESTRIAN OVERPASSES

EVENT 1 = DETOUR FOR INSTALLATION

EVENT 4 = DETOUR FOR REMOVAL

EVENT 2 = MERCHANDISE SALES

WEEKEND BEFORE CHAMPIONSHIP

EVENT 3 = GOLF CHAMPIONSHIP

Managing Travel for PSEs Involves:

- ADVANCE OPERATIONS PLANNING, STAKEHOLDER COORDINATION & PARTNERSHIPS
- MULTI-AGENCY TRAFFIC MANAGEMENT TEAM
  - DEVELOPS TRAFFIC MANAGEMENT PLAN
  - PREPARES PROCEDURES & PROTOCOL
  - DAY-OF-EVENT TRAFFIC CONTROL & COORDINATION
- RAISE AWARENESS OF POTENTIAL TRAVEL IMPACTS
- COORDINATE AGENCY SERVICES & RESOURCE SHARING

ITS Innovative Strategies

- MEET THE CHALLENGES
- USE EXISTING ITS INFRASTRUCTURE
- ADD PORTABLE & MOBILE ITS ELEMENTS
- APPLY SUCCESSFUL STRATEGIES
  - INCIDENT MANAGEMENT
  - EMERGENCY RESPONSE
  - SECURITY CONCERNS

ITS Solutions for Day-of-Event

- SITE ACCESS AND PARKING
- TRAFFIC CONTROL
- TRAVELER INFORMATION
- TRAFFIC SURVEILLANCE

Use of Traffic Management Techniques

- ESTABLISHMENT OF COMMAND CENTER
- LEFT TURN RESTRICTIONS
- RADIO COMMUNICATIONS
- AERIAL SURVEILLANCE
- EXCLUSIVE BUS ROADWAY
- SPECIFIC ROADWAY ASSIGNMENT

Use of Traffic Management Techniques

- ROUTE MARKER / DESTINATION SIGNING
  - COLOR CODED LETTER SYMBOLS
  - DIVERSION VIA ARROW CHANGE
- PORTABLE CHANGEABLE MESSAGE SIGNS
- 3 LANE OPERATION FOR PEAK TRAFFIC FLOWS
- HIGHWAY ADVISORY RADIO
  - STATUS, INFORMATION, DIVERSION

Use of Traffic Management Techniques

- TRAFFIC FLOW CONTROL
  - OVERRIDE OF TRAFFIC SIGNALS
  - MANUAL COORDINATED MOVEMENT SYSTEM
  - TEMPORARY TRAFFIC SIGNAL INSTALLATION
- METERING SYSTEM
  - BUS CAPACITY
  - STATUS, INFORMATION, DIVERSION
  - PARKING LOT METERING
- ON-SITE TRAFFIC MANAGEMENT

INFORM TMC

Mobile Command Post

Fixed Signing

GUIDANCE TO PRE-ASSIGNED LOTS

PORTABLE CHANGEABLE MESSAGE SIGN

(1 OF 26 DELIVERED & OPERATED)

HAR

INFO ON UPCOMING EVENT & LANE USAGE

ON REVERSIBLE LANES

CR 31 REVERSIBLE LANES /
(AM = 3 SB/1 NB)
HARD SHOULDER RUNNING

CR 31 REVERSIBLE LANES /
(AM = 3 SB/1 NB)
HARD SHOULDER RUNNING

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CR 31 REVERSIBLE LANES /
(PM = 3 NB/1 SB)
HARD SHOULDER RUNNING

GABRESKI AIRPORT PARKING

6500 CARS

GABRESKI AIRPORT SECURITY GATE

2 LANES EXITING AIRPORT

Lessons Learned

- HANDLING OF A SPECIAL EVENT REQUIRES THE SAME ATTENTION FROM A TRAFFIC ENGINEERING STANDPOINT AS AN INCIDENT
- PROVEN TRAFFIC MANAGEMENT TECHNIQUES & ITS ELEMENTS SHOULD BE APPLIED FROM THE EARLIEST PLANNING STAGES THROUGH THE ACTUAL OPERATION OF THE EVENT SO THAT TRAFFIC CONGESTION CAN BE SIGNIFICANTLY REDUCED.

Lessons Learned

- ITS ENHANCES PLANNING DESIGN & DAY-OF-EVENT OPERATIONS FOR PSE
- INNOVATIVE ITS TECHNOLOGIES IMPROVE TRAFFIC CONTROL & OPERATIONS
- ITS AIDS IN EVENT SECURITY
- SUCCESSFUL ITS IMPLEMENTATIONS ARE ABUNDANT
- ITS SOLUTIONS INFORM TRAVELERS OF AN UPCOMING EVENT & AID MANAGERS TO MODIFY THE PLAN BASED ON REAL-TIME CONDITIONS.
- ITS SOLUTIONS ARE USEFUL FOR DAY-TO-DAY OPERATIONS.

Keys to Success

- DEVELOPMENT OF A GOOD TRAFFIC MANAGEMENT AND PARKING PLAN USING ITS ELEMENTS
- INPUT AND PARTICIPATION OF INVOLVED AGENCIES
- IMPLEMENTATION OF PLAN
- ON-SITE TRAFFIC MANAGEMENT
- ABILITY TO MODIFY THE PLAN & ACCOMMODATE REAL-TIME TRAFFIC
- EXPECT THE UNEXPECTED

Final Advice

- USE LATEST ITS TECHNOLOGY & ELEMENTS. THEY WORK, BUT WATCH & UNDERSTAND THE HUMANS!
- KEEP TRAFFIC MOVING
- NOBODY GOES THERE – IT'S TOO CROWDED
- BE FLEXIBLE
- EXPECT THE UNEXPECTED

SHERIFF

Bring Energy to Life

nationalgrid

Smart City & Electric Mobility

2019 Intelligent Transportation Society of NY

Arun Vedhathiri, Director | Innovation

National Grid's Utility Of Future Strategy

DG AND STORAGE

Equitable access to clean generation; resiliency and optimization couple with storage solutions for greater value

CLEAN TRANSPORTATION

Developing an infrastructure to facilitate the expansion of vehicles and fleets with Electricity and Hydrogen

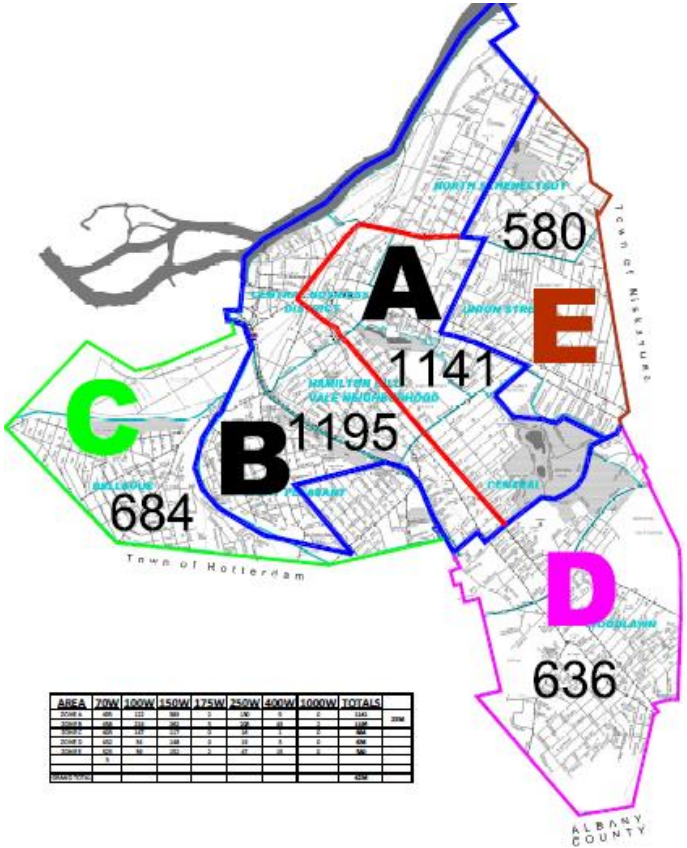
GRID MODERNIZATION

Advancing and integrating technologies to enable a more efficient and effective grid to support the new needs of customers

CONNECTED INFRASTRUCTURE

Enabling next generation of Smart Buildings with enhanced Energy Efficiency, Demand Response, Non Wire Alternatives & new Smart City services

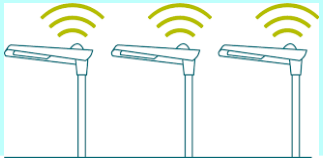
Schenectady REV Demo – Phase 1, Zones A & B



AREA	70W	100W	150W	175W	250W	400W	1000W	TOTALS	
ZONE A	405	122	580	2	130	5	0	1141	20M
ZONE B	408	116	562	3	104	0	2	1195	
ZONE C	405	120	121	0	38	0	0	684	
ZONE D	102	36	148	0	10	5	0	306	
ZONE E	326	90	202	2	47	29	0	696	
	5								
GRAND TOTAL								4256	

Schenectady REV Demo

- LED Conversion
- ~50% Energy savings



- Connected Lights
- ~15%+ incremental Energy Savings
- Asset Management

Smart Cities

- Safety
- Health
- Environment
- Connectivity

IoT

- Internet of Things
- Developers
- Applications
- Partners

Energy Savings

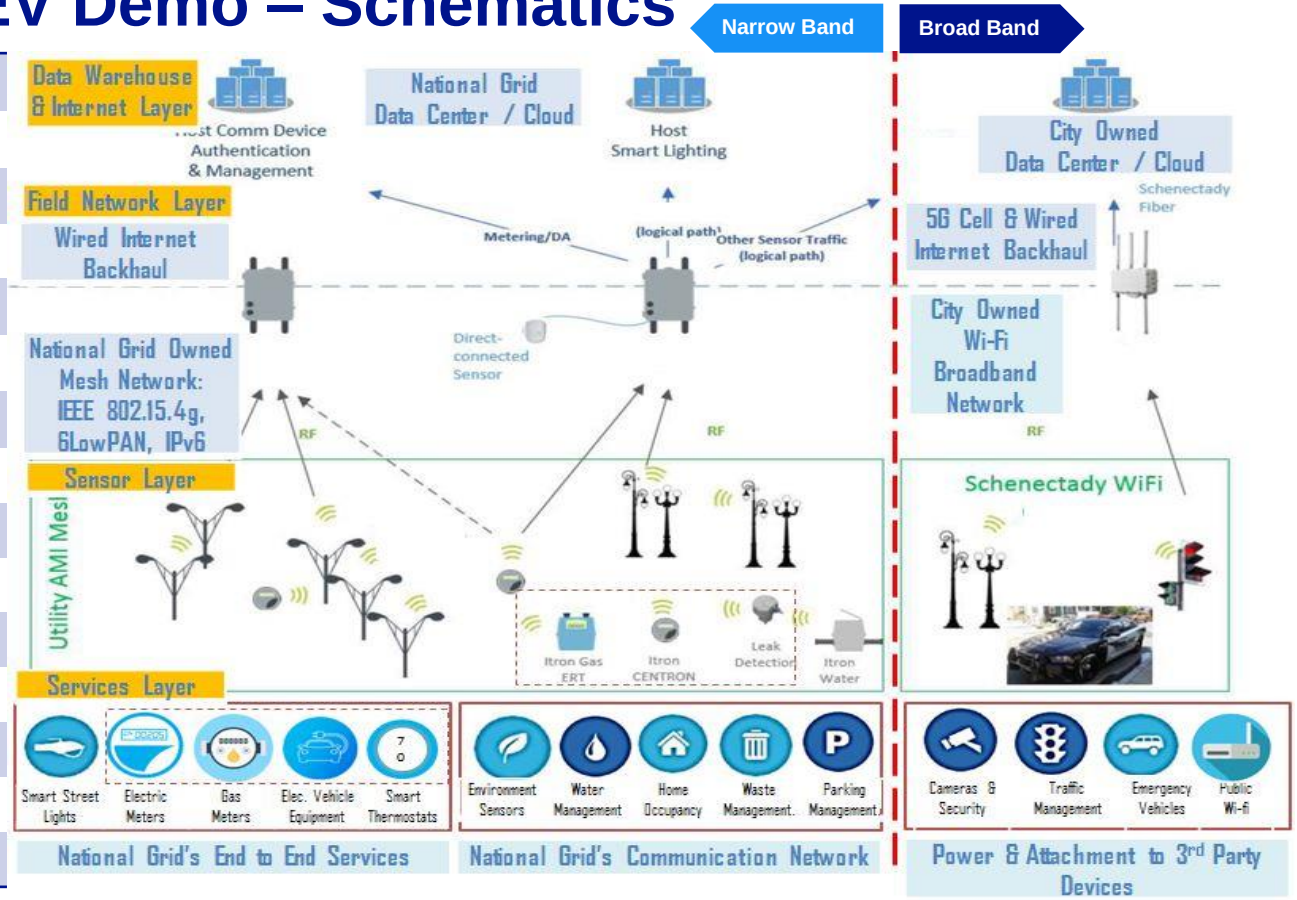
Enable Smart Cities

Evolution of Cities

Market Animation

Schenectady REV Demo – Schematics

- Smart Lighting
- Optical Sensors
- Gun Shot Detection
- Traffic Management
- Smart Parking
- Weather Sensors
- Smart Water Meters
- Enhanced Attachment Services
- Public Wi-Fi
- Digital Signage **
- AMI meters
- IoT Network (Nat. Grid)
- Pole - EV Charging **
- Flood Methane Sensors **
- Cellular 5G **

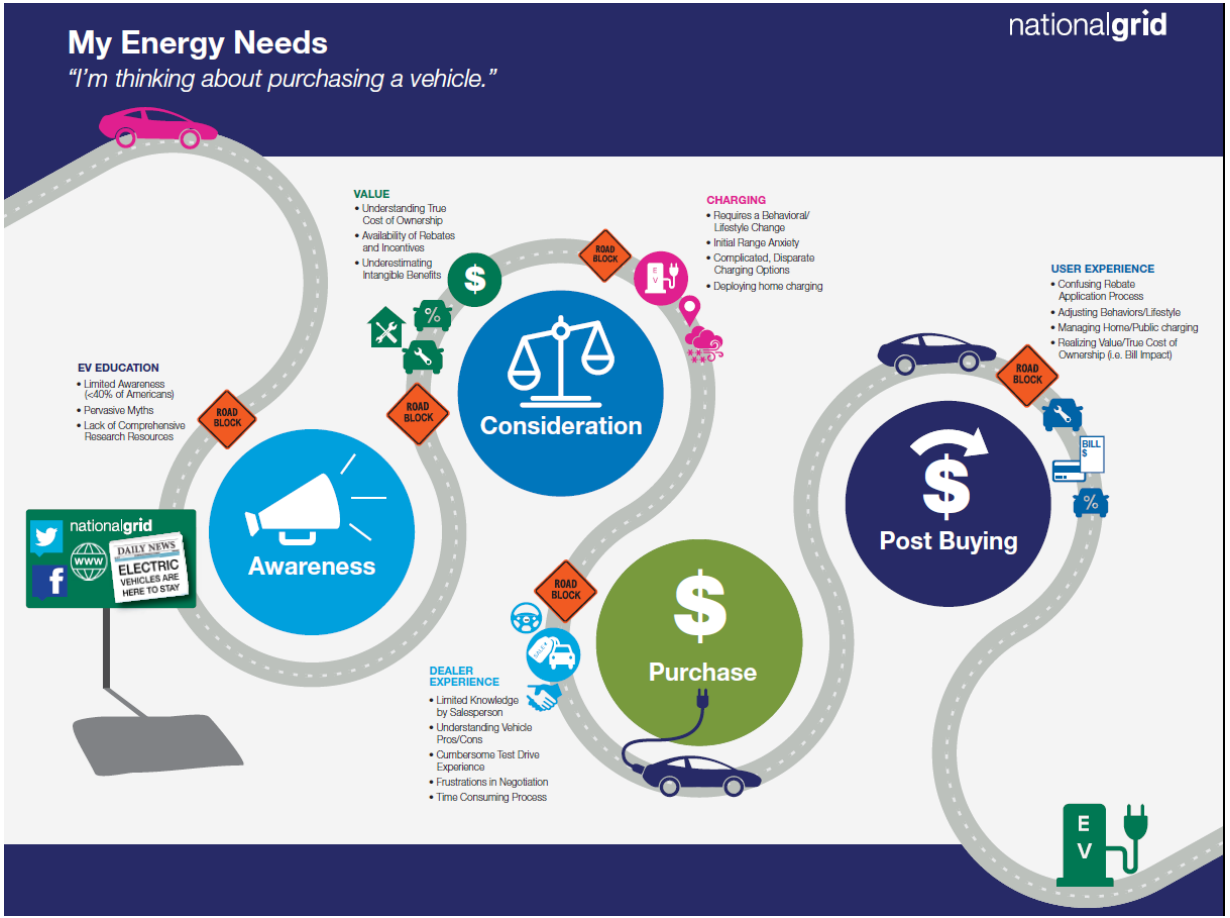


Electric Transportation

Program Overview
May 15, 2019

nationalgrid

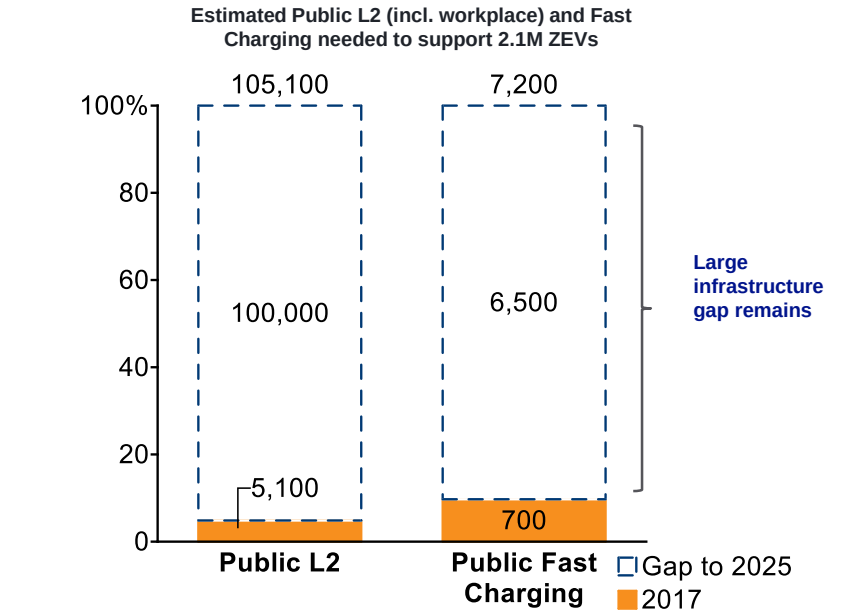
Accelerating Customer Adoption of EVs



80% Emission Reduction by 2050

- 40% GHG emissions from vehicles
- By 2028, 100% of LDV must be ZEV to meet emission targets

Public charging infrastructure is key to adoption; a significant gap remains to 2025



GHG: Green House Gas

LDV: Light Duty Vehicle

ZEV: Zero Emission Vehicle

L2: Level 2 Fast Chargers, up to 20kW per port

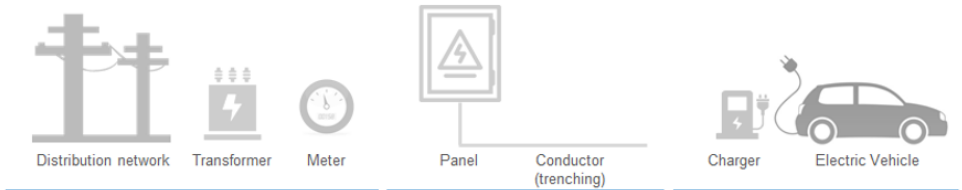
Fast Chargers: Range from 20kW to 350kW per port

Electric Vehicle Supply Equipment (EVSE)

Make Ready

Customer installs, owns and operates EVSE.

National Grid installs wires to EVSE equipment



Distribution System Equipment	Customer Premise Equipment	EV Supply Equipment (EVSE)
Company-Owned		Customer-Owned
Standard work constructed by Company crews (as required)	Constructed by Company's or Customer's vendor; to be owned by Company	Purchased, installed, operated, and maintained by Customer

NY Electric Vehicles Initiative

Expand charging network at workplaces (Make Ready Only)

Residential Time of Use (TOU) rate, consumer education

EV Adoption in National Grid Service Areas

NY

35,559
Electric vehicles in operation

1,172
Charging stations*

MA

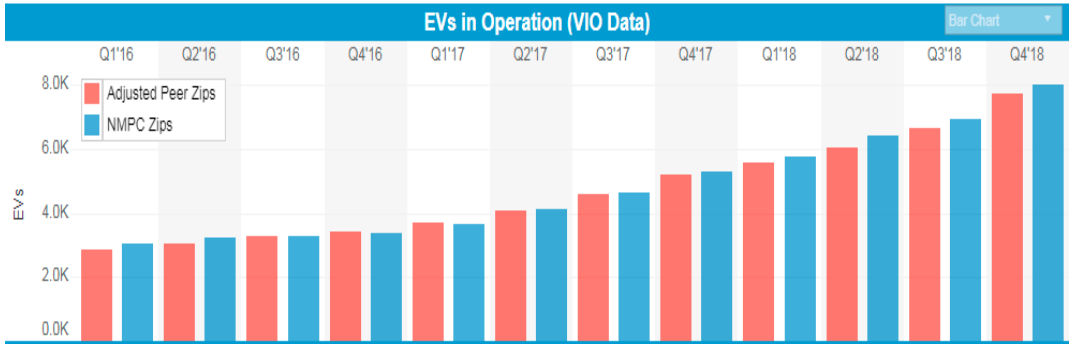
17,805
Electric vehicles in operation

587
Charging stations*

RI

1,523
Electric vehicles in operation

86
Charging stations*



Livingston County Transportation Mobility Management

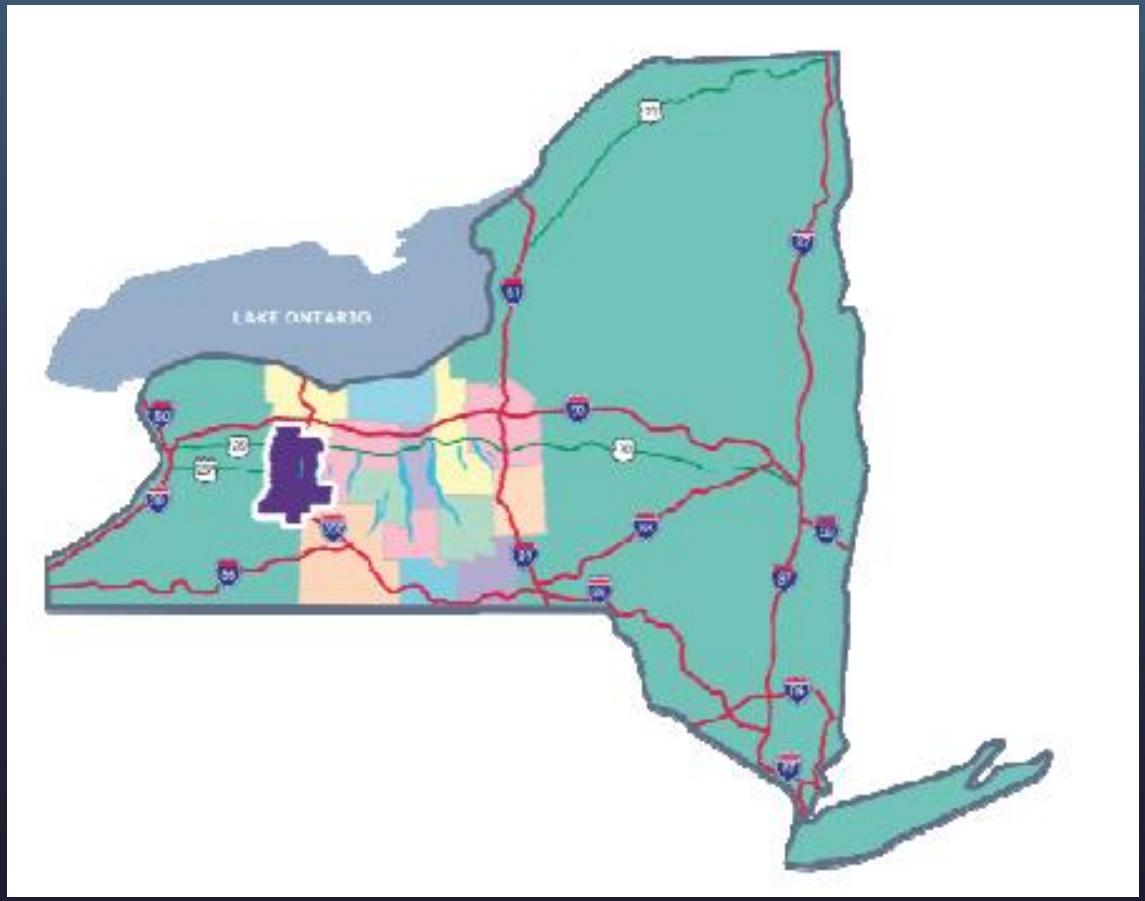
C&S COMPANIES®

LIVINGSTON COUNTY 1821 NEW YORK STATE

Stuart I. Brown Associates, Inc. A LaBella Company

VHB Vanasse Hangen Brustlin, Inc.

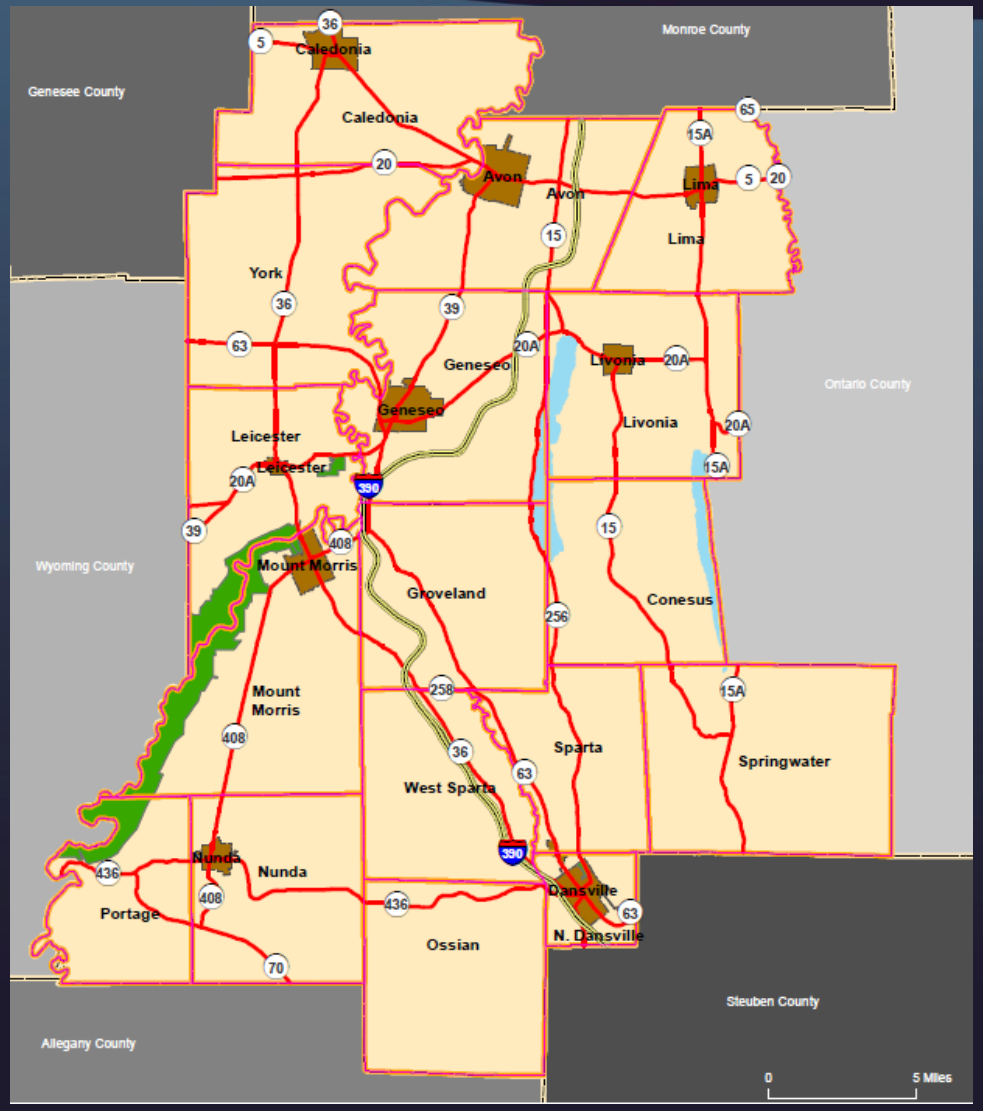
Livingston County, New York



- Approximately 15 miles south of the City of Rochester & 60 miles east of the City of Buffalo
- 638 square miles
- 2010 Population: 65,393

CONNECT LIVINGSTON
Linking our communities

Livingston County, New York



- 17 towns, 9 villages & numerous hamlets
- Genesee River, Conesus Lake and Letchworth State Park
- SUNY Geneseo

CONNECT LIVINGSTON
Linking our communities

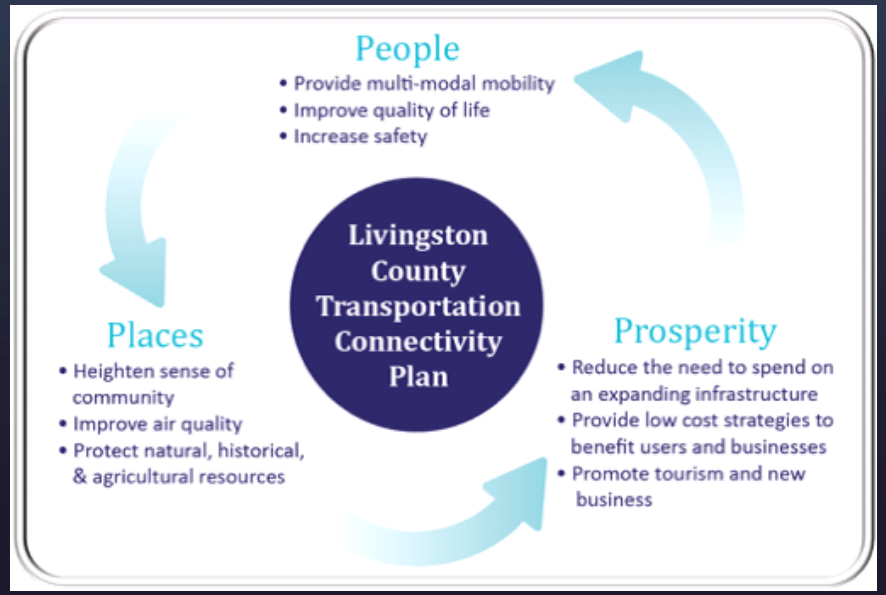
Connect LivINgston Plan

- Completed December 2013
- First holistic multi-modal transportation plan of its kind in New York State
- “People Count. Place Matters.”
- The plan examined issues, opportunities, and connections for walking, biking, vehicles, public transit, air, water and rail transportation at the County level.

CONNECT LIVINGSTON
Linking our communities

Connect LivINgston

"Develop a transportation connectivity plan that fosters partnerships and connections for the purpose of supporting and promoting a vital and sustainable Livingston County for existing and future residents and visitors alike."



Transportation Advisory Committee

- Formed in 2014 by Livingston County Board of Supervisors to implement Connect LivINgston
- Three Working Groups Formed:
  - Public Transportation
  - Community Development
  - Environmental

Public Transportation Work Group

- Collaborative Effort: Public and Private Partnerships
- **Livingston County:** Office of the Aging, Department of Social Services, Workforce Development, Probation, Planning and the Center for Nursing & Rehabilitation
- **Private & Not-for-Profit:** Institute for Human Services, Chamber of Commerce, Genesee Valley Health Partnership, Catholic Charities, Noyes Health, the Arc of Livingston-Wyoming, and CASA
- **Public Transportation:** Genesee Transportation Council (GTC), Rochester-Genesee Regional Transportation Authority and Regional Transit Service (RTS) Livingston

CONNECT LIVINGSTON
Linking our communities

Public Transportation User Toolkit

<u>Goal #4 of Connect LivINgston:</u> *Provide comprehensive and innovative public transportation services through RTS Livingston and other human service and transportation providers*

- Focused on providing high-quality and affordable transit and community transportation services throughout Livingston County and with key connections outside the County.
- Transit services are important to maintain quality of life, especially for low-income, disabled, elderly and younger people.
- Funded by GTC's UPWP

Public Transportation User Toolkit

- Clearinghouse / mechanism in order to facilitate the accessibility of information regarding the availability of transportation services from the various transportation service providers in the County
- Address the existing service gaps

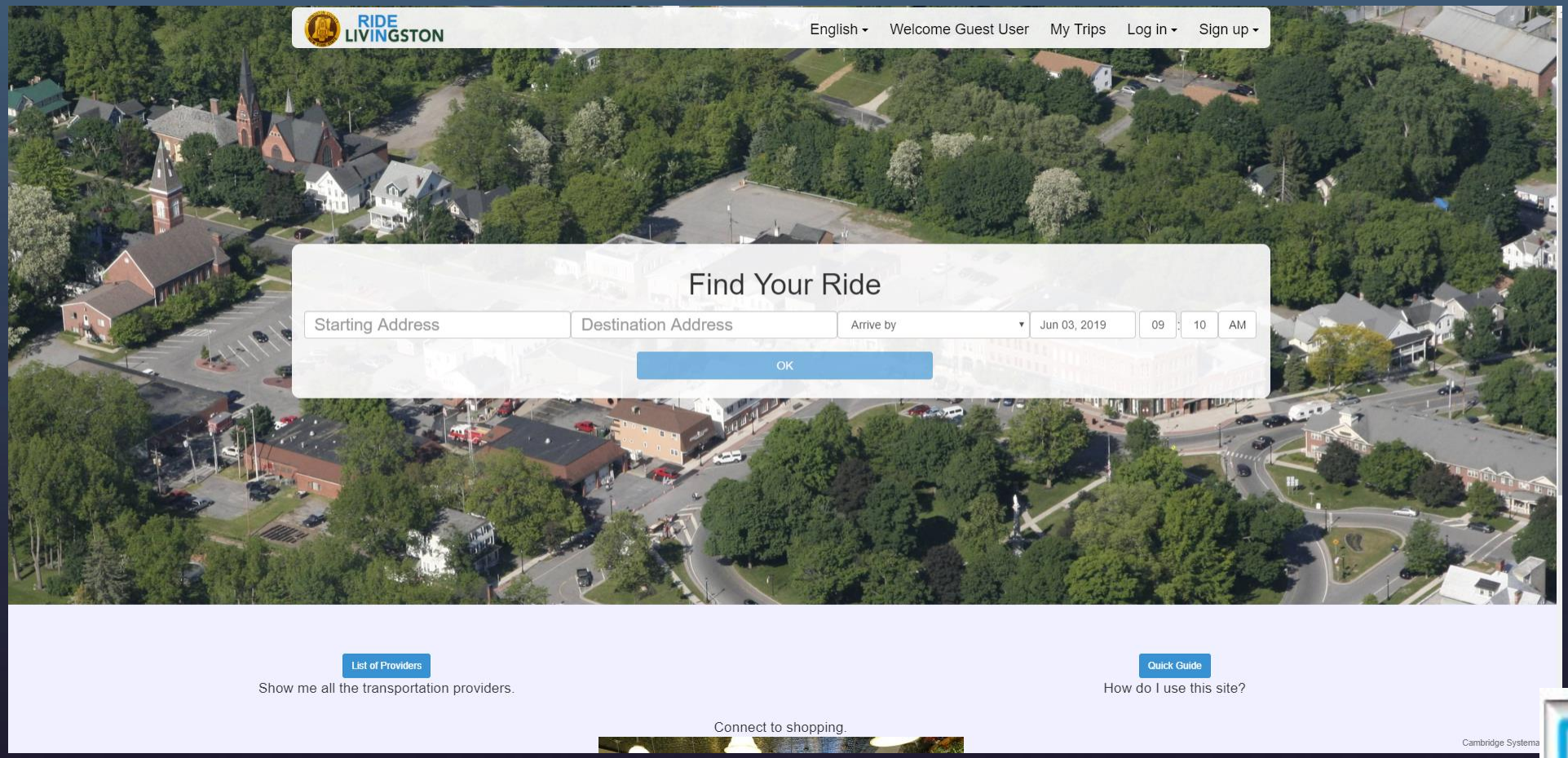
Mobility Management Website

- Developed a single point-of-entry website
- 24 human service providers and 26 transportation providers
- Web-design professional hired to create user friendly website:

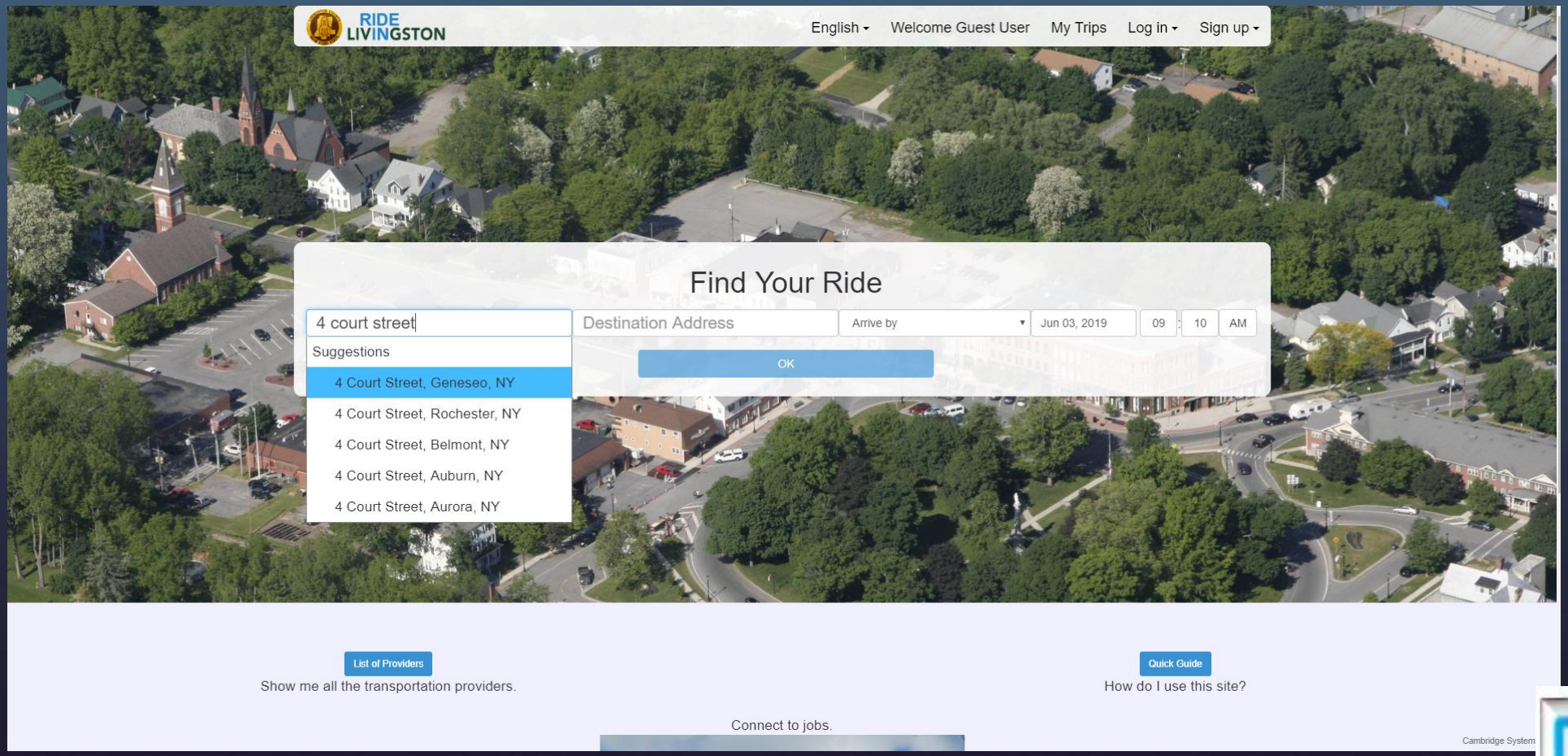
CAMBRIDGE SYSTEMATICS

RIDE LIVINGSTON

Ride LivINgston.com

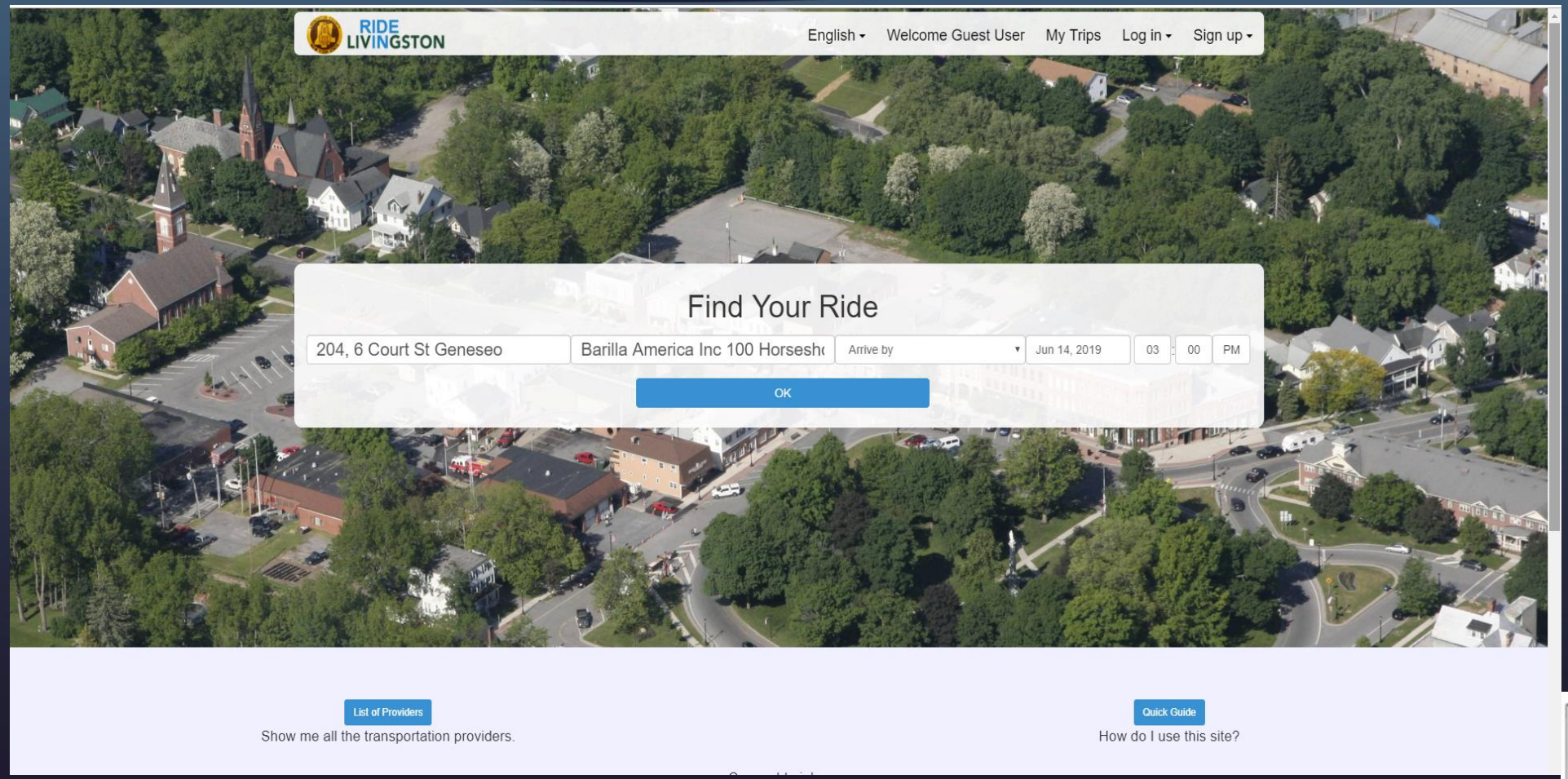


Ride LivINgston.com



RIDE LIVINGSTON

Ride LivINgston.com



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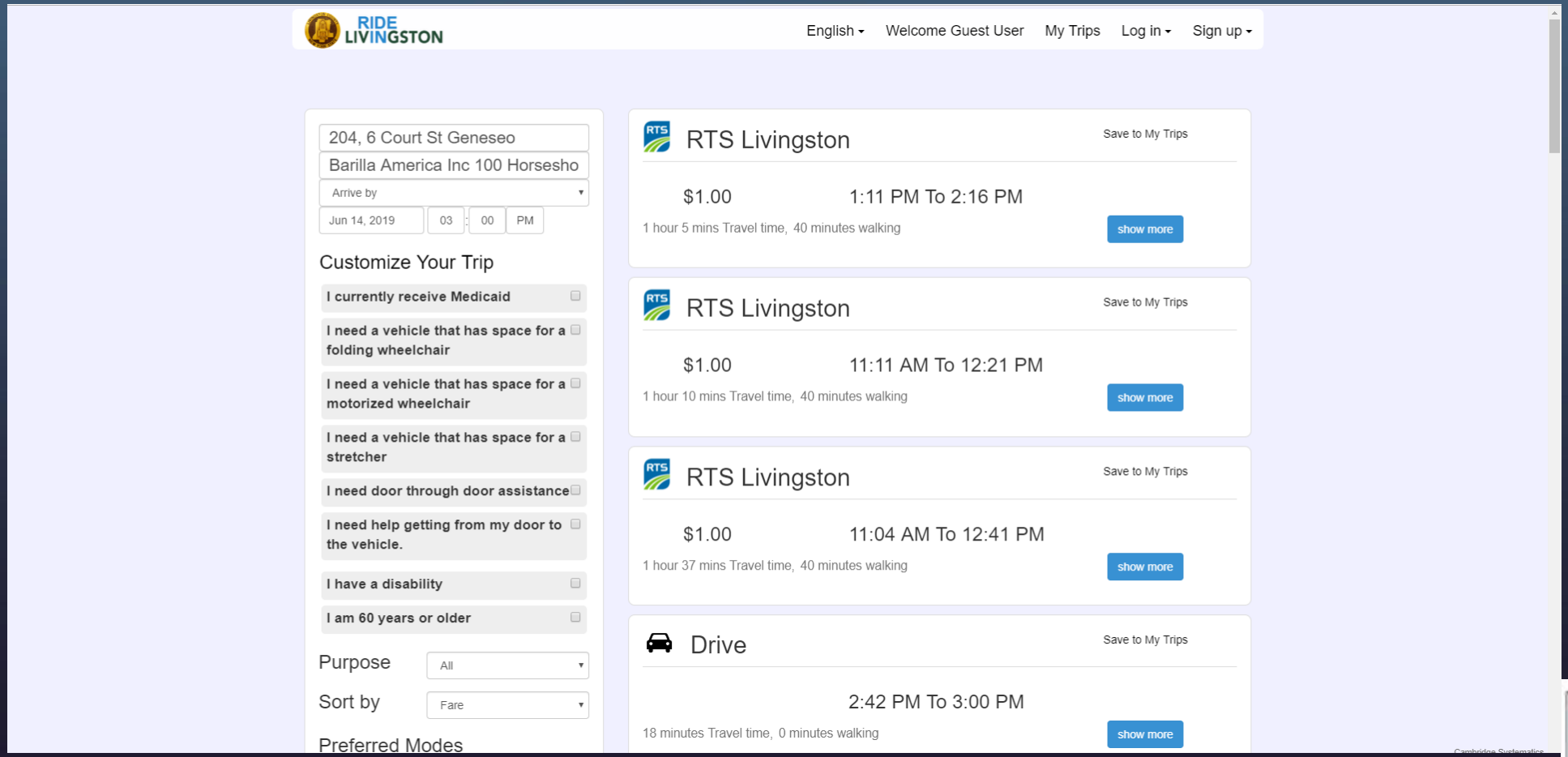

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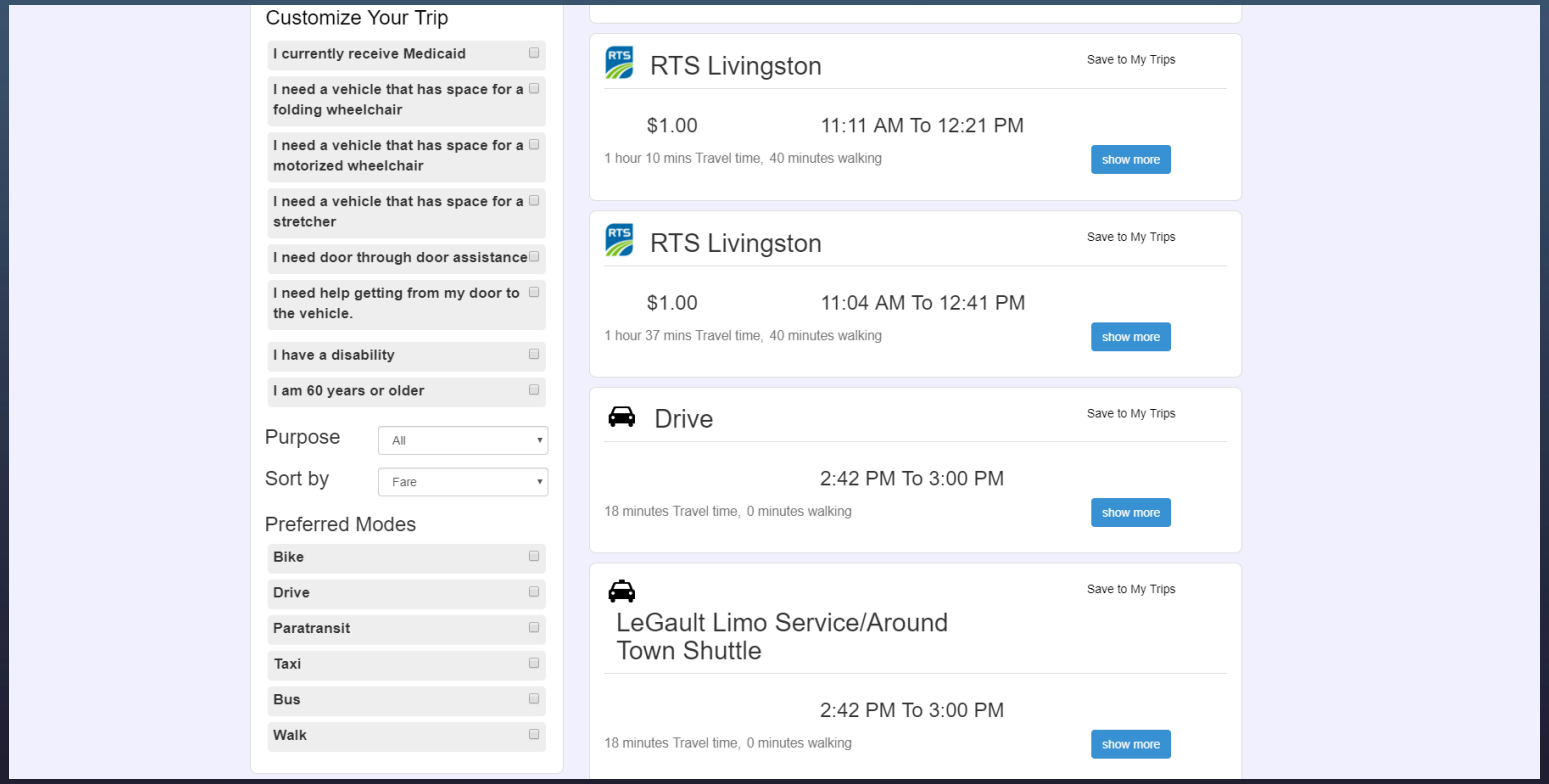

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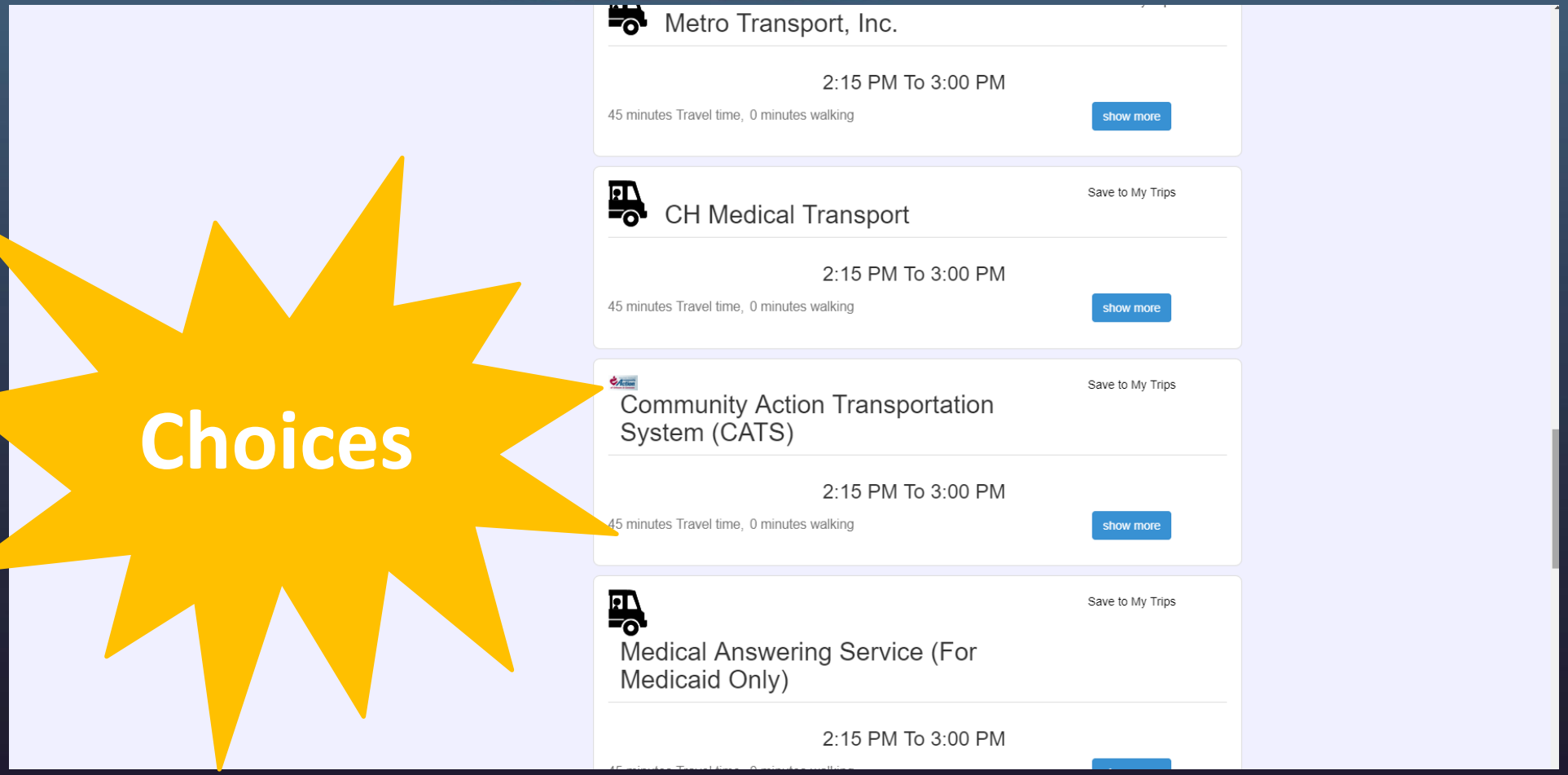
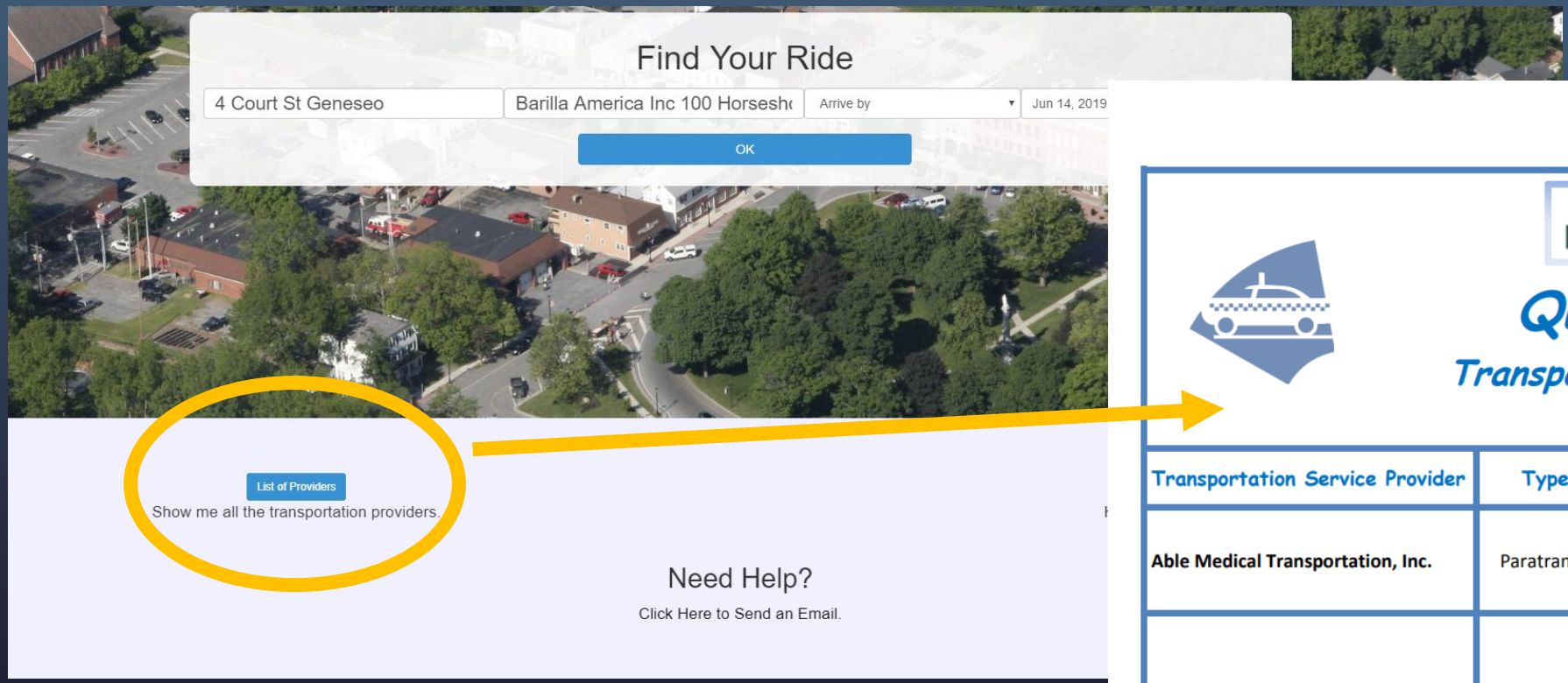


Choices

RIDE LIVINGSTON

Ride LivINgston.com



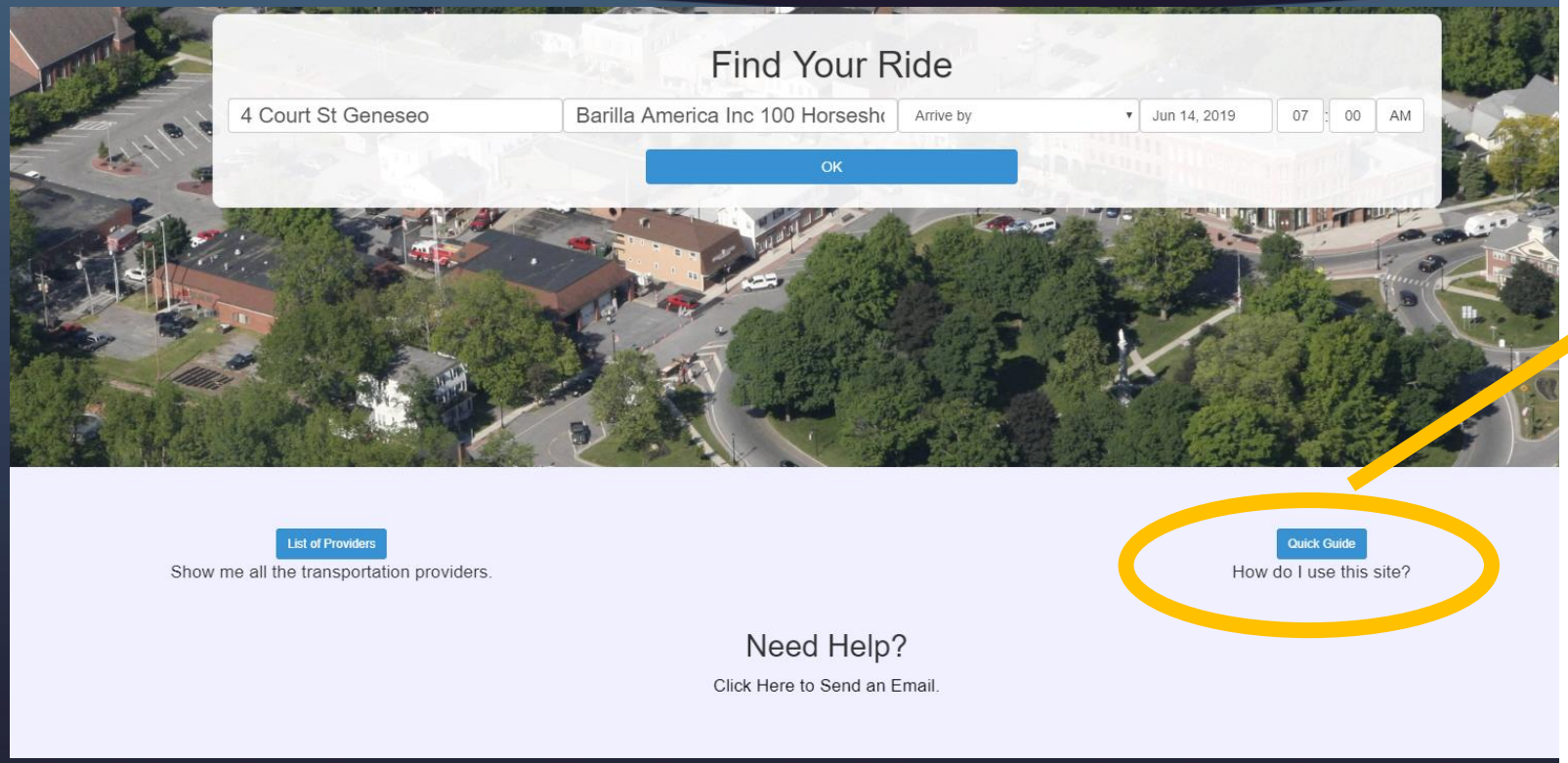
RIDE LIVINGSTON

Quick List:

Transportation Services

Transportation Service Provider	Type	Telephone	Comments
Able Medical Transportation, Inc.	Paratransit	585-756-2222	Saturday hours possible with 48-hr. advance notice. Service between Livingston and Monroe Counties, but not between locations only within Livingston County.
ACCESS Allegany	Paratransit	585-593-1738 or 585-593-5223	Call Center: 8 a.m. to 12:00 p.m., 12;30 p.m. to 4:30 p.m.; buses 5 a.m. to 8 p.m., depending on route. Connects with Hornell Transit buses in Alfred. Call for rates and scheduling information. www.accessallegany.org
Attica Bus	Fixed-Route Transit	585-591-2107	Call 585-591-2107 for appointment, 2-3 days in advance, M-F, 5:30 a.m. to 6:00 p.m.; after hours, leave message.

Ride LivINgston.com



Welcome to RIDE LivINgston.

Our goal is to match the transportation needs of Livingston County residents with rides that work for them.

Follow the steps listed below to tell us where you would like to go. You will be offered a selection of rides to choose from, based on the information you provide. ***Choose the ride that works best for you.***

1. Enter your starting address, destination address, and preferred arrival date and time on the opening page.
2. Under *Customize Your Trip*, check the boxes that apply to you in the window that appears on the left.
3. Click on a *Purpose* from the drop-down menu.
4. From the *Sort by* drop-down menu, select the factor that is most important to you when choosing a ride. If you do not select a factor, ride options will be listed by fare.
5. From the *Preferred Modes* menu, choose the options that are acceptable to you.
6. Your transportation options should now appear on the right. All ride choices shown may not perfectly match your needs.
7. Scroll down until you find the ride that works best for you.
8. Click on the *Show More* button to view details and contact information for that ride.

RIDE LIVINGSTON

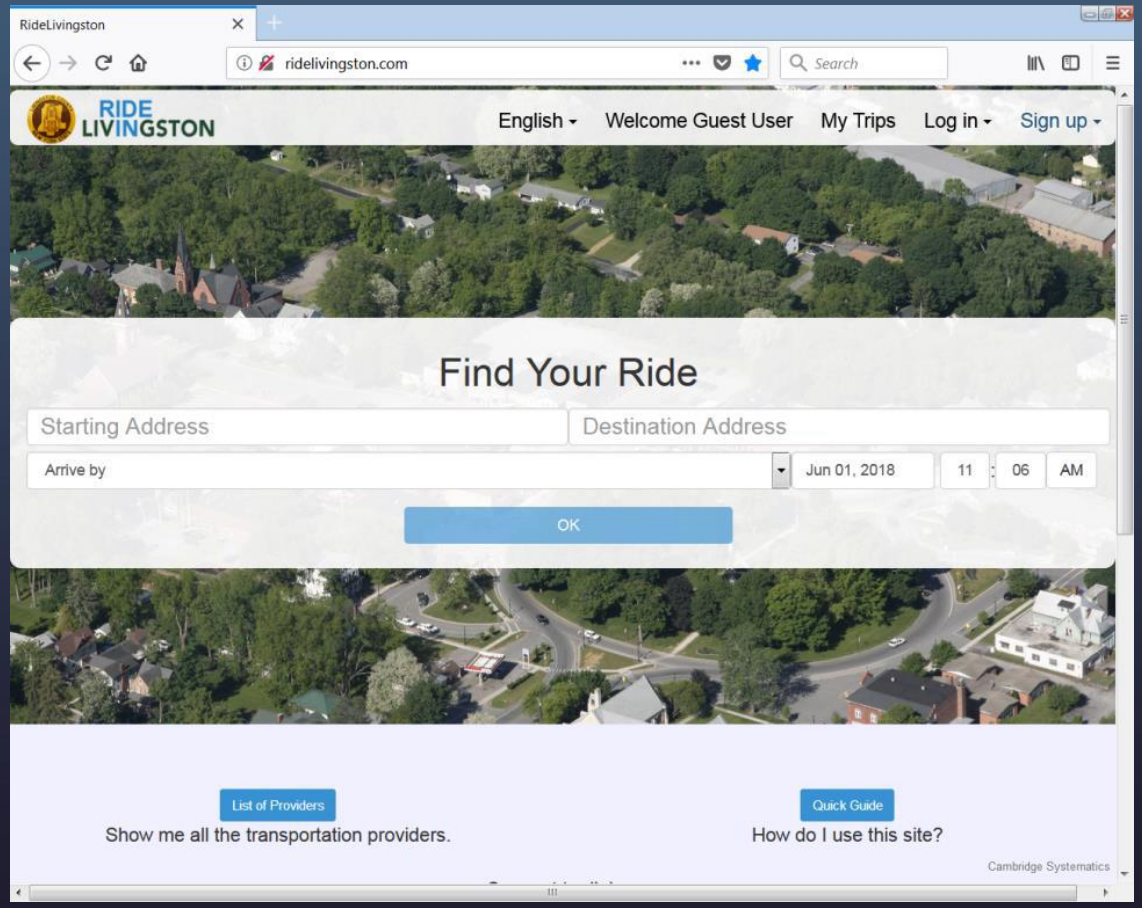
Ride LivINgston

- Compare transportation choices
- Directly link to transportation provider for service: not providing the ride
- Comprehensive in nature
- Overcome existing barriers to transportation

RIDE LIVINGSTON

Ride LivINgston: Changes since inception

- Map next to trip planner
- Option to plan trip using map
- Landmark option
- ‘Use Current Location’ option for starting address
- High-quality pictures



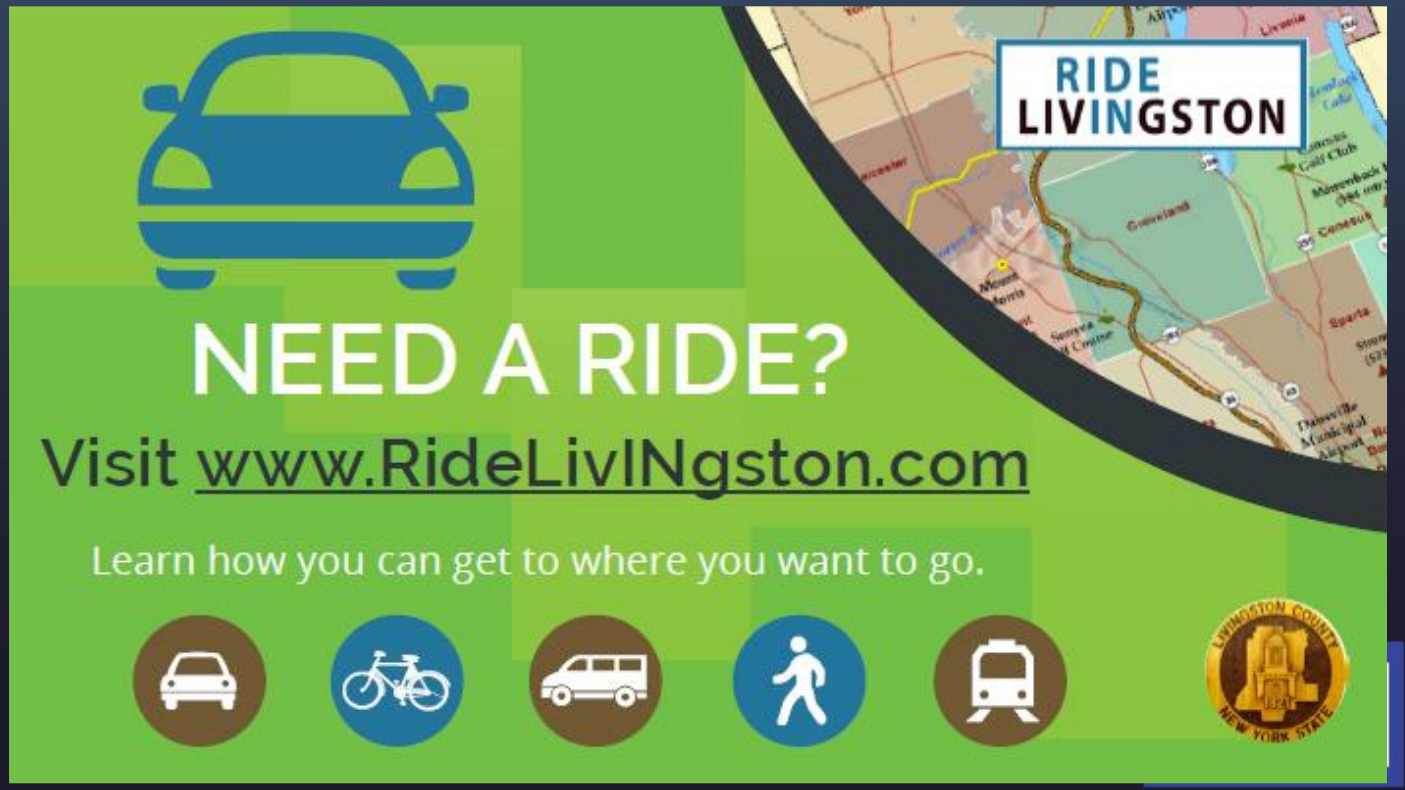
Measuring Success: Improving Mobility

- Reduce transportation barriers: education
- Track the number of users
- Common points of origin or destinations
- Reduce missed appointments for lack of transit

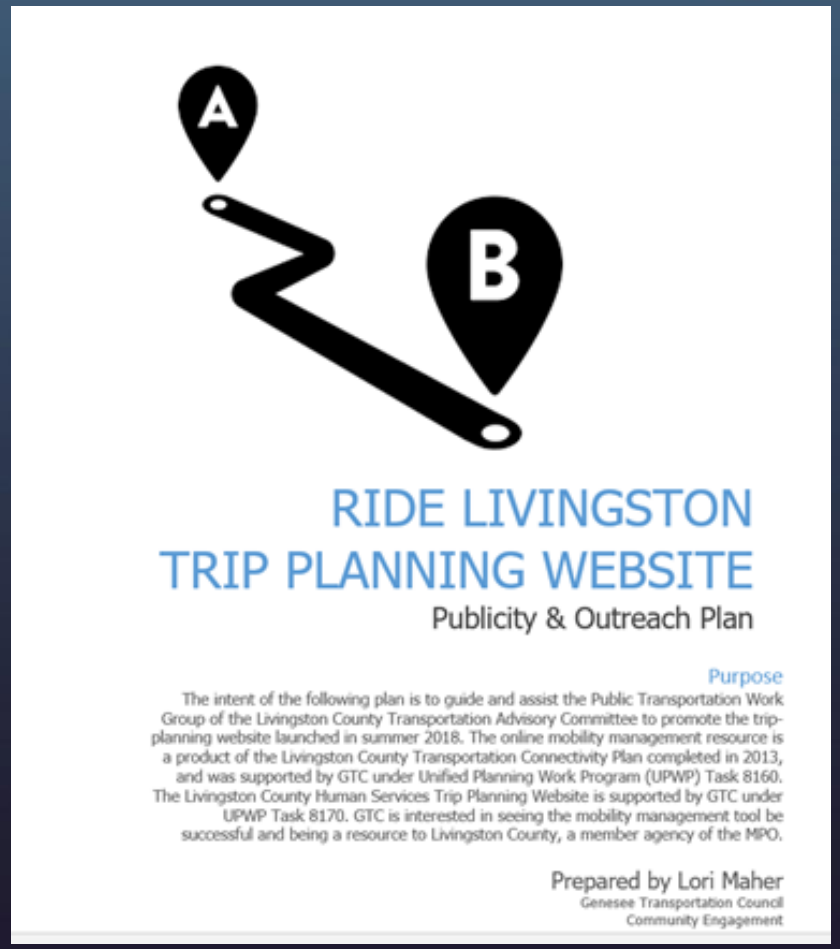
RIDE LIVINGSTON

Current Users

- General public
- Human Services Agencies: DSS, OFA &Probation
- Caregivers

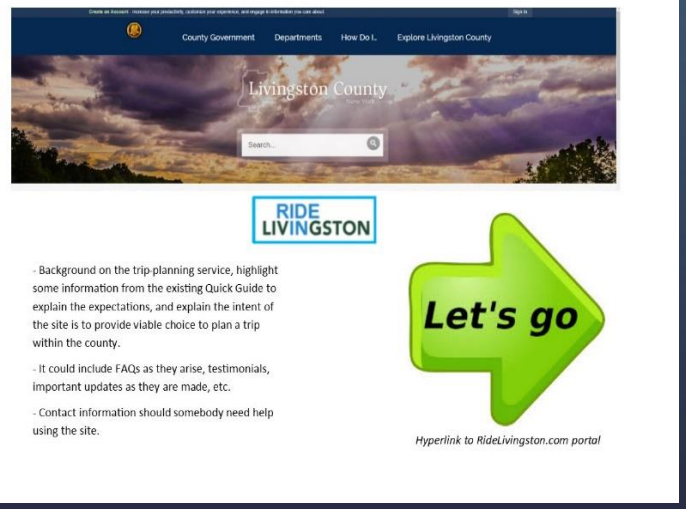


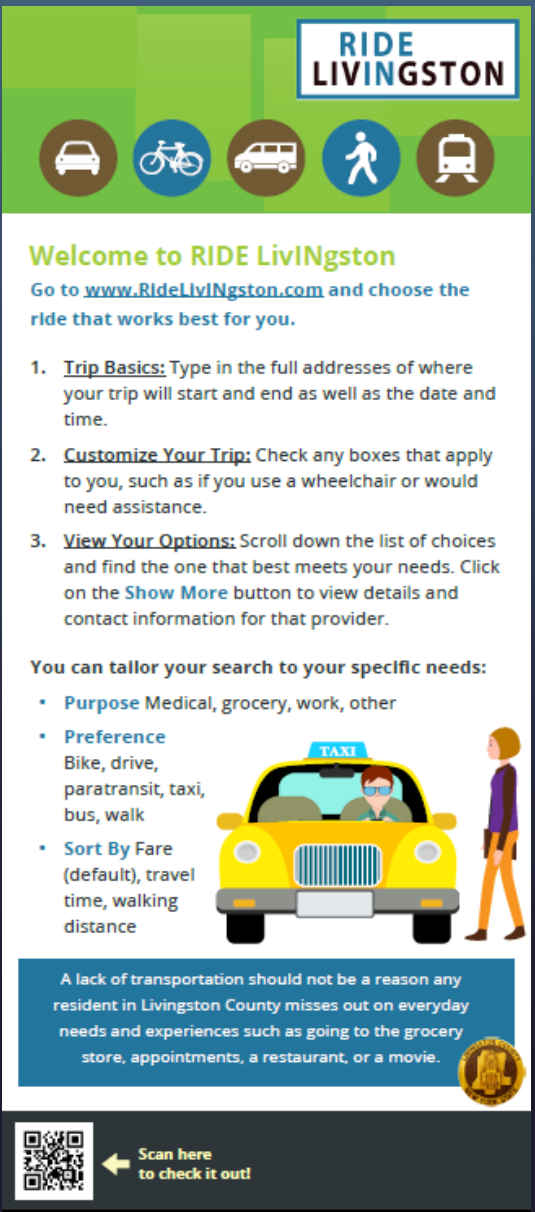
Public Outreach Ride LivINgston



- To increase the awareness of the online resource to targeted populations needing to travel in Livingston County.
- To increase the website analytics
  - From 50 unique users per week to 500 or more.
  - From 100 unique users per month to 1,000 or more.
  - From less than 100 planned trips per month to 1000 or more.
  - From less than 50 planned trips per week to 500 or more.
- To identify and evaluate other web analytics to further optimize the website and customize this publicity plan.
- Optimize the website with the product vendor as much as possible to identify and eliminate as many “quirky little flaws” as possible to increase the satisfaction and desirability for users to return to the site, sign-in, and plan trips.

Public Outreach Ride LivINgston





Future of Ride LivINgston

- Continual improvement for information validly
  - Ensure accuracy of providers' schedules, fares & services
- Optimize mobile use of website
- Develop mobile application
- Expand the geographic area and transportation providers

Connect LivINgston

2015 Transportation Planning Excellence Award

Federal Highway Administration and Federal Transit Administration

C&S COMPANIES®

Stuart I. Brown Associates, Inc. A LaBella Company

VHB Vanasse Hangen Brustlin, Inc.

Questions?

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(585) 243-7550

Technology Advancements in Saratoga Springs

City of Saratoga Springs

June 14, 2019
Intelligent Transportation Society of New York (ITS-NY)
Annual Meeting and Technology Exhibition

Presenting Today

Michele Madigan, Commissioner of Finance
City of Saratoga Springs

- Leads the City's Finance and IT departments
- Leads the Saratoga Smart City Commission
- Championed the 2.5 megawatt Spa Solar Park project

Agenda

- The Smart City Imperative: Background and Vision
- Smart City Framework
- Select Smart City Initiatives
- From a Smart City to a Smart Region: Next Steps

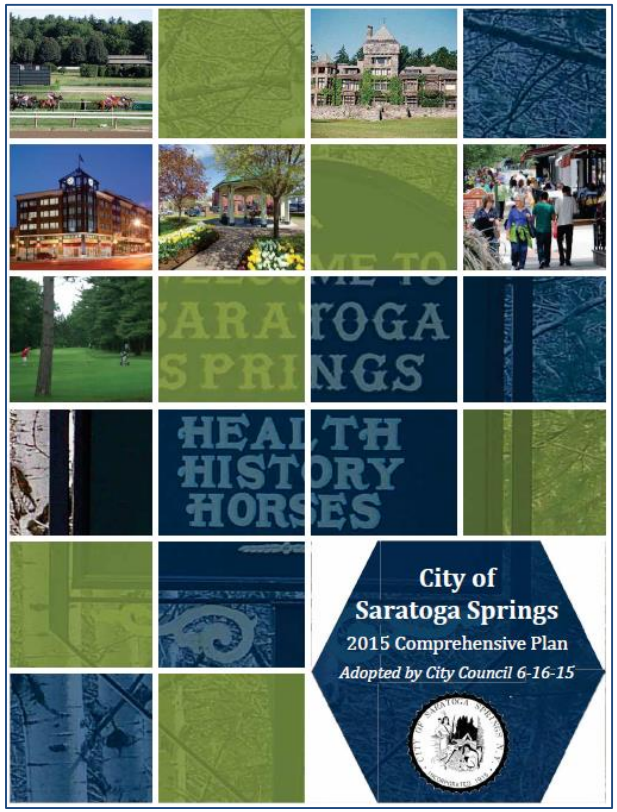
The Smart City Imperative

Broadband and internet access at **globally competitive speeds** are no longer optional luxuries.

They are **essential resources** for residents, businesses, service providers, and government.

From a Comprehensive Plan…

2015 Comprehensive Plan



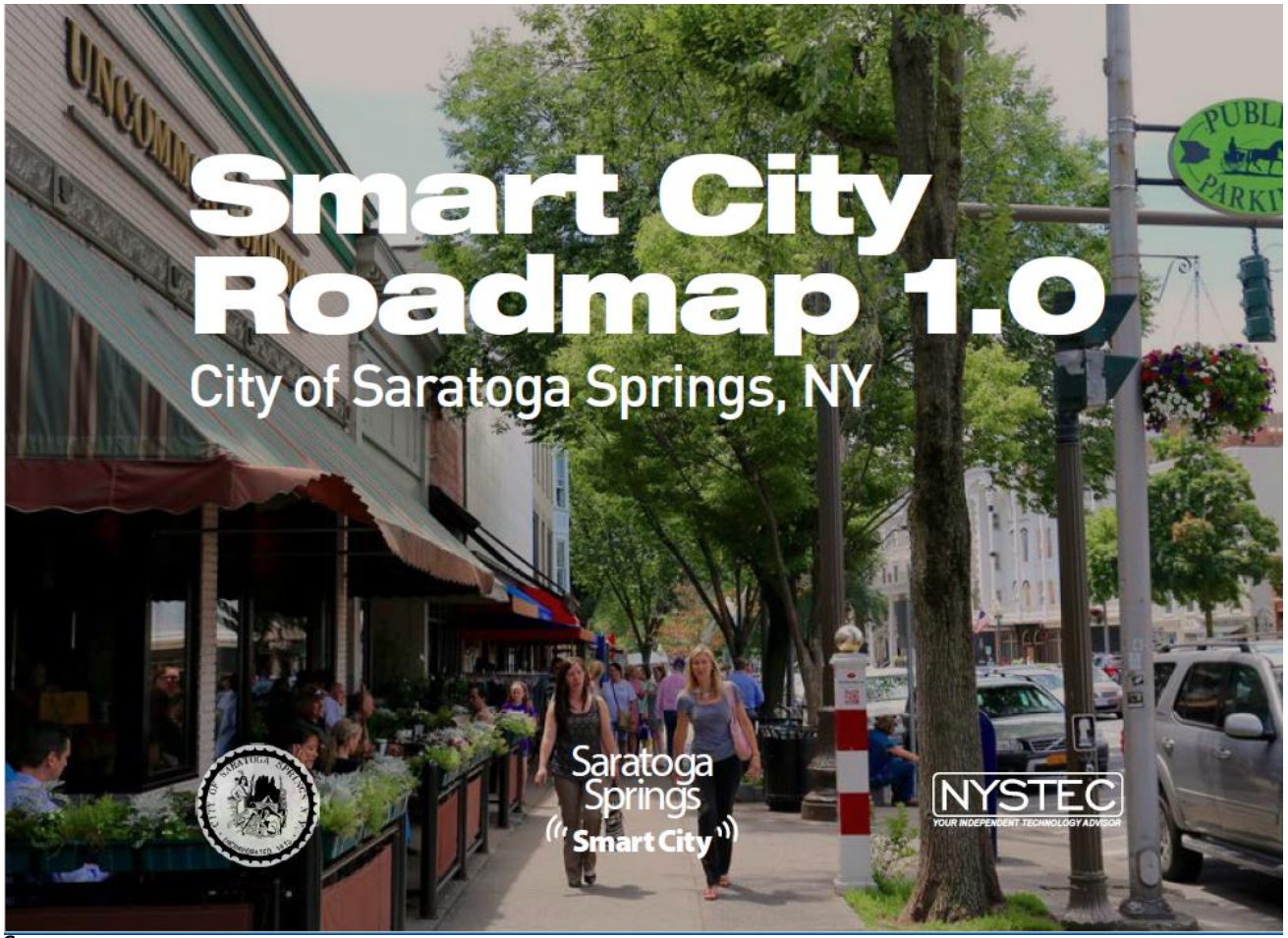
Guiding Principles

- Economic Strength & Stability
- Environmental Health & Resiliency
- Transportation & Mobility
- Community Character

Saratoga Springs Smart City

…to a Smart City Roadmap…

October 2016



Saratoga Springs Smart City

…to exploring new technologies.

Saratoga Springs Smart City

Saratoga Springs Smart City Vision

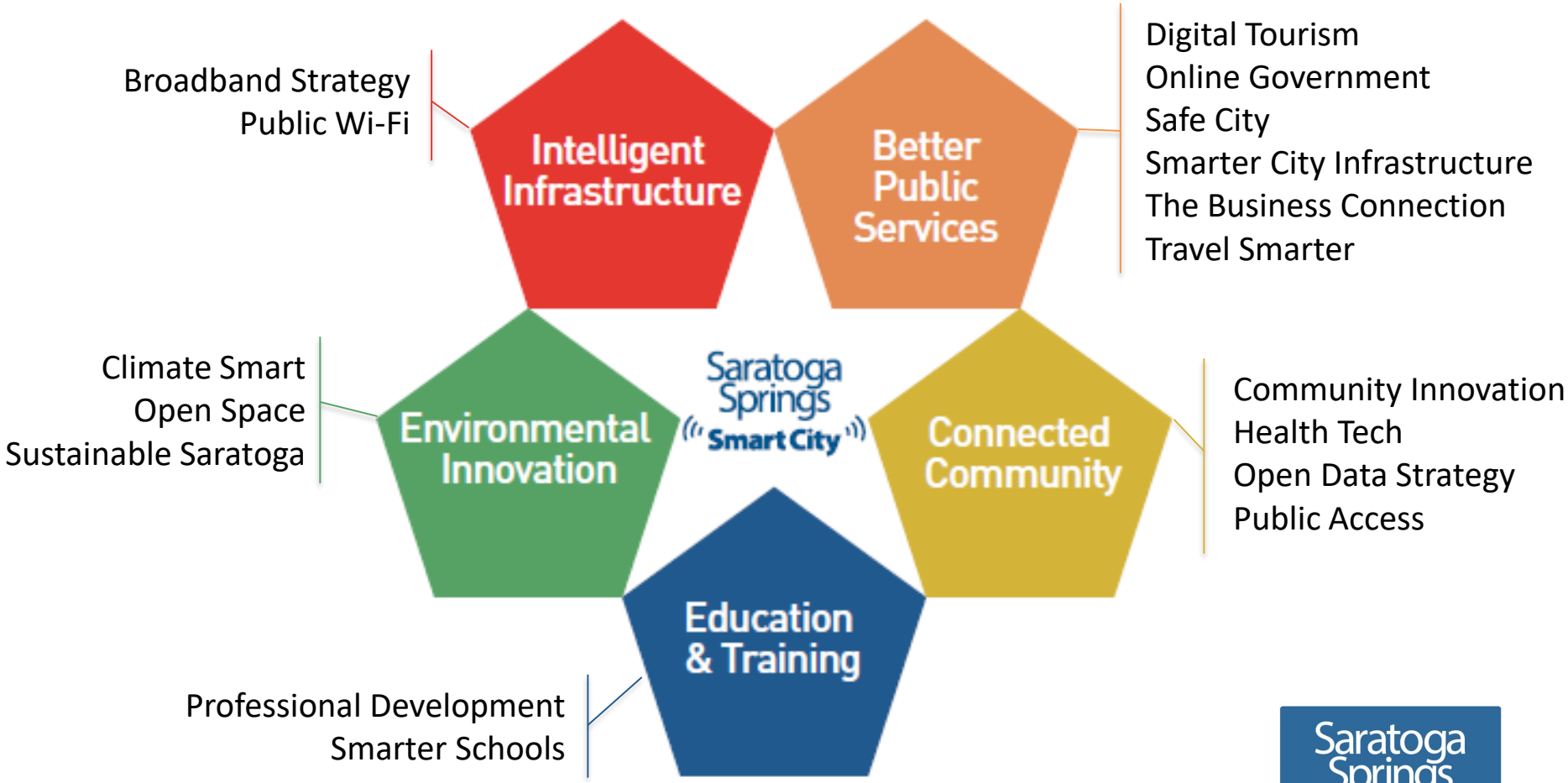
A smart city is an **information hub** that empowers citizens, supports businesses, and inspires community innovation.

It is **dependent on** technology but **not defined by** that technology.

Smart City Framework

Saratoga Springs Smart City

Smart City Framework



Select Smart City Initiatives

Citywide Fiber Infrastructure

Working with SiFi Networks to cover entire City grid

- 30-year no-cost contract
- Design, build, and maintain high-speed fiber optic network

Saratoga Springs Smart City

Select Smart City Initiatives

Connected Street Lighting

- CDTC grant for street lighting conversion – energy savings & regional guidebook for municipalities
- Governor announced $7 million in funding for communities to move forward through REV on connected street & LED lighting

Saratoga Springs Smart City

Select Smart City Initiatives

Spa Solar Park

timesunion News Sports Business Entertainment Living Blogs Jobs Homes Cars Classifieds

Saratoga solar panels expected to save city $100k annually

New program to save residents money on bills too

By Wendy Liberatore Updated 6:06 pm, Monday, September 18, 2017

Photo via Onyx Renewable Partners, L.P.; posted on Sustainable Saratoga website

- 2.5 megawatt solar energy park
- Groundbreaking ceremony in April 2017
- Saved $60,000 in first year
- 40% of City's energy consumption now related to renewable

Saratoga Springs Smart City

Next Steps

From a Smart City to a Smart Region

- Partner with local/regional industry leaders & trusted technology advisors
- Share best practices/lessons learned
- Collaborate on smart region initiatives
- Engage our communities