ECONOMIC DEVELOPMENT STRATEGY

ALBANY COUNTY, NY

VOLUME 3: INFRASTRUCTURE AND LAND USE ANALYSIS

2020

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Infrastructure and Land Use Analysis was prepared by Bergmann Associates

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EXISTING CONDITIONS + OPPORTUNITIES

EXISTING CONDITIONS

TRANSPORTATION

INTRODUCTION

Albany County is located at a crossroads of transportation infrastructure. Major interstates provide fast, reliable access to national and international markets and provide people with convenient access to the northeast region and major metropolitan areas. A robust public transportation network provides affordable and frequent access to destinations throughout the County as well as national and international destinations. And, with access to two major rivers and the Erie Canal, the Ports of Albany and Coeymans serve as important hubs of commerce, distribution, and employment within the county.

Transportation and economic development are closely interrelated; a robust, accessible, and well-maintained transportation system enables the efficient movement of people and goods throughout the county. For instance, economic development can stimulate demand for enhanced transportation capacity by increasing the number of commuters and shipments, and the quality and quantity of available transportation infrastructure may attract new businesses to an area or encourage existing businesses to stay or expand. Developers often consider transportation access when siting projects, since optimal transportation conditions can reduce operating costs and increase productivity. As a result, businesses with transportation access and intermodal connectivity can expand their market size. Likewise, efficient transportation systems enable businesses to reduce the cost and time required for commuting and shipping, thereby enabling expanded output.

This section addresses the following topics:

- Roads + Bridges
- Freight Distribution via Truck, Rail, Ports, + Air
- Public Transit
- Bicycle Infrastructure
- Development Limitations
- Opportunities

ROADS + BRIDGES

Importance to Economic Development

Roadways and bridges are arguably the most integral components of the transportation network, providing convenient access and mobility for residents, businesses, and visitors. Numerous studies have shown a positive correlation between the presence and quality of highway infrastructure and economic development. Roadways enable greater mobility, allowing producers to reach markets faster and to increase the size of their market area. Bridges bring roads where they could not otherwise go, connecting markets and allowing the movement of raw materials and finished goods.

The quality of roadway infrastructure is critical to a well-functioning transportation system. Uneven road surfaces and faulty bridges can create unsafe conditions for drivers, necessitate delays for construction, and impact traffic flows. Years of deferred maintenance have left the nation's infrastructure vulnerable, and deferring maintenance now only makes failures more catastrophic and fixes more expensive later. For instance, it's much more expensive (both in human and fiscal terms) to rebuild a collapsed bridge than to pro-actively buttress it.

Centrally located at a crossroads of transportation infrastructure and the confluence of two major rivers.
Albany County provides a diversity of transportation options for residents, businesses, and visitors. Photo credit: Albany County Stormwater Coalition.

TRANSPORTATION

Major Roads

The major and most heavily utilized roadways in Albany County are Interstate 90 with an average of 65,500 vehicles per day, Interstate 87 with 73,000 vehicles per day, Interstate 787 with 40,000 vehicles per day, and New York State Route 7 with 40,000 vehicles per day.

- I-90 and I-87 are both classified as main interstates, meaning they are controlled-access, have high speed limits, and traverse long, uninterrupted distances.
- I-787 is classified as an auxiliary interstate because it is a spur off I-87 that connects urban population centers – Albany and Troy.
- Route 7 is classified as a principal arterial expressway – the next class down from an interstate – because, although it still maintains high traffic volumes, it has only partially-controlled access and is interrupted by cross streets.

These roadways provide convenient access to major cities both within and outside New York State: I-90 connects to other upstate cities, including Syracuse, Rochester, and Buffalo, to the west and Massachusetts to the east, while I-87 connects south to New York City and north to the Canadian border.

Interstate 90 (I-90)

I-90 enters Albany County from the west in the Town of Guilderland as part of the New York State Thruway. About two miles past the City of Albany line, I-90 splits from the Thruway (the mainline follows I-87 South from this junction to New York City) and parallels the northern boundary of the city as a six-lane, divided, toll-free highway. I-90 connects to the north-south I-787 at a stack interchange before crossing the Hudson River into Rensselaer County on the Patroon Island Bridge. At the southern border of Rensselaer County, I-90 intersects with the Berkshire Connector, a spur off the Thruway mainline that crosses into Massachusetts and becomes the Massachusetts Turnpike, providing direct access to Springfield, Worchester, and Boston.

Interstate 87 (I-87)

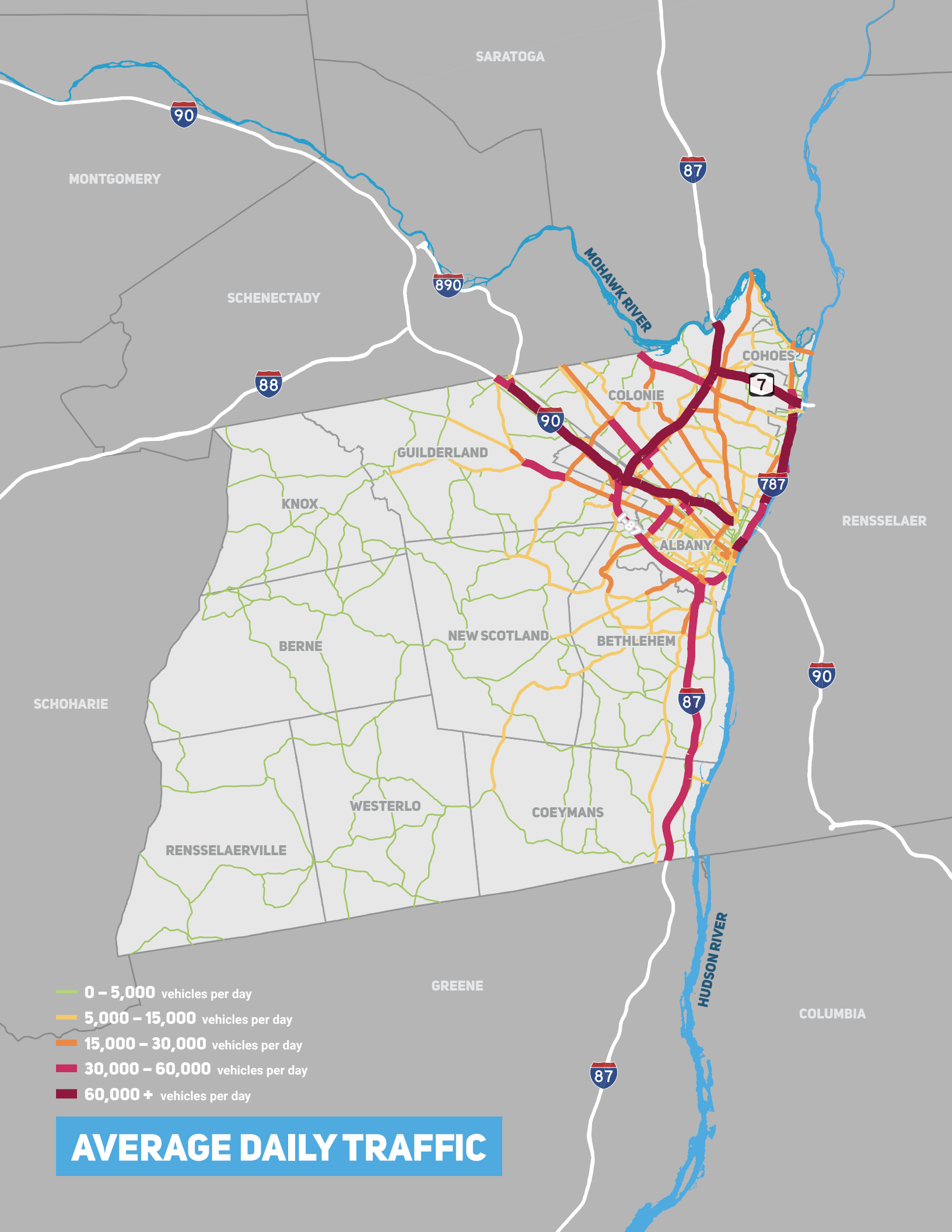
I-87 enters Albany County from the south in the Town of Coeymans as part of the New York State Thruway. It roughly parallels the Hudson River as it travels north before redirecting northwestward to run along the southern border of the City of Albany. It is at this point that I-87 widens from four-lanes to six-lanes. I-87 intersects with I-90 at exit 24 (the busiest exit on the Thruway), breaks from the Thruway (which continues west as part of I-90) and travels north as part of the toll-free Adirondack Northway. I-87 exits Albany County after crossing the Mohawk River on the Twin Bridges in the Town of Colonie. It continues north to the Canadian border at Champlain, just 40 miles south of Montreal.

Interstate 787 (I-787)

I-787 is a 10-mile northward spur of I-87 that connects the toll plaza at exit 23 of the Thruway in Albany to Route 7 in Troy. I-787 connects with US 9 and US 20 at a large interchange southeast of the Empire State Plaza and skirts the east side of downtown Albany along the banks of the Hudson River before connecting to I-90 and eventually Route 7 in Troy. I-787 is the primary route for those traveling into and out of downtown Albany.

New York State Route 7

Route 7 enters Albany County from the east, where it crosses over the Collar City Bridge from Troy in Rensselaer County. It interchanges with I-787 before continuing westward as a controlled-access highway with three lanes in the west direction and two lanes in the east direction. After this 3.5-mile stretch (known as Alternate Route 7), Route 7 briefly joins the Adirondack Northway for a north-south jog before continuing westward as Troy-Schenectady Road. This section of Route 7 is four lanes with a central turning lane. It is heavily commercialized with many cross streets and plaza entrances, unlike the controlled-access portion between the Northway and Troy.


SARATOGA
MONTGOMERY
SCHENECTADY
MOHAWK RIVER
COHOES
COLONIE
GUILDERLAND
KNOX
ALBANY
RENSSELAER
BERNE
NEW SCOTLAND
BETHLEHEM
SCHOHARIE
WESTERLO
COEYMANS
RENSSELAERVILLE
GREENE
HUDSON RIVER
COLUMBIA
90
87
890
88
7
787
0 – 5,000 vehicles per day
5,000 – 15,000 vehicles per day
15,000 – 30,000 vehicles per day
30,000 – 60,000 vehicles per day
60,000 + vehicles per day
AVERAGE DAILY TRAFFIC

TRANSPORTATION

Condition of Roads + Bridges

Roads

According to the Capital District Transportation Committee (the region's metropolitan planning organization), only half of the Capital District region's roads are in good repair. Approximately 38% of roadways are in fair condition, with intermittent bumps or depressions, and the remaining 11% are in poor condition, with frequent bumps or depressions that make travel uncomfortable.

Roadways in the Capital District and across Albany County are also aging, which compounds pavement condition problems. Most of the roadways in Albany County are between 30 and 50 years old, meaning that many are reaching the end of their engineered lifespan – which generally lasts between 50 and 70 years. Eventually, these older roads will require complete reconstruction, not just resurfacing, to keep them in operating condition.

State- and locally-owned roadway facilities are in the worst condition in the county, with 50% requiring repair or reconstruction according to the CDTC report. Roadways in less-populated, rural areas are also in comparatively worse condition than roadways in more urbanized areas. According to the Albany County Agriculture and Farmland Protection Plan Update (2018), deteriorating rural road conditions and changes to the design of rural roads have negatively affect farmers' ability to move machinery across the county in a safe, efficient manner.

Bridges

Of the roughly 380 bridges in Albany County, 44% are considered to be in fair or deficient condition (assigned a bridge condition rating of less than 5.0, which the NYSDOT uses as a threshold for structurally deficient). These bridges are either seriously or totally deteriorated and are not functioning as originally designed. Most of these structurally deficient bridges are located on interstates or private property (e.g., rail yards or industrial sites).

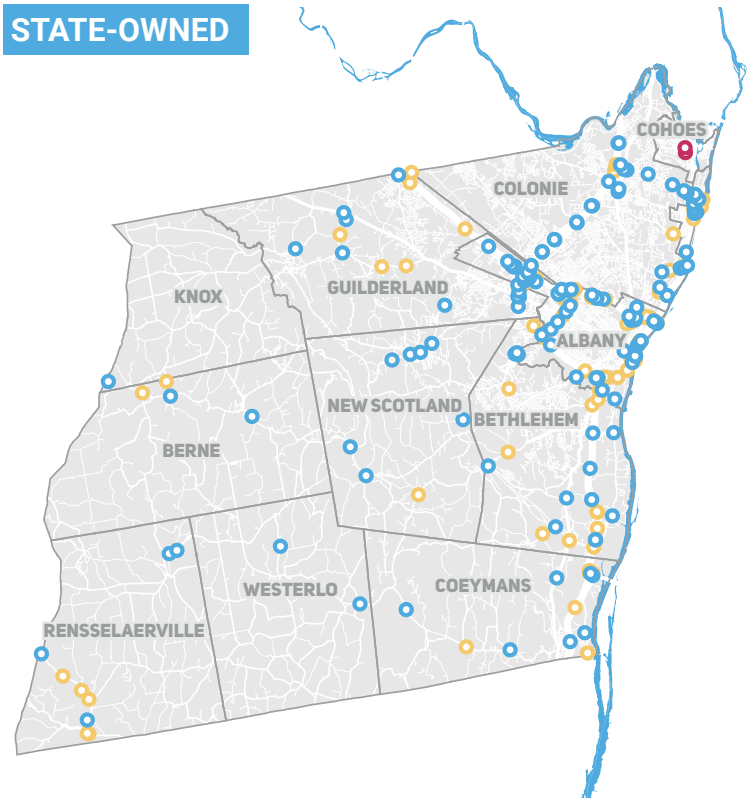
The county's bridges are also aging, with almost 20% of bridges being 70 years or older, which meets or exceeds the generally accepted 70-year engineered lifespan of a highway bridge. Age is a major factor in the worsening conditions of the Capital District's bridges of late, with structurally deficient interstate bridges jumping from 30% in 2006 to 42% in 2013 and structurally deficient State-owned bridges jumping from 33% to 37% during the same time period.

Congestion

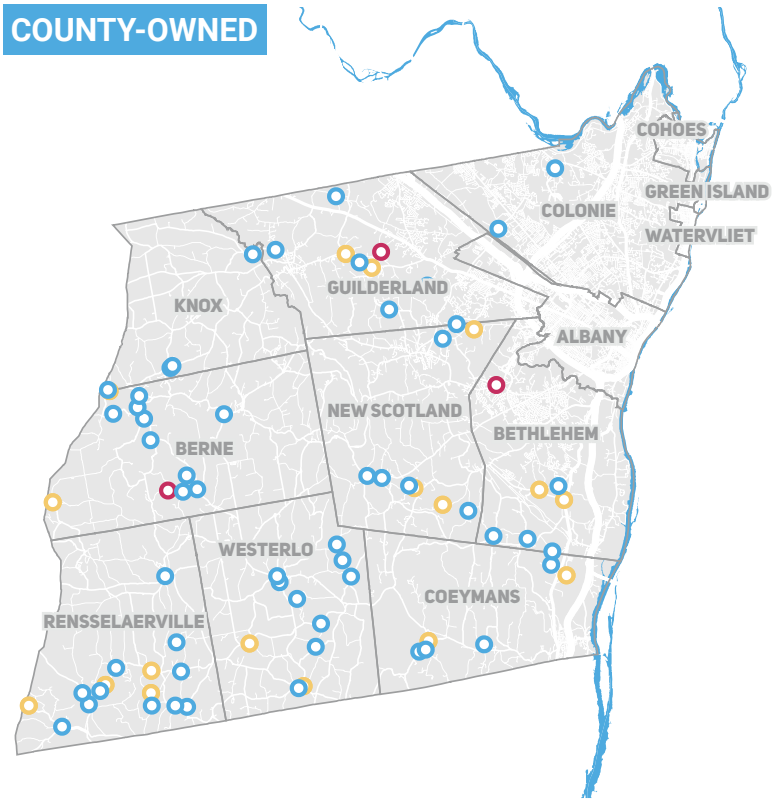
Interstates 87, 90, and 787 and new York State Route 7 experience the worst recurring congestion in the Capital District. Most of this congestion occurs during weekday evening peak hours from 4:00 PM to 6:00 PM. During this period, drivers can expect to spend, on average, 2.12 times as long traveling on Route 7 Westbound between I-787 and I-87 than they would during free flow (regular speed, regular traffic) conditions. Drivers can also expect traveling along the toll-free portion of I-90 Westbound from the River to I-87 to take 1.62 times as long and traveling along I-87 Northbound from I-90 to the Twin Bridges to take 1.74 times as long. During the morning peak period from 7:00 AM to 9:00 AM, congestion on I-87 Southbound is particularly heavy, requiring 1.95 times as long to travel from the Twin Bridges to I-90.

According to the CDTC New Visions 2040 Plan, there is no feasible capital improvement that would eliminate the daily recurring traffic that occurs during these peak periods. Widening highways is prohibitively expensive and studies have shown that adding lanes induces demand – making more people want to drive and thereby leaving the level of congestion unchanged. Widening highways would also not address non-recurring delays – or those that are unpredictable, like a vehicle crash, a snowstorm, or construction. Unlike the recurring congestion described above, non-recurring delay is less tolerable to drivers because they cannot plan for it. The CDTC report indicates that it is actually non-recurring delay, not the daily recurring delay, that causes most (66%) of the congestion in Albany County.

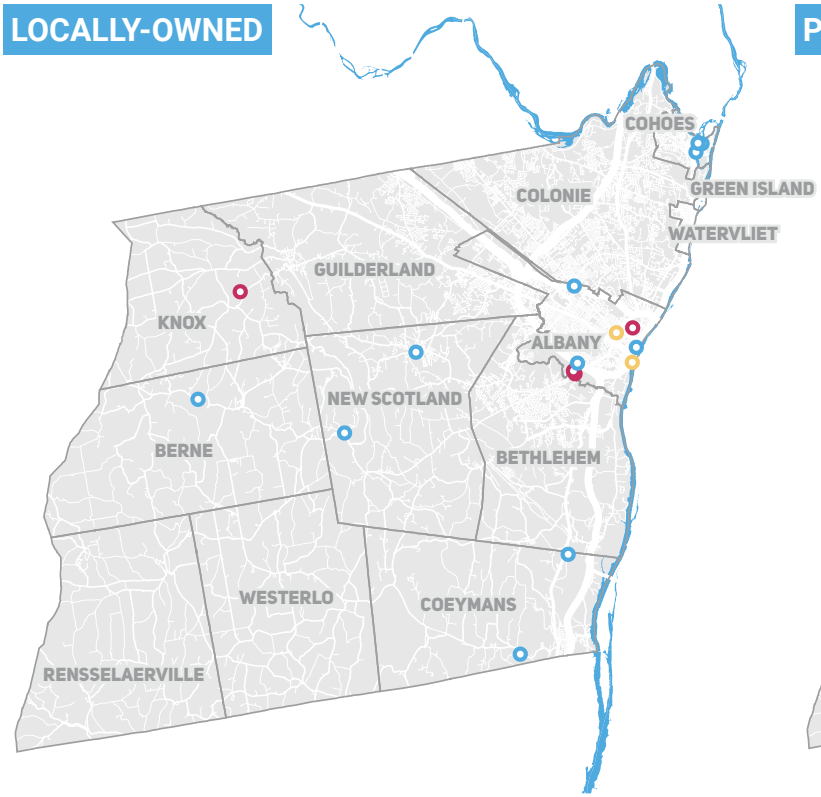
STATE-OWNED



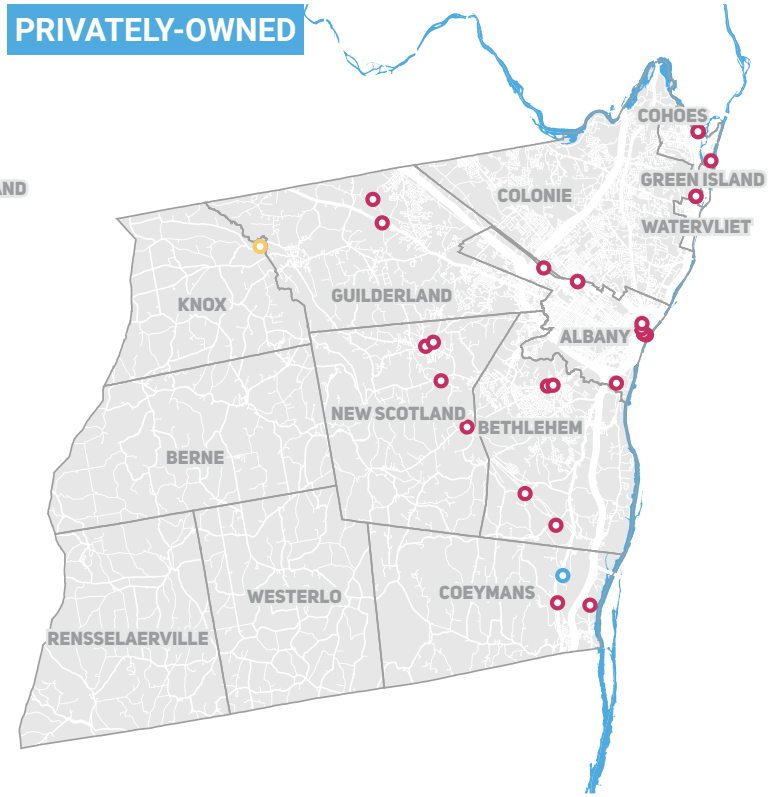
COUNTY-OWNED



LOCALLY-OWNED



PRIVATELY-OWNED



BRIDGE CONDITIONS

- **GOOD CONDITION** (new or good condition)
- **FAIR CONDITION** (minor deterioration)
- **DEFICIENT** (serious to total deterioration)

TRANSPORTATION

Autonomous Vehicles

New York State has permitted the testing of autonomous vehicles on public roads since 2017; without legislative action, this program is scheduled to end in 2020. Autonomous vehicle tests must be approved by the commissioner of the Department of Motor Vehicles, and all tests must be performed under the direct supervision of the New York State Police. Cadillac and Audi tested autonomous vehicles in 2017; however, few other companies have taken advantage of this program. The only self-driving vehicle service in the State is Optimus Ride, which plans to deploy several self-driving shuttles at the Brooklyn Navy Yard in New York City in 2019. These autonomous shuttles will operate on private roads and connect New York City ferry passengers to Flushing Avenue.

Development Limitations

Road and Bridge Conditions

While Albany County's thousands of miles of roadways and hundreds of bridges link the county to other markets and promote economic growth, the county's roadway infrastructure suffers from the same nationwide issues of deferred maintenance and lack of funding. Deteriorating road and bridge infrastructure leads to inefficient movement of goods, decreased mobility, and increased public safety risks - all of which adversely impact the county's potential for economic growth.

Congestion

Although recurring delay is an inconvenience for drivers, this type of congestion is often more indicative of an area's economic vitality, as workers move into and out of the central business district during morning and evening commute periods. It is important, however, to mitigate non-recurring delay in order to keep traffic flows reliable. In particular, approaches to the I-87 Twin Bridges experience significant recurrent congestion during both the morning and evening peak periods, which inconveniences commuters and creates a public safety risk.

Autonomous Vehicles

The lack of legislation permitting the operation of autonomous vehicles on public roads and the fact that self-driving technology is still in development are major obstacles to statewide adoption. Currently, autonomous vehicles require a fairly structured and legible environment; they do not respond well to unusual or unfamiliar situations (e.g., accidents, road work, emergency vehicles) and are not good at interpreting human cues. The adoption of autonomous vehicles is currently in a transition phase and any capital improvements, policies, or legislation related to this technology must carefully consider how driverless cars interact with other human drivers and variable driving environments.

Bridges provide important linkages to the surrounding region. The Thaddeus Kosciusko Bridge (top), also known as the Twin Bridge, spans the Mohawk River and connects Albany and Saratoga Counties, and the Dunn Memorial Bridge (bottom) spans the Hudson River and connects Albany and Rensselaer Counties. Bridges, however, can also create bottlenecks in the roadway system. For example, the Twin Bridges experience some of the worst traffic congestion in Albany County during morning and evening commutes. Photo credits: Wikipedia (top); marinas.com (bottom).

TRANSPORTATION

Opportunities

Opportunities to pro-actively improve and maintain Albany County's road and bridge infrastructure include:

- Work with farmers and the agricultural industry to establish rural road design standards that are compatible with the movement of farm goods and machinery, such as wider shoulder widths and bridges, shallower drainage ditches, and increased pull-off areas.
- Implement NYSDOT's "preservation first" strategy to prioritize the maintenance of existing road and bridge infrastructure over the construction of new facilities.
- Establish a maintenance schedule that prioritizes critical facilities and frequent, preventative maintenance actions to efficiently use available funds and prevent high-cost, catastrophic failures caused by deferred maintenance.
- Coordinate with the CDTC Bridge Working Group and NYSDOT to identify and prioritize critical infrastructure repairs.
- Conduct an autonomous vehicle feasibility study to draft model local laws/policy and identify highly controlled environments appropriate for driverless technology and capital improvements that improve the condition and quality of the driving environment to benefit all users, not just autonomous vehicles.

To help mitigate congestion issues, as well as reduce greenhouse gas emissions, improve air quality, and increase access to transportation options, the following opportunities exist:

- Enhance incident management systems to improve detection, remove incidents, and restore normal traffic operations as quickly as possible.
- Implement an active traffic management system that uses a combination of real-time traffic data and overhead gantries with electronic displays to convey information to drivers. Active management systems have been shown to reduce crashes and increase travel time reliability and may be particularly effective if installed in frequently congested areas, such as the I-87 approaches to the Twin Bridges.
- Install additional CCTV cameras to improve operations at the Capital Region Transportation Management Center, and install additional on-street message boards to inform drivers of emergency conditions.
- Adhere to CDTC's Transportation Demand Management (TDM) to achieve the following actions:
    - Implement a County transit-oriented development policy to ensure land use and mobility issues are addressed in a comprehensive and integrated manner.
    - Create incentive-based programs that encourage carpooling and the use of public transportation for County employees.
    - Pursue capital projects that increase mobility options, such as biking, walking, and public transit infrastructure.

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TRANSPORTATION

FREIGHT

Importance to Economic Development

Reliable and convenient movement of goods is important to a high-functioning economy. According to the Capital District Transportation Committee's (CDTC) Freight Analysis Framework, the majority of freight movements remain within the Capital District, rather than inbound and outbound movements, which makes the region's freight infrastructure critical to the local and regional economy.

Freight movement and storage is forecast to increase in importance by 2030, with the "Transportation and Warehousing" industry sector projected to grow at the third-largest rate region-wide. In terms of jobs, employment related to specialized freight trucking (+20%) and warehousing & storage (+15%) is expected to increase, while employment related to general freight trucking (-3%), rail transportation (-8%), and air transportation (-31%) is expected to decrease between 2018 and 2028.

Existing Conditions

Freight moves by various modes – truck, rail, water, and air – each with different capacities, reliabilities, and cost-effectiveness for different types of shipments. Some freight trips are by a single mode, while others are multimodal, traveling by ship, rail, and truck – for example – before reaching its final destination. Seamless connectivity between these different modes of transportation is especially important for businesses' supply chains.

Trucking

Trucking, by weight, accounts for the largest share of freight movement in the Capital Region. In 2012, 91 million tons of freight moved by truck to, from, and within the region, and this value is expected to significantly increase through 2040.

Of roads included in the CDTC's Freight Priority Network, or those most often used for truck movements, 76% have pavement ratings from "good" to "excellent" – with little to no visible signs of distress – and only 2% are rated "poor." The majority of bridges (65%) along these roads are also in good condition. However, 25% are functionally obsolete and 7% are structurally deficient.

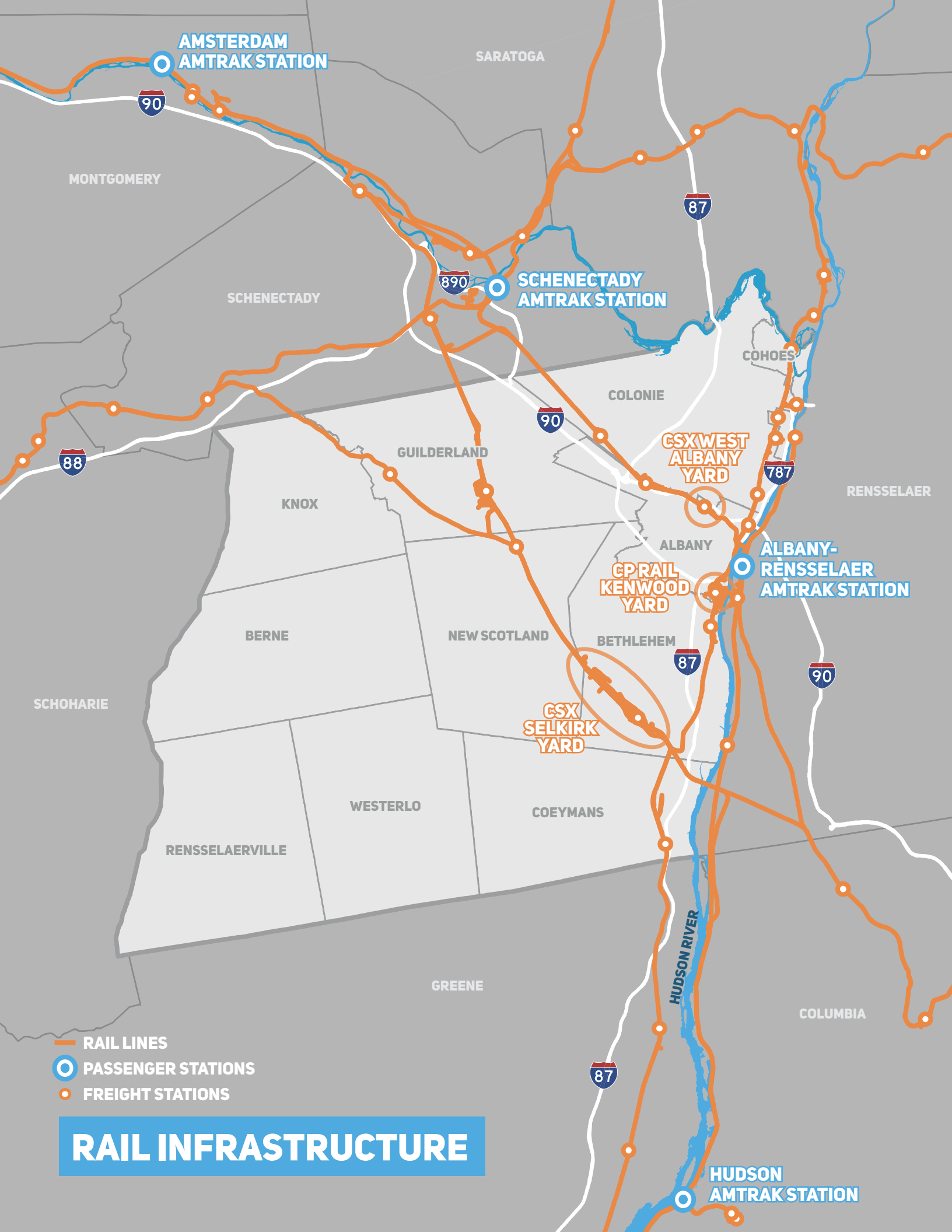
Self-driving trucks are an emerging technology being pursued by several companies, and many experts expect broad adoption of this technology within the next decade. Unlike driverless cars, driverless trucks would spend a majority of their time on highways, where the environment is more structured and predictable compared to a city street. Further, the trucking industry, technology companies, and experts expect driverless technologies will benefit truckers, not displace them. Currently, self-driving truck companies plan to have a driver in the cab at all times, however, that driver would be required to do less manual driving. Some experts envision the development of "truck ports" or transfer hubs adjacent to highways, where human drivers take control to navigate the complexities of the urban environment. The development of these transfer hubs could increase local jobs and enable truckers to stay closer to home.

Rail

Railroads provide an additional transportation option that relieve congestion on highways and also provide opportunities to move goods that cannot be transported via road. Three Class 1 railroads – CSX, Norfolk Southern (NS), and Canadian Pacific (CP) – operate in the Capital Region and connect it to major freight nodes across the country, including: New York and New Jersey, Buffalo, Chicago, Baltimore, Boston, and Atlanta and in Canada at Montreal, Toronto, and Vancouver.

The following rail yards are located in Albany County: the CSX West Albany Yard, the CP Rail Kenwood Yard near the Port of Albany, and the CSX Selkirk Yard, which is the largest of the three. The Selkirk Yard is an intermodal terminal and CSX's major classification yard for the northeast United States. It acts as a gateway to points east of the Hudson River, including New York City.

According to the CDTC's Freight & Goods Movement Study, forecasts for 2040 suggest a significant growth in



RAIL INFRASTRUCTURE

TRANSPORTATION

the tonnage transported by rail, but only low to moderate growth in the value of freight transportated by rail in the Capital District. This trend will likely reults in an overall decrease in the value per ton of freigh moved in, out, and through the region.

For a discussion of the passenger rail network, please see the Public Transit section on page 22.

Ports + Waterways

Research shows that transporting by ship is the most fuel-efficient method of transportation, being 8 times more efficient than trucking and 2 times more efficient than rail. Freight movement on waterways also alleviates traffic on the nation's highways and reduces greenhouse gas emissions associated with tractor-trailers.

Port of Albany-Rensselaer

The Port of Albany-Rensselaer is a deep, inland, public international port. The Port has facilities on both sides of the Hudson River, is the second most active cargo seaport in the state, and possesses heavy lift, on-dock rail capabilities and the largest grain elevator east of the Mississippi River.

The Port of Albany is a major contributor to the regional economy; in 2015, it supported 1,400 jobs and contributed $800 million to the economic output of the region. It receives twice-weekly barge service to and from the Port Authority of New York and New Jersey, as part of the Inland Distribution Network, and is considered a regional distribution hub for the northeastern U.S. and parts of Canada. It is also one of the four intermodal facilities in the county. It has rail connections to CSX, CP, and NS, interstate access via I-87 and I-787, and access to national and international waterbodies via the Hudson River, Erie Canal, and Champlain Canal.

To support additional growth and support its mission to increase commerce and job opportunities, the Port of Albany has invested $95 million of public and private funding into infrastructure improvements in recent years. In addition to this recent investment, has several planned projects that will continue to expand economic development opportunities in the County. These ongoing/ upcoming projects include:

- Construction of a roll on/roll off ramp and corresponding demolition work to improve stevedore access is expected to be completed in the Summer of 2019. Upon completion, this will be the first roll on/roll off ramp in the northeast region.
- Securing private investment to develop an 11-acre parcel owned by the Port on the west side of the Hudson River and to lease a 2-acre parcel owned by the Port on the east side of the Hudson River.
- $10-$15 million planned terminal improvements and road reconstruction (currently in the engineering and design phase), including new construction of a 60,000 square-foot maritime warehouse/transit shed and reconstruction of the Port's entire maritime terminal.
- Redevelopment of an 80-acre parcel recently acquired by the Port. The site has rail access and the Port is currently preparing the site (planning, permitting, utility connections) for private redevelopment. This redevelopment represents one of the largest industrial/commercial developments in Albany County and has the potential to create many new jobs. Target industries include light manufacturing, assembly, warehouse, distribution, and logistics services.
- Under consideration by New York State to serve as a potential robust manufacturing site for offshore wind.

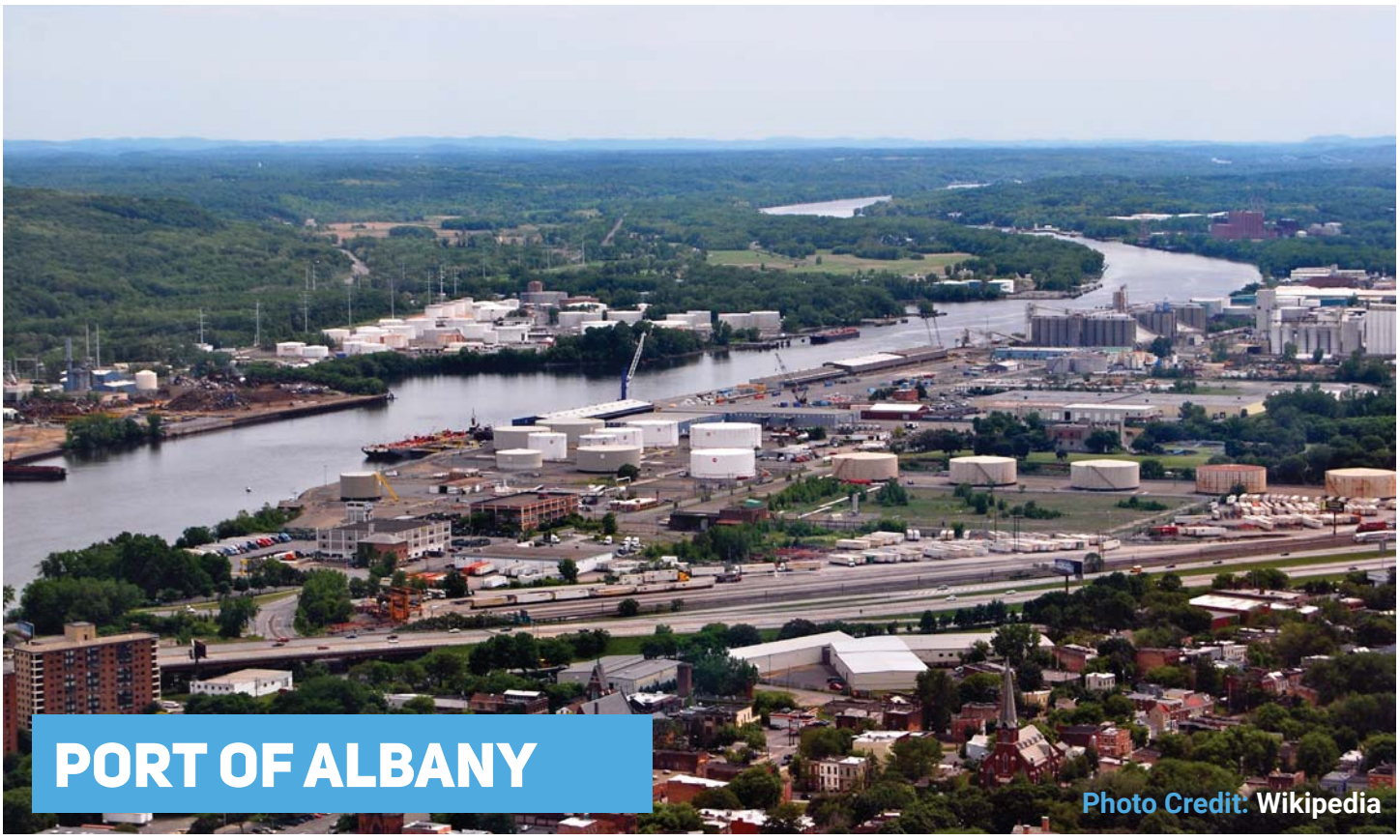
Port of Coeymans

The Port of Coeymans is located 10 miles south of the Port of Albany and 100 miles north of New York City. It is a privately-owned, deep water marine terminal that can accommodate ships up to 750 feet long and provides tug, barge, heavy lift, and break bulk services.

Like the Port of Albany, the Port of Coeymans has been short-listed by the State of New York as a potential robust manufacturing site for offshore wind. The Ports of Albany and Coeymans are the only two upstate ports being evaluated for their potential role in the offshore wind supply chain by the State.

PORT OF COEYMANS

Photo Credit: Port of Coeymans



PORT OF ALBANY

Photo Credit: Wikipedia

TRANSPORTATION

Rivers and Canals

In the Capital District, the Erie Canal is coterminous with the Mohawk River. As part of the New York State Canal System, the Erie Canal connects Albany west to the Port of Buffalo and provides access to Canada via the Port of Oswego. The Hudson River, which is designated by U.S. Department of Transportation as Marine Highway 87, connects the county south to New York City and the Port Authority of New York and New Jersey.

Air

The Albany International Airport (ALB) is the region's dedicated hub for cargo operations. It handles regularly-scheduled commercial air cargo, including FedEx, UPS, and DHL, as well as passenger flights. In 2014, ALB averaged 5 cargo plane landings per day and 157 per month. The airport also provides intermodal connectivity, with immediate access to I-87.

Development Limitations

Trucking

Truck parking and rest areas are lacking in the Capital District's regional core, particularly near the Port of Albany and the Albany International Airport. It is important to improve and increase truck parking and rest areas near these freight hubs in order to promote intermodal transit, enable the fluid movement of goods, and address safety concerns.

While road and bridge conditions are generally good on the Freight Priority Network, preventative maintenance and regular inspections are critical to ensuring the quality and functionality of this infrastructure.

Rail

The CSX River Line between the Selkirk Rail Yard south to New Jersey was identified in the 2009 NYS Rail Plan as one of the most severe bottlenecks in the state due to single-tracking, outdated tunnel clearances, and at-grade crossings.

Albany Basin: the eastern terminus of the Erie Canal. Photo credit: Discover Albany

TRANSPORTATION

Ports + Waterways

The CDTC identified multiple development limitations related to the Capital District's water transit capacity, including:

- Limited rail service at the Port of Coeymans
- Lack of facilities and infrastructure at the Port of Albany to accommodate increasing demand
- Accumulation of sediment, creating shallower conditions on the south side of the Port of Albany

Air

I-87 Northbound is not directly connected to Albany Shaker, which provides direct access to the Albany International Airport. However, recent public investment is funding the reconfiguration of Exit 4 on I-87 to improve access to the Airport and relieve congestion issues.

Opportunities

The County's freight infrastructure is robust and plays a critical role in connecting local and regional economies to markets across the country and Canada; however, several opportunities exist to improve the County's freight infrastructure and foster future economic development.

Trucking

- Conduct a feasibility study to identify suitable locations along the highway system in Albany County to: expand the transporation and warehousing industry; increase truck parking and rest areas to improve safety and attract more women to the industry; and, establish "truck ports" in preparation for driverless trucking technologies. This analysis should include an assessment of exit interchanges and local zoning codes to identify areas that can accommodate and are compatible with high volumes of truck traffic, as well as necessary changes to local laws to allow uses associated with the freight industry.
- Coordinate closely with NYSDOT and municipalities in the identification and development of new intermodal centers, regional distribution hubs, and "truck ports" to ensure freight-generating activities are compatible (or appropriately mitigated) with adjacent land uses, local policies, and community visions for future development.
- Collaborate with the CDTC to prioritize reconstruction of functionally obsolete or structurally deficient bridges that impact the movement of goods throughout the region.

Rail

- Identify, prioritize, and fund key infrastructure improvements to relieve rail bottlenecks, such as tunnel and at-grade rail crossing improvements.

Ports + Waterways

- Provide financial support to help leverage state and federal funds for capital projects at the ports.
- Expand the Port of Albany's capacity and operations by dredging the south side of the port, extending the wharf, constructing a storage building for heavy lift cargo, and reconstructing deteriorated roadways.
- Extend rail service from the CSX junction at Lafarge Cement to the Port of Coeymans to increase productivity, reduce transportation costs for the Port's tenants, and grow the Port's local employment base.
- Partner with the Port of Albany to establish a workforce-training program. The planned redevelopment of the Port's newly acquired 80-acre site will result in many new jobs, creating an opportunity to offer workforce development in many different sectors, from Port operations to distribution and logistics.
- Establish a link for communications between the County and the ports to better integrate economic development efforts. For example, the County should work with the Ports of Albany and Coeymans to establish Albany County as a critical component of the offshore wind supply chain, unlocking the potential of this multi-billion dollar industry.

TRANSPORTATION

PUBLIC TRANSIT

Importance to Economic Development

Developers are increasingly considering public transit as a primary component of necessary infrastructure, along with roads, water, and power. For city dwellers with jobs in the suburbs or for those with limited mobility options, public transit is essential for commuting and accessing goods, services, and healthcare. In Albany County, access to transit is particularly important as more than 12% of households do not have access to a vehicle – the highest percentage in the region.

Transit can also relieve congestion, reduce energy consumption, and stimulate economic growth around stations and nodes. Indeed, transit-oriented development – or development near transit hubs – is often used to enhance tax revenues, revitalize downtowns, and encourage business growth.

Existing Conditions

Bus Service

The Capital District Transportation Authority (CDTA) is the primary public transit provider in the Capital District. It works to enhance mobility in the region through the provision of local, commuter express, and paratransit services. Its fleet includes approximately 270 buses that travel on 50 routes between Albany, Schenectady, Troy, and Saratoga. Most riders (70%) use CDTA services to commute to work while the remaining trips are for medical, educational, or recreational purposes.

Bus Rapid Transit

BRT service is often used as a building block toward an exclusive right-of-way system – also known as guideway transit – where buses are given dedicated lanes. CDTA currently operates one bus rapid transit (BRT) route: the BusPlus Red Line connecting Albany and Schenectady along a 17-mile stretch of Route 5, and providing access to regional landmarks including: Proctor's Theater, Schenectady Community College, Colonie Center, the Capitol Building, Empire State Plaza, and Downtown Albany. The Red Line has limited stops and priority movement over vehicles at traffic signals so that it can provide more rapid, high-frequency service than the rest of the CDTA fleet. Its buses and stations also have more amenities, including real-time route information and complimentary Wi-Fi service.

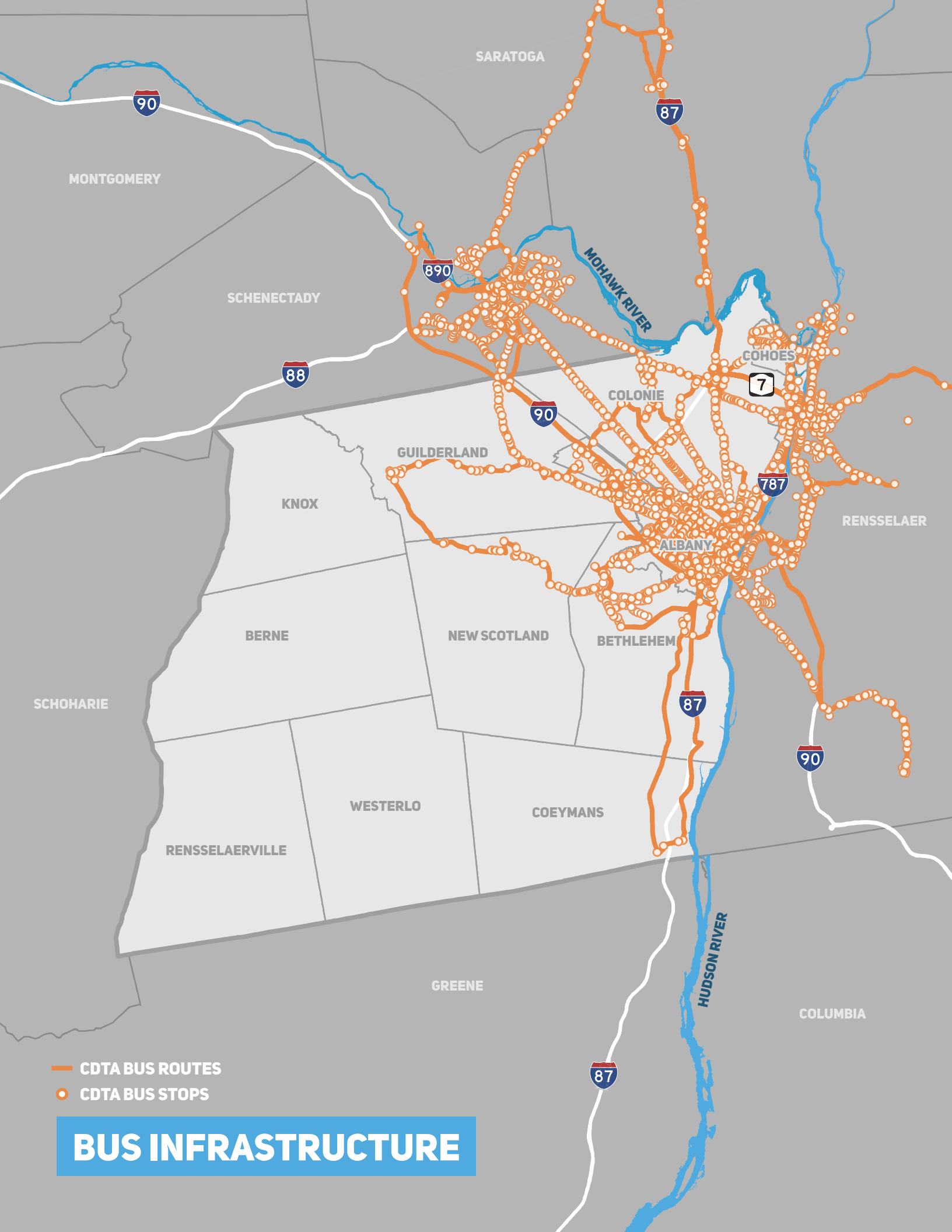
CDTA is in the process of expanding BRT service to a footprint of 40 miles by adding two, new lines along the region's busiest transit corridors. The Purple Line will run along Washington and Western Avenues through urban neighborhoods and business districts connecting Crossgates Mall, multiple University of Albany campuses, the College of Nanoscale Science and Engineering, the Harriman Office Campus, and the College of Saint Rose. The Blue Line will run along the Hudson River connecting Albany, Cohoes, Menands, Troy, Waterford, and Watervliet.

Capital City Trolley

CDTA operates a free trolley service on Thursday, Friday, and Saturday nights from 5:00 PM to 12:30 AM to link Albany's urban neighborhoods to downtown attractions including: the Albany Capital Center, the Times Union Center, the State Capitol, the Palace Theatre, the Corning Riverfront Park, Quackenbush Square, the Riverfront Parking Garage, and the Washington Avenue Armory. The trolley service supports downtown businesses, encourages economic development in the business district, and promotes downtown Albany's nightlife scene.

ACCESS and STAR Programs

ACCESS Transit Services, a subsidiary of CDTA, arranges senior transportation for Albany County residents who do not own a car to their non-emergency medical appointments, grocery shopping, and adult day programs. The STAR (Special Transit Available by Request) service offers transportation to people who cannot use or have difficulties using CDTA's fixed-route buses because of a disability or impairment. These programs are important for ensuring mobility for population groups in the region with limited access to other modes of transportation.



BUS INFRASTRUCTURE

TRANSPORTATION

Fares and Universal Access Program

The base fare for CDTA rides is $1.50 and $2.00 for BusPlus BRT rides. Seniors, disabled persons, and veterans pay half-priced reduced fares. CDTA has also partnered with local colleges, Albany Medical Center, the Albany International Airport, and ShopRite to provide free transit to students and employees who use their work- or school-issued ID cards to board the bus; participating employers cover the cost of transit for their employees at a subsidized rate. CDTA also operates a corporate partnership program, which includes over 100 companies that subsidize bus rides for their employees. This corporate partnership program can make businesses particularly attractive to employees, helping them compete for the best talent, expand their labor pool, reduce on-site parking requirements, and position themselves as environmentally-responsible.

Demand Response

CDTA is currently in the process of implementing a pilot program, in partnership with TransLoc, to integrate ridesharing into the traditional transit model. TransLoc's program would use real-time data and demand response to allow for small deviations from fixed bus routes, so that a bus may travel a block or two off route to pick up or drop off riders closer to or at their end-destinations.

Passenger Rail

Amtrak provides passenger rail service through the Capital District. Its lines include: the Adirondack to Montreal, the Maple Leaf to Toronto, the Empire Service to New York City, the Ethan Allen Express to Rutland, Vermont, and the Lake Shore Limited to Syracuse, Rochester, Buffalo, Cleveland, Toledo, and Chicago. These routes connect through the Albany-Rensselaer Station, which is located in Rensselaer County across the Hudson River from downtown Albany. Traffic at the station is largely driven by the Empire Service Line, which is used primarily for commuting between Albany and New York City. The station is operated by the CDTA, and Megabus also runs regular service out of the station to New York City and Ridgewood, New Jersey.

Air Travel

As the Capital District's only international airport, the Albany International Airport is a gateway to the County and the region. The airport serves approximately 1.4 million people per year and provides nonstop services to 25 different destinations in 13 states, Canada, and Washington D.C.

Albany-Rensselaer Train Station. Photo credit: Wikipedia

Albany International Airport. The Airport is currently undergoing $92 million worth of infrastructure upgrades, including a new parking garage, modernized wayfinding signage, and reconfiguration of Exit 4 on Interstate 87, and terminal renovations to improve customers' experience, expand the airport's capacity, and spur additional economic development. Rendering created by Bergmann Associates.

TRANSPORTATION

The Albany International Airport recently announced a $92 million project to upgrade and modernize airport infrastructure. This large infrastructure project includes the reconfiguration of Exit 4 on Interstate 87 to provide direct access to the airport and relieve congestion; a new parking garage with direct access to the terminal via a pedestrian walkway; modernized signage and parking access improvements; and, interior renovations to modernize the airport terminal and improve pedestrian amenities.

Development Limitations

Bus Service

The CDTC identified a guideway transit system, where buses operate in an exclusive travel lane, as a "Big Ticket Initiative" in its New Visions 2040 Plan. However, feasibility studies suggest that population and employment in the region are not dense enough to support an extensive, dedicated bus lane system. Despite the inability to make transit improvements at the regional scale, urban centers in the Capital Region offer the greatest potential returns on investment for transit-related improvements; the population groups that are most likely to use transit are concentrated in the Cities of Albany, Schenectady, and Troy.

CDTA's ability to attract discretionary riders has been impacted by the recent introduction of ridesharing services, like Uber and Lyft, in Upstate New York. CDTA must contend with "last mile" issues that these on-demand ridesharing services do not. While an Uber can pick riders up at their homes and drop them off directly at their destinations, bus riders are often required to walk to or from the bus stop to reach their final destinations. This additional step in the transit process may make public transit less attractive to discretionary riders.

Opportunities

Bus Service

In recent years, with the restructuring of routes, the implementation of the Route 5 BRT, and the rollout of various universal access agreements, CDTA ridership has increased. Opportunities to continue improving public transit and mobility across the County include:

- Prioritize bus frequency, service, and accessibility improvements in dense, urbanized areas and along the highest volume routes to continue increasing ridership
- Promote Transit-Oriented Developments around BRT stations. Such concentrated development patterns encourage travel on foot or by public transit, rather than by car, and support urban centers by fostering a mix of land uses at a walkable scale.
- Collaborate with CDTA to draft and adopt Transit-Oriented Development policies and principles into its ordinances and zoning codes to promote land use policies that concentrate development. Dispersed development is difficult for public transit to serve.
- Coordinate with CDTA in the review of new projects and developments to ensure mobility issues are adequately addressed at the beginning of a project.
- Participate in CDTA's Universal Access Program to encourage County employees to use public transportation. Participation in this program would not only be attractive to employees, but would also support the County's sustainability and clean energy initiatives.

Recently renovated CDTA bus stop in downtown Albany.

BICYCLE INFRASTRUCTURE

Importance to Economic Development

Although bicycle routes and trails are not used for commerce or shipments, they are still important to the economic development of a region. Such infrastructure provides an additional amenity to residents and increases quality of life, which developers consider as an important factor when determining where to site projects. Such infrastructure can also generate business, with more than 50% of people indicating they would be more likely to patronize a business if it was bicycle- or pedestrian-friendly. The existence of these trails also encourages recreational tourism, which can generate significant revenues for the entire region.

Existing Conditions

Mohawk-Hudson Bike-Hike Trail

The Mohawk-Hudson Bike-Hike Trail is an 86-mile trail that runs from Little Falls to Albany. Much of the trail is off-road, following the old Troy & Schenectady Railroad. In some portions, the trail leaves the railbed to follow local roads. The trail's southern trailhead is located at the Corning Preserve. From this point, the trail travels off-road along the Hudson River. It moves on-road in Watervliet and Green Island before going off-road again to roughly parallel the Mohawk River through Cohoes and Colonie.

Albany County Helderberg-Hudson Rail Trail

Recently completed, the Albany County Helderberg-Hudson Rail Trail is a rails-to-trails project that converted a 9-mile stretch of the old Delaware and Hudson Railroad between the Port of Albany and Voorheesville into a public, multimodal, recreational trail. Potential exists to link the eastern terminus of this trail to the Mohawk-Hudson Bike-Hike Trail's southern terminus at the Corning Preserve. The City of Albany is presently working with a consultant to design this link, known as the South End Connector.

Empire State Trail

When completed in 2020, the Empire State Trail will be a continuous 750-mile route spanning New York State in two trail segments: the Hudson Valley Greenway Trail connecting New York City to Canada and the Erie Canalway Trail connecting Buffalo to Albany. In Albany County, the Empire State Trail will follow the Mohawk-Hudson Bike-Hike Trail. The City of Albany will also serve as the crossroads for the two trail segments, which will likely provide quality of life benefits for residents and encourage recreational tourism in the area.

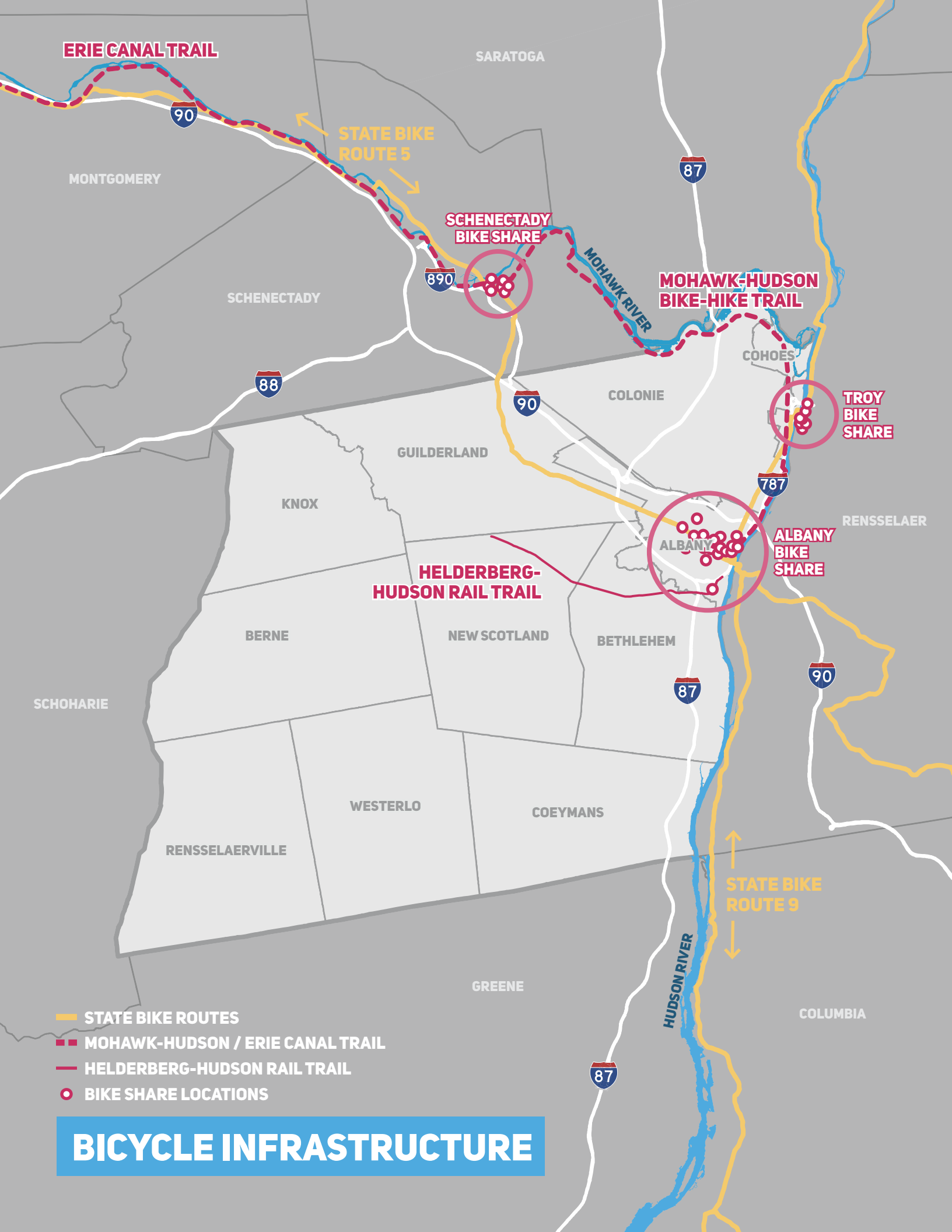
Local Trails

Several other bike trails are located throughout the County including:

- The Albany Shaker Trail. A 1-mile trail in Colonie that runs along the edge of Shaker Ridge Country Club and connects the Ann Lee Nature Preserve to the British American and Airport Park developments.
- The Crossings of Colonie. A 6.5-mile, paved, multi-use trail that runs through the Crossings of Colonie Park.
- Town of Bethlehem Trails. The Town of Bethlehem offers 5 miles of signed, on-road bike routes and a 0.5-mile off-road trail along the edge of Elm Avenue Town Park.
- Rensselaer Lake Trail. A 1-mile paved trail that runs through the Rensselaer Lake and Albany Pine Bush Preserves.

State Bike Route 5

State Bike Route 5 is a 365-mile, shared highway route that extends from Niagara Falls to the Massachusetts state line and roughly parallels the Erie Canal. Approximately 14 miles of the route are located in Albany County, beginning in the Town of Guilderland along Route 146 before linking up with Route 20 to move through the City of Albany.



BICYCLE INFRASTRUCTURE

TRANSPORTATION

State Bike Route 9

State Bike Route 9 is a 345-mile, shared highway route that extends from New York City to the Canadian border at Quebec. The route only enters Albany County for a brief 8-mile stint, extending from the Green Island Bridge along Broadway south to the City of Albany before crossing the River and exiting the County on the Dunn Memorial Bridge.

Bike Share

In 2017, the CDTA in partnership with CDPHP – a community-based, not-for-profit health insurance provider – implemented a bike share program known as CDPHP Cycle! in Albany, Schenectady, Troy, and Saratoga Springs to encourage alternative transportation and promote healthy living. The bike share program presently has about 2,000 members region-wide, with usage being highest in Albany, followed by Saratoga Springs and Troy.

There are 35 rental locations in the City of Albany where cyclists can use a smart phone application to pay for a bike, automatically unlock it from the rack, and ride. Bikes can be returned to any rack in the city with an open spot. Bikes can be rented for a $5 hourly rate or cyclists can purchase a monthly or seasonal membership, which allows for 60 minutes of free riding time daily. Data from 2017 indicates that most bike share users ride for short trips – on average 2.8 miles – like commuting to work, running errands, or traveling around downtown.

Bike Share. With over 2,000 members region-wide, the Capital District's bike share program provides affordable access to bicycles, expanding recreational opportunities and helping to bridge the gap between the terminus of public transit and a user's final destination (i.e., the last mile). Photo credit: Mark Schultz for the Daily Gazette

TRANSPORTATION

Development Limitations

Riverfront areas and towns and villages along the Helderberg-Hudson Rail Trail are well-served by bicycle infrastructure, as well as urban areas where bike share stations are located and some bike lanes exist. In general, however, bicycle infrastructure is underdeveloped in Albany County. Identifying and addressing gaps in the County's bicycle network is necessary to:

- Establish a viable, efficient, and emission-free transportation network
- Improve connectivity within and between scenic rural areas and urban centers where employment is concentrated
- Spur economic development by increasing bicyclist and pedestrian traffic

Opportunities

Expanding and improving of the County's bicycle network will create new and enhanced recreational opportunities, increase connectivity throughout the County, develop a unique sense of place, and improve quality of life for residents. All of these benefits will help retain existing and attract new residents and businesses, and in turn, spur economic development. Specific opportunities to improve County's bicycle infrastructure, include:

- Support municipalities in developing new or updating existing bicycle master plans (e.g., City of Albany's Bike Master Plan was created in 2009) as a strategy to mitigate congestion and encourage active transportation and healthy living.
- Work with CDTC to implement their recently released Capital District Trails Plan in Albany County and facilitate coordination at the local and regional scales.
- Focus on eliminating gaps in the county's trail system by following the CDTC's Bicycle Pedestrian Priority Network recommendations and promoting connections between trails and other recreational destinations.
- Standardize wayfinding signage along county and regional trail systems. A cohesive signage system would enhance the recognizability of the county's trail network, further the region's identity, and distinguish the county's trail network as a destination for both local and out-of-county tourists.
- Collaborate with the CDTC to promote existing trail networks by creating and distributing promotional materials (print and web-based). The Mohawk-Hudson Bike-Hike Trail Map and the Capital District Regional Bike-Hike Trail Map are the two most popular CDTC printed materials (with over 30,000 copies distributed in the last decade), thereby demonstrating significant interest in bicycling in the region. These maps were last modified in 2004 and 2006, respectively, and require updates to include new trail connections and modernize the aesthetic.
- Develop a plan for the Albany County Helderberg-Hudson Rail Trail that identifies future priority land acquisitions and/or easements for trail expansion, trailheads, and park space; establishes an approach for promoting businesses adjacent to the trail; and, defines a marketing strategy that emphasizes the trail as a connective spine between multiple municipalities.
- Identify and implement capital projects that connect bicycle, pedestrian, and public transit networks to create a robust multimodal system. While some county residents may prefer to bike and take public transit for environmental considerations, others rely on this network because they do not have access to a vehicle.
- Develop a platform for collecting and displaying crowd-sourced information related to bike routes throughout the County in order to create a comprehensive database of scenic bike rides.

EXISTING CONDITIONS
WATER + WASTEWATER

INTRODUCTION

All sectors of the economy rely on water supply and wastewater removal and treatment systems. The availability, capacity, reliability, and affordability of water and wastewater systems should be assessed in the early stages of project development to ensure these critical systems can support new development and redevelopment without adversely impacting existing service, water quality, and water supply. Siting new development in areas where drinking water and waste water infrastructure already exists and has sufficient capacity will reduce development costs, minimize environmental impacts, and improve the health and quality of life for residents.

This section addresses the following topics:

- Water supply infrastructure, including treatment plants and distribution systems
- Wastewater infrastructure, including treatment plants and sewer, stormwater, and combined sewer systems
- Development limitations related to water supply and wastewater systems
- Opportunities to improve these systems and encourage economic development

WATER SUPPLY

Importance to Economic Development

Reliable access to clean water for drinking, commercial and industrial activities, and public safety (e.g., fire fighting) is an important public service in densely populated and urbanized areas. It is particularly important that municipal water supply systems have the capacity to meet current and future demands and are resilient enough to continue providing reliable and quality service to customers even during emergencies (e.g., water main breaks or other disruption in service).

Existing Conditions

Public water service in Albany County is provided at the municipal level. The County does not own or operate any water supply infrastructure. However, the County Department of Health is responsible for permitting individual water supplies in areas where access to municipal water supply infrastructure is not available.

City of Albany

In the City of Albany, the Albany Water Board and the City's Department of Water and Water Supply work together to supply customers with a reliable and high quality source of water by managing three storage and distribution reservoirs and operating water filtration and conveyance infrastructure. In addition to serving City residents and businesses, the City of Albany's provides pre-treated water to the towns of Bethlehem and Guilderland (Colonie in the near future) through municipal interconnects.

The City of Albany's water supply system produces approximately 30 million gallons of water per day, with peak demand averaging 25 million gallons per day. The primary source of water for the City of Albany is the Alcove Reservoir, which is located in the Town of Coeymans and provides 12 billion gallons of storage. The Basic Creek Reservoir is located in the Town of Westerlo; it provides over 700 million gallons of storage and directly feeds the Alcove Reservoir. The Loudonville Reservoir is located in the Town of Colonie and consists of three concrete basins that serve as staging areas for finished drinking

WATER + WASTEWATER

water. This reservoir has a capacity of 200 million gallons (approximately 10 days of water supply for the City of Albany) and is equipped with a UV treatment facility that treats all water prior to distribution for public use. To protect the City's water supply, the Water Board owns and manages approximately 6,600 acres of forested land surrounding the Alcove and Basic Creek Reservoirs, which provides an important buffer and natural filtration system. The Department of Water and Water Supply also operates the Feura Bush Water Treatment Facility located in the Town of Bethlehem, which processes up to 32 million gallons of water per day.

Several other municipalities in Albany County, including Colonie, Guilderland, Bethlehem, Watervliet, Cohoes, and Green Island, independently own, manage, and operate water supply infrastructure, including filtration plants, distribution infrastructure, and water mains and valves.

Town of Colonie

The Town of Colonie is served by the Latham Water District. This system produces approximately 31 million gallons of water per day, with peak demand averaging 23 million gallons per day. The Water District derives its water from the Mohawk River, five wells located at the Mohawk View Water Treatment Plant, and the Stony Creek Reservoir located in Clifton Park (emergency back-up supply) and provides water to over 82,000 residential customers and several industrial and commercial businesses. Prior to distribution, all water is treated at the Mohawk View Water Treatment Plant. In the next year, the Latham Water District plans to sell the Stony Creek Reservoir and its surrounding 1,000 acres to the Town of Clifton Park and connect to the City of Albany's water supply system. The City of Albany's water supply will serve as an emergency back-up water source for the Town of Colonie and the Town's water supply will serve as an emergency back-

ALCOVE RESERVOIR

Photo Credit: Wikipedia

WATER + WASTEWATER

up for the City of Albany. This $3.2 million capital project will create two municipal interconnects, allowing for the exchange of millions of gallons of water between the two water supplies and increasing the reliability and resiliency of the water systems during emergencies.

Town of Guilderland

The Town of Guilderland's water supply is managed by the Department of Water and Wastewater Management and is supplied by three primary sources: the Watervliet Reservoir, three wells owned by the Town, and fully treated water purchased from the City of Albany (up to 2 million gallons per day). The Town also owns four water storage tanks with a total storage capacity of 5 million gallons. The Town of Guilderland Water Treatment Plant processes water from the Watervliet Reservoir, which is the Town's primary source of raw water, and is designed to operate at a capacity of 5 million gallons per day. The three Town-owned wells are only used to supplement the reservoir water supply and NYS DEC limits the total withdrawal rate from the wells to 0.5 million gallons per day on an annual basis. Overall, the Town's water supply capacity is 8.5 million gallons of water per day and average demand is 2.6 million gallons per day.

Town of Bethlehem

The Town of Bethlehem's water supply infrastructure is managed and operated by the Town's Water Division within the Department of Public Works and predominantly serves developed areas where roadway infrastructure is present. The Water Division has a total water supply capacity ranging from 11.08 to 12.35 million gallons per day and obtains its water from four primary sources: Vly Creek Reservoir (3 million gallons per day capacity), New Scotland Wellfield (0.85 million gallons per day capacity), Selkirk Wellfield (6 million gallons per day capacity), and the City of Albany Aqueduct (1.23-2.5 million gallons per day capacity). The Town has 20-year contract with the City of Albany to obtain water via the Albany Aqueduct; this agreement expires in 2023. The Water Division also operates two water treatment plants with a combined maximum capacity of 12 million gallons per day. The average day demand projection for 2019 is 7.3 million gallons per day and the projected peak day demand for 2019 is 10.85 million gallons per day, with demand projected to steadily increase through 2040.

City of Watervliet

The City of Watervliet's Water and Sewer Department is responsible for providing residents and businesses with water and maintaining the City's water and sewer mains. The City's water source is the Watervliet Reservoir, located in the Town of Guilderland, and all water from the reservoir is treated at the Watervliet Water Treatment Plant prior to distribution. The City's water supply produces an average of 2.6 million gallons per day; average daily demand is 2.1 million gallons and demand peaked at 2.5 million gallons per day in 2017.

City of Cohoes

The City of Cohoes' Water Bureau is responsible for the production and distribution of water to City residents and businesses. The City's primary source of water is the Mohawk River; water is pumped from the river to a 75-million-gallon Raw Water Storage Reservoir, where the water is treated prior to distribution. In addition to serving over 4,000 residential service connections and 60 industrial connections in the City, the City's Water Bureau also supplies Green Island and a small portion of the Town of Colonie with water. The City's average daily demand is 2.3 million gallons, and demand peaked at 3.3 million gallons per day in 2017.

Village of Green Island

Green Island's water supply is managed and maintained by the Water and Sewer Department. The Village's water is obtained from two primary sources: a well and pre-treated water from the City of Cohoes. The interconnection with the City of Cohoes primarily serves as an emergency back-up. The Village operates a ground water filtration plant that serves 1,200 service connections and a population of 4,000. Average daily demand for water in the Village is 587,412 gallons, and demand peaked at 840,100 gallons per day in 2017.

WATER + WASTEWATER

Rural Municipalities

Albany County's more rural municipalities (Berne, Knox, Rensselaerville, Coeymans, New Scotland, and Westerlo) primarily rely on private wells and underground acquifers. Villages and hamlets within these rural towns, where populations are more concentrated, often have access to public water infrastructure (e.g., Hamlet of Rensselaerville, Village of Ravena, Village of Voorheesville). For example, the Village of Voorheesville's water supply system serves approximately 3,200 people and obtains water from three drilled wells; the Village's average daily demand is 322,000 gallons per day, with peak demand reaching 731,000 gallons per day.

WATERVLIET RESERVOIR

Photo Credit: Roger Lipera

WATER + WASTEWATER

Development Constraints

Like much of New York State, Albany County's water supply infrastructure (treatment facilities and distribution systems) is old and in need of significant upgrades. In fact, the New York State Comptroller's Office estimates that the State's water systems require nearly $40 billion in repairs and improvements. This aging infrastructure is susceptible to deterioration, leading to leakages, contamination, and in some cases, large-scale disruptions, such as water main breaks. For example, according to the City of Cohoes' 2017 Annual Water Quality Report, approximately 43% of the City's water supply was lost in the distribution system due to leakages, water main breaks, and other unmetered uses, such as firefighting, street cleaning, the Lansing Public Pool, and unauthorized withdrawals. The Village of Green Island's water system also had a high percentage (38.4%) of loss in 2017 due to leakages, firefighting, and the flushing of water mains. These leakage rates are very high when compared to the national average of 16%. The volume of water losses in Green Island is equivalent to 20 backyard pools per day, and the volume of water losses in Cohoes is equivalent to 45 back yard pools per day.

Water is a valuable resource and controlling losses is important from a conservation and economic standpoint for municipalities, as lost water represents lost revenue. Furthermore, upgrades to water treatment and conveyance infrastructure is a pressing issue for all municipalities, as deteriorating infrastructure can lead to unreliable service, contamination, public health emergencies, and additional treatment costs.

Safe drinking water is a basic need and an inherent expectation of municipal water systems. Contamination can come from a variety of sources, including industrial activities, inadequate treatment, combined sewer overflows, agricultural and stormwater runoff, and the corrosion of aging pipes (often comprised of lead or iron) can lead to the leaching of lead and/or copper into drinking water. The Mohawk River is a primary source of drinking water for the Town of Colonie, the City of Cohoes, and the Village of Green Island. Within Albany County, several industrial uses are permitted to discharge stormwater directly into the Mohawk River or into tributaries that flow into the Mohawk River, including the Town of Colonie's landfill. The protection of drinking water sources from known and emerging contaminants is imperative and requires land use and discharge regulation, diligent monitoring and testing, prompt action when contaminants are detected, and timely notification of the public when violations are detected.

Understanding current and future water demand is critical to ensuring water supply systems have sufficient capacity and are resilient to unforeseen emergencies or disasters. Several municipalities in Albany County rely on interconnects between water supply systems to provide access to water in emergency situations. Several municipalities also implement water conservation measures to limit water withdrawals. For example, the Town of Bethlehem restricts the use of water for sprinkling

AGING INFRASTRUCTURE LEADS TO SINKHOLES IN ALBANY

In August 2016, a major water main burst in the City of Albany, resulting in a sinkhole so large it swallowed an SUV. The 42-inch water main that broke was approximately 85-years-old and is representative of Albany's aging water supply system. The sinkhole blocked access to a large apartment building, temporarily displacing nearly 100 people. Nearby, another high-rise apartment, primarily serving disabled and elderly residents, lost access to water and surrounding neighborhoods experienced extremely low water pressure. The sinkhole also impacted water service in the Towns of Guilderland and Bethlehem, which have interconnects with the City of Albany's water system.

Another water main burst in August 2018, creating a sinkhole and closing the major intersection at N. Main and Washington Avenues. The broken water main was 114-years-old and created a 6-foot wide and 8-foot deep sinkhole.

WATER + WASTEWATER

lawns to mornings and evenings. While these measures reduce strains on public water systems and help ensure reliable service, a comprehensive understanding of the current and projected water demands of Albany County and the capacity of the County's municipal water supply infrastructure is needed to en-sure the County can sustainably accommodate future growth.

ALBANY WATER FORESTLAND

In partnership with the Nature Conservancy, the Albany Department of Water and Water Supply developed a working woodlands forest management plan for the 6,600 acres of land surrounding the Alcove and Basic Creek reservoirs (collectively, the Albany Water Forestlands). These reservoirs are the City of Albany's primary sources of water, and the surrounding forest lands serve as important buffers, filtering runoff and replenishing groundwater supplies. The forest management plan takes a watershed-based approach and is guided by the following goals:

- Maximize the capacity of the forest to promote a clean and continuous supply of water
- Generate revenue and mitigate the impacts of climate change by enhancing carbon sequestration through improved management
- Improve forest health through active management
- Protect rare and unique species, wildlife habitat, and other ecological values on the property
- Provide opportunities for public recreation and enjoyment of the property

The Albany Water Forestlands are owned by the Albany Water Board and implementation of the forest management plan will be undertaken by the Nature Conservancy and the Albany Department of Water and Water Supply.

Opportunities

In order to increase the reliability, quality, and safety of the county's water supply system, the following opportunities were identified:

- Working with Albany County municipalities, conduct a comprehensive analysis of the County's water supply system that considers current and future demand to identify low capacity areas, opportunities for intermunicipal resource sharing, and priority infrastructure upgrades to improve water quality and reliability.
- Collaborate with New York State to secure funding for water system upgrades and repairs.
- Coordinate water infrastructure improvements with roadway and sanitary sewer improvements to reduce costs.
- Prioritize the protection of water sources by undertaking a comprehensive, county-wide land use planning initiative to identify lands critical to the protection of water resources and implement watershed-based management practices on county-owned lands.
- Acquire or obtain conservation easements on lands critical to the protection of water resources to ensure the long-term protection of these lands and the water sources they buffer.

WATER + WASTEWATER

WASTEWATER

Importance to Economic Development

The removal of wastewater is a fundamental need for residents, businesses, and industries. In urban and suburban areas, where development is concentrated, municipalities typically provide public sewer infrastructure and wastewater treatment services. Extending this wastewater infrastructure is costly, and new development should be encouraged to locate within sewered areas. For new industrial developments or water-intensive developments, it is particularly important that municipal sewer districts are engaged early in the planning phases to ensure industrial and commercial discharge requirements are met and that sewer lines and wastewater treatment plants have sufficient capacity to accommodate additional discharges.

Existing Conditions

All of the land area within the Villages of Green Island, Menands, and Colonie and the Cities of Cohoes and Watervliet is sewered, and a majority of the land area within the City of Albany and the Town of Colonie is sewered. Sewered areas in the Towns of Bethlehem, Guilderland, and New Scotland are concentrated along major urbanized roadways and in areas where development is concentrated, such as the Hamlets of Fort Hunter and Guilderland Center and the Villages of Voorheesville, Delmar, Elsmere, and Slingerlands. The rural Towns of Knox, Berne, Westerlo, Rensselaerville, and Coeymans are largely served by private septic systems and have limited municipal wastewater infrastructure.

Albany County Water Purification District

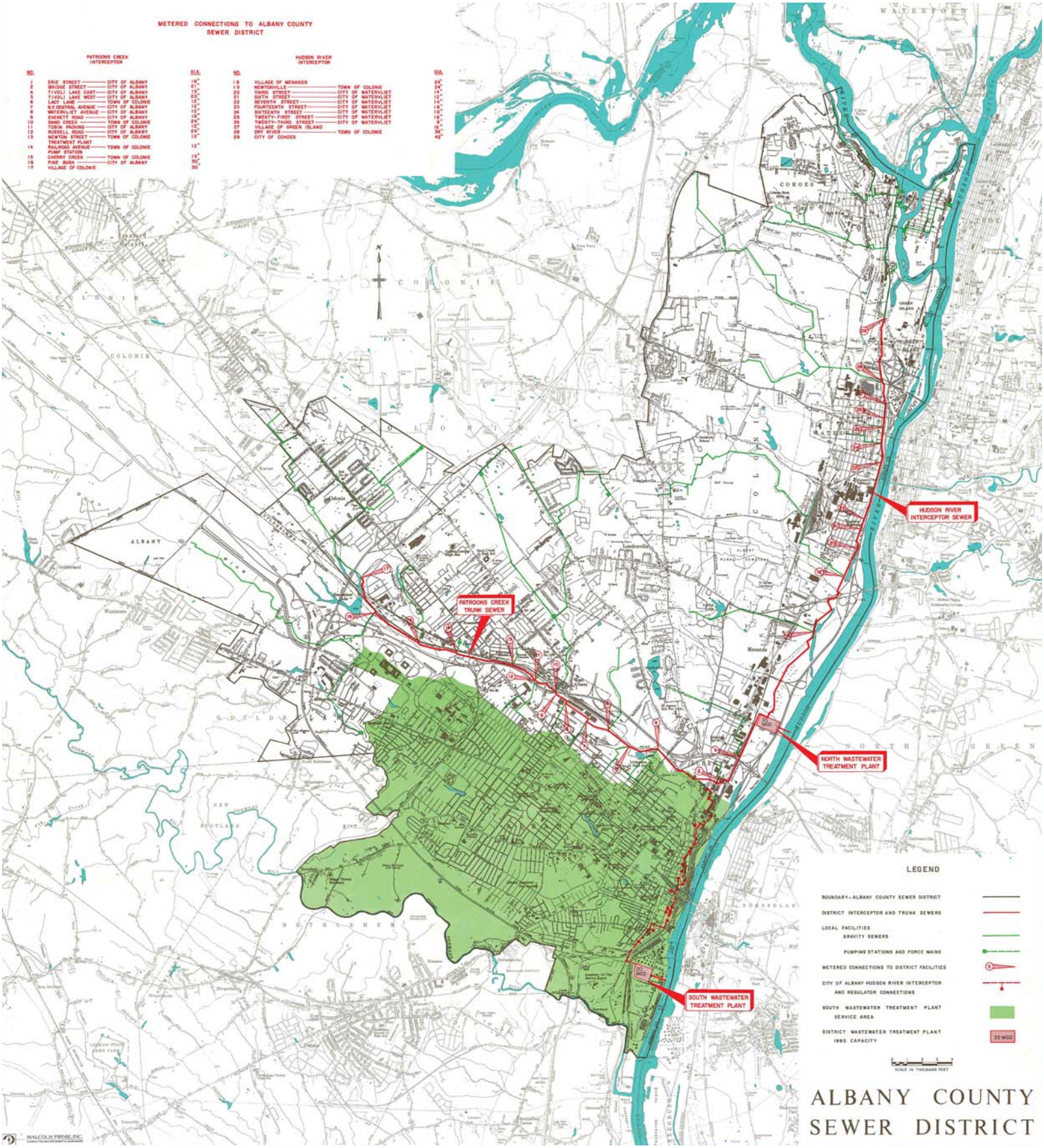
Several sewer districts exist within Albany County. The largest district is the Albany County Water Purification District, which was established in 1968 by a resolution passed by the Albany County Legislature (Article 5A of County law). Prior to establishment, communities were surveyed to assess wastewater removal and treatment needs, documented in the Albany County Comprehensive Sewerage Study (March 1966). Now in operation for over 50 years, the Albany County Water Purification District serves eight member communities, owns all trunk sewer lines that serve the district, and owns and operates two 4A wastewater treatment plants that provide secondary treatment. The eight member communities served by the Albany County Water Purification District include the:

- City of Albany
- City of Cohoes
- City of Watervliet
- Village of Colonie
- Village of Green Island
- Village of Menands
- Town of Colonie
- Town of Guilderland

Member communities own, operate, and maintain all sewer laterals that tie into the County's sewer infrastructure.

The Albany County Purification Water District's North Water Treatment Plant is located in the Village of Menands and treats 10% of the wastewater from the City of Albany and all of the wastewater from the 7 other member communities. This water treatment plant has excess capacity, and member communities may purchase additional capacity from one another to support future development needs. The South Water Treatment Plan is located at the Port of Albany and treats 90% of the wastewater from the City of Albany, as well as wastewater from the Port of Albany.

The District's treatment plants and trunk sewer lines were constructed with sufficient capacity to enable future expansions. For new developments or industries within member communities that plan to tie into the County's Water Purification District infrastructure, the County's Sewer Ordinance outlines requirements for discharges. Further, industrial discharges for each member community are governed by the District's approved Industrial Pretreatment Program, which ensures compliance with State and federal regulations, prevents interference with



ALBANY COUNTY WATER PURIFICATION DISTRICT

WATER + WASTEWATER

the operation of the District's treatment plants, and aids in economic development. Currently, the District has 10 permitted Significant Industrial Users with flows ranging from 25,000 to 2.5 million gallons per day.

The County's Water Purification District regularly undertakes capital projects to maintain and upgrade equipment and improve operations. The District recently signed an intermunicipal agreement with Saratoga County Sewer District to establish a Regional Biosolids Handling Facility. The new facility will house an anaerobic digester that will treat biosolids and sludge generated at the Saratoga, Albany North, and Albany South wastewater treatment plants, as well as biosolid waste from numerous other small treatment plants. The by-product of anaerobic digestion is biogas, and the Water Purification District is currently working to determine the best use for this fuel source. The District has also been engaged in an advisory role in the Albany Pool Communities Combined Sewer Overflow Long Term Control Plan since its inception. Combined sewer overflow points of discharge are owned and operated by municipalities; any improvements made to separate sewers will directly affect the District's operations and capacity.

Other Sewer Districts in Albany County

Several towns in Albany County own and operate wastewater conveyance and treatment infrastructure. While the Towns of Guilderland and Colonie are Albany County Water Purification District members, the County's infrastructure only serves a small portion of Guilderland and about half of Colonie. The Town of Guilderland owns and operates two wastewater treatment plants (NE Industrial Park Sewer Plant and Nott Road Sewer Plant) as well as trunk and lateral sewer lines serving concentrated development along NYS Route 20 and the Hamlets of Fort Hunter and Guilderland Center. The Town of Colonie's Pure Waters Department maintains and operates the Town's sanitary sewer collection system, which serves portions of the Town not included in the Albany County Water Purification District. Colonie's Department of Pure Waters also operates the Mohawk View Water Pollution Control Plant (wastewater treatment) and reviews and issues sanitary sewer connection permits for commercial and residential development.

The Town of Bethlehem's sanitary sewer collection system was established in 1929 and includes approximately 150 miles of sewer mains and 37 pumping stations. The Town's Sewer Division also operates and maintains a wastewater treatment plant that was constructed in 1973 on Dinmore Road and has a design capacity of 6 million gallons per day. In 2017, the Town of Bethlehem was one of ten municipalities selected by New York State to participate in a $3 million pilot program focused on helping municipalities improve sewer system operations. As part of the pilot program, the Town is working with the New York State Department of Environmental Conservation (DEC), the Environmental Facilities Corporation (EFC), and a private engineering firm to enhance its asset management plan for the Dinmore Road Wastewater Treatment Plant to improve plant efficiency and reduce operating costs.

The Town of New Scotland administers two small sewer districts. The Heldervale Sewer District is located along NYS Route 85 near the Bethlehem town line and is comprised of low-pressure forcemains that discharge to a gravity sewer located in the Town of Bethlehem, which transports wastewater to the Dinmore Road Wastewater Treatment Plant. The Kensington Woods Sewer District serves a new cluster development that is currently under-construction. The Village of Voorheesville, located in the Town of New Scotland, also administers two sewer districts.

The towns of Berne, Rensselaerville, and Coeymans all administer sewer districts, which provide limited service to concentrated development within the Towns. The Towns of Berne and Coeymans also own and operate sewer treatment plants. The Towns of Westerlo and Knox do not administer sewer districts, nor provide municipal sewer services.

Albany County Water Purification District Water Treatment Plant. A water clarifier at the County's water treatment plant, where gravity and buoyancy remove suspended solids and other particulate matter. From here, water moves on to secondary treatment, where bacteria are used to remove organic compounds. Photo credit: WAMC

WATER + WASTEWATER

Stormwater

The Albany County Stormwater Coalition was formed by an inter-municipal agreement to implement stormwater permitting in a coordinated and efficient manner. By helping municipalities comply with stormwater regulations, the Coalition plays an important role in improving the quality of and protecting the region's water resources. The following municipalities and organizations are members of the Coalition:

- Albany County
- City of Albany
- Town of Bethlehem
- City of Cohoes
- Town of Colonie
- Village of Colonie
- Village of Green Island
- Town of Guilderland
- Village of Menands
- Town of New Scotland
- City of Watervliet
- State University of New York (SUNY) at Albany

The Coalition provides members with a comprehensive GIS-database of stormwater infrastructure assets and technical assistance related to stormwater permits, laws, and regulations, such as Municipal Separate Storm Sewer Systems (MS4) permits in urbanized areas, Construction Activity Permits, the development of Storm Water Pollution Prevention Plans (SWPPP), and local laws related to erosion and sediment control. The Coalition is largely funded by NYS DEC to conduct mapping of stormwater assets and also receives a consistent stream of limited funding from membership dues. In addition to paying membership dues, Albany County contributes in-kind services.

In December 2018, the Coalition completed mapping of the County's entire stormwater system, including outfalls, manholes, catch basins, pipes, and pump stations. Starting in 2016, the Coalition also started mapping post-construction stormwater practices (e.g., green infrastructure). While the data is easily accessed by member communities via an online database and mapping system, non-members must request access to the dataset.

Green Infrastructure. A recently constructed wetland in a residential neighborhood in the City of Albany provides residents with flood mitigation, filters water prior to discharge, reduces strain on the City's sewer system during heavy rain events, and creates new habitat. Photo credit: Bergmann

WATER + WASTEWATER

Albany County adopted a green infrastructure policy in 2014. The policy was developed in partnership with the Stormwater Coalition, the County's Department of Public Works, and the County Office of Natural Resources Planning and applies to all projects that will result in a land disturbance of one or more acres. Projects under one acre are also covered by the policy if an opportunity exists to reduce the quantity of stormwater runoff and/or mitigate impacts to natural resources. The policy contains guidance related to project siting, site design standards, natural resource buffers and protection, and facility design.

Combined Sewers

In 2007, the City of Albany, the City of Cohoes, the City of Rensselaer, the City of Troy, the City of Watervliet, and the Village of Green Island (collectively, the Albany Pool Communities) established an inter-municipal agreement to develop a Combined Sewer Overflow (CSO) Long Term Control Plan. The Albany Pool Communities own and operate a total of 92 CSOs that discharge raw sewage directly into the Hudson and Mohawk Rivers, and their tributaries. The primary goal of the CSO Long Term Control Plan is to, "develop a cost-effective, regional solution to achieve water quality standards, maximizing the environmental benefits while considering the financial impacts to the member communities."

In partnership with the Capital District Regional Planning Commission (CDRPC) and the NYS DEC, the Albany Pool Communities plan to implement over 50 projects in the next 15 years that will significantly improve the water quality of the Hudson and Mohawk Rivers, and their tributaries. These projects represent a total public investment of approximately $136.5 million and include:

- Disinfection
- Waste water treatment process improvements
- System optimization
- Sewer separation and storage
- Green infrastructure programs
- Satellite treatment and floatables control
- Tributary enhancements

Development Limitations

Similar to the County's water supply infrastructure, its wastewater infrastructure is also aging, and in general, requires additional investment in maintenance and upgrades. Aging wastewater infrastructure is an issue statewide and represents a major source of water pollution, particularly due to combined sewer overflows.

The Albany County Water Purification District has sufficient capacity to accommodate new growth within its service area. Approximately half of the member communities have combined sewer systems. The City of Albany has taken major steps to separate its sewer system, and the Cities of Watervliet and Cohoes and the Village of Green Island have also made progress in separating their sewers. However, combined sewers are still a major issue and during periods of heavy rainfall or snowmelt, when capacity of the sewer system or treatment plants is exceeded, these combined sewers discharge untreated, raw sewage directly into the Hudson River.

Wastewater conveyance and treatment infrastructure is limited to suburban and urban areas in the towns of Guilderland and Bethlehem. Due to the constrained footprint of wastewater infrastructure, new industrial, commercial, and housing developments are generally limited to urbanized areas within these towns.

The rural towns of New Scotland, Knox, Berne, Renssaelerville, Westerlo, and Coeymans have very limited municipal wastewater infrastructure. New development with high discharge rates is unlikely to be accommodated in these rural towns unless municipal sewer extensions are made or the development provides its own wastewater treatment services.

Further, the lack of a comprehensive, countywide map indicating the coverage of municipal wastewater infrastructure makes it difficult for developers and new businesses to strategically identify locations that accommodate their needs and also provide necessary public services.

WATER + WASTEWATER

Opportunities

In order to increase the reliability, quality, and safety of the county's water supply system, the following opportunities were identified:

- Working with the Albany County Water Purification District and Albany County municipalities, develop a comprehensive, spatially-explicit, intermunicipal asset inventory of countywide wastewater infrastructure to identify areas suitable for future development and high priority projects to improve the quality and capacity of the County's wastewater system.
- Engage sewer districts early in the project planning process (e.g., during the review of projects referred to the County Planning Board per New York State General Municipal Law, Article 12-B, §239-l, m, and n) to enable sewer districts to work directly with project applicants and collaboratively develop projects that are compatible with the district's capacity. Early engagement with sewer districts is particularly important for proposed commercial or industrial projects with high-volume discharge needs.
- Establish a clear line of communication between the County's sewer district and economic development initiatives that occur in the individual municipalities that the district serves.
- Provide training to encourage County agencies/departments to use the Stormwater Coalition's robust dataset to inform decision-making and operations and maintenance activities. Currently, only two County staff are registered to use the Coalition's online database, which provides access to stormwater infrastructure information and mapping.
- Partner with the Stormwater Coalition to utilize its stormwater asset inventory in a more proactive manner. Currently, the database is predominantly used to ensure compliance with permitting requirements, but could be leveraged to identify suitable areas for new development, connect land use decisions to stormwater data, strategically target areas with high pollutant loads, track the ability of MS4 programs to improve water quality, and pursue grant opportunities.

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EXISTING CONDITIONS
ENERGY

INTRODUCTION

Energy services are critical to the functioning of other components of the infrastructure system and to daily life. Without electricity, wastewater treatment plants would not function and lights would not turn on. Without gas, many buildings could not be heated and some manufacturing processes would be restricted. Like other infrastructure services, gas and electricity have come to be expected in most areas. As such, developers do not expect to incur significant expenditures for basic infrastructure. Furthermore, projects that do require significant expenditure on the part of the developer for the extension of such services ultimately limit the size of the overall development.

This section addresses the following topics:

- Energy generation from non-renewable and renewable sources
- Energy transmission infrastructure
- Development limitations related to energy infrastructure
- Opportunities to improve these systems and encourage economic development

POWER PLANTS IN ALBANY COUNTY

4 HYDROELECTRIC
60 MW total capacity

3 SOLAR
8.6 MW total capacity

3 NATURAL GAS
1.3 GW total capacity

2 LANDFILL BIOGAS
12 MW total capacity

NON-RENEWABLE ENERGY SOURCES

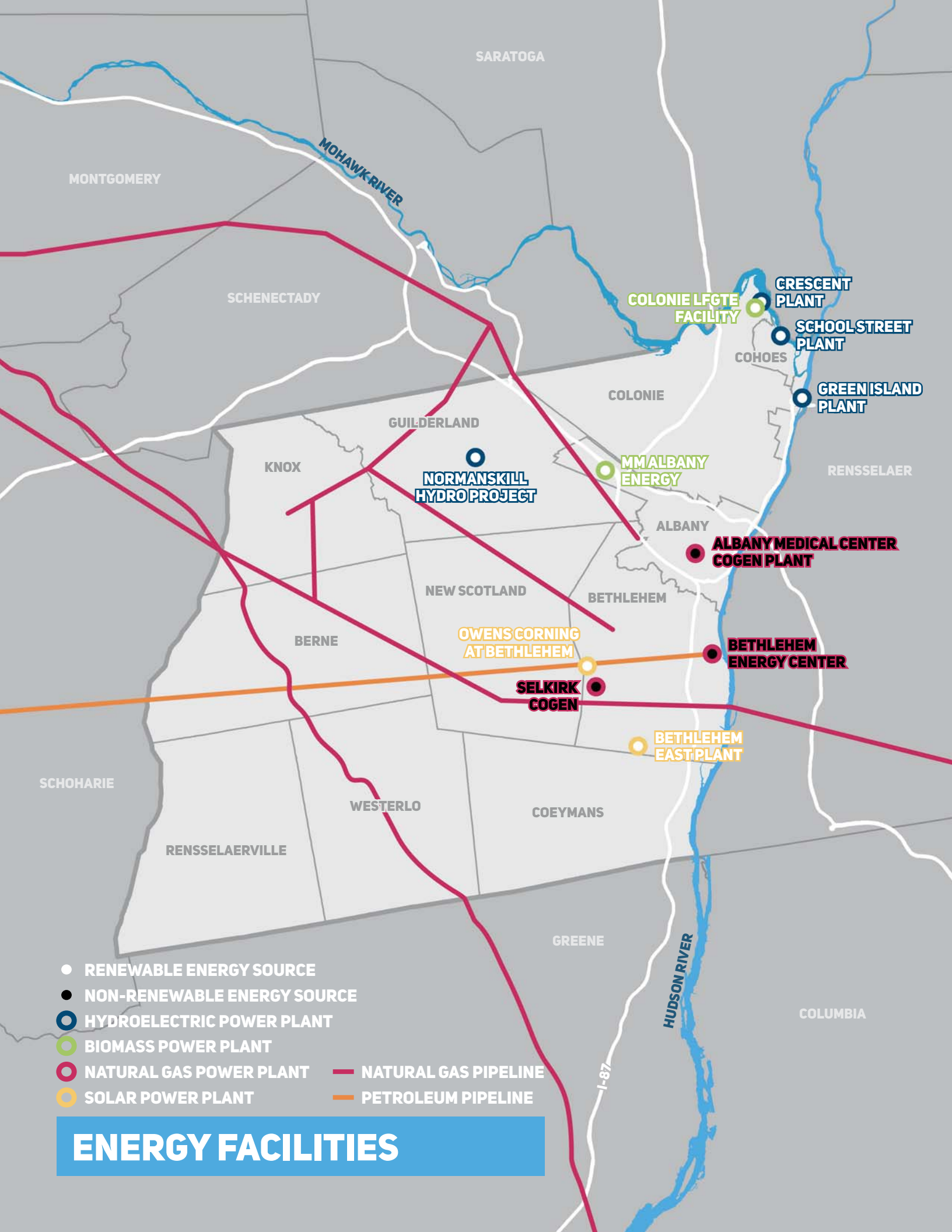
Existing Conditions

Non-renewable energy is derived from materials with a finite supply that require significant energy to extract, such as coal, oil, and natural gas. There are three power plants in Albany County that rely on non-renewable sources to produce energy: the Selkirk Cogen Plant with a capacity of 446 MW, the Bethlehem Energy Center with a capacity of 891.3 MW, and the Albany Medical Center Cogen Plant with a capacity of 4.6 MW.

The Selkirk Cogen Plant is a natural gas fired cogeneration facility that uses natural gas to produce electricity and captures and sells the reject heat from power production for industrial purposes. The plant's owners proposed to deactivate the plant in May of 2018, but decided against it, postponing the shut-down indefinitely. The proposed deactivation triggered a study by the NYISO which concluded that the plant's closing would not impact the reliability of the electric grid in the region.

The Bethlehem Energy Center (BEC) is located along the banks of the Hudson River in Glenmont and is a combined cycle natural gas powered plant that uses the steam exhaust produced from burning natural gas to drive turbines and produce energy. In 2017, the plant operated at full capacity for about 75% of the year and produced 5,300 GWh of energy. For comparison, energy consumption in the Capital Region during that same period totaled 11,800 GWh – indicating that, on its own, the BEC is capable of meeting roughly half of the region's energy need.

The Albany Medical Center Cogen Plant, located at the Albany Medical Center Hospital, is a cogeneration plant that uses a natural gas fired turbine to produce electricity and recovers and reuses the heat created in this process for hot water and sterilization purposes. Most of the electricity produced is used to power the Medical Center, displacing 4,117 kW of peak demand from the grid. The plant's ability to efficiently generate power, reduce emissions, and utilize heat typically wasted by conventional power plants earned it the "Outstanding


SARATOGA
MONTGOMERY
MOHAWK RIVER
SCHENECTADY
CRESCENT PLANT
COLONIE LFGTE FACILITY
SCHOOL STREET PLANT
COHOES
GREEN ISLAND PLANT
COLONIE
GUILDERLAND
KNOX
NORMANSKILL HYDRO PROJECT
MM ALBANY ENERGY
RENSSELAER
ALBANY
ALBANY MEDICAL CENTER COGEN PLANT
NEW SCOTLAND
BETHLEHEM
BERNE
OWENS CORNING AT BETHLEHEM
BETHLEHEM ENERGY CENTER
SELKIRK COGEN
BETHLEHEM EAST PLANT
SCHOHARIE
WESTERLO
COEYMANS
RENSSELAERVILLE
GREENE
HUDSON RIVER
COLUMBIA
I-87
RENEWABLE ENERGY SOURCE
NON-RENEWABLE ENERGY SOURCE
HYDROELECTRIC POWER PLANT
BIOMASS POWER PLANT
NATURAL GAS POWER PLANT
SOLAR POWER PLANT
NATURAL GAS PIPELINE
PETROLEUM PIPELINE
ENERGY FACILITIES

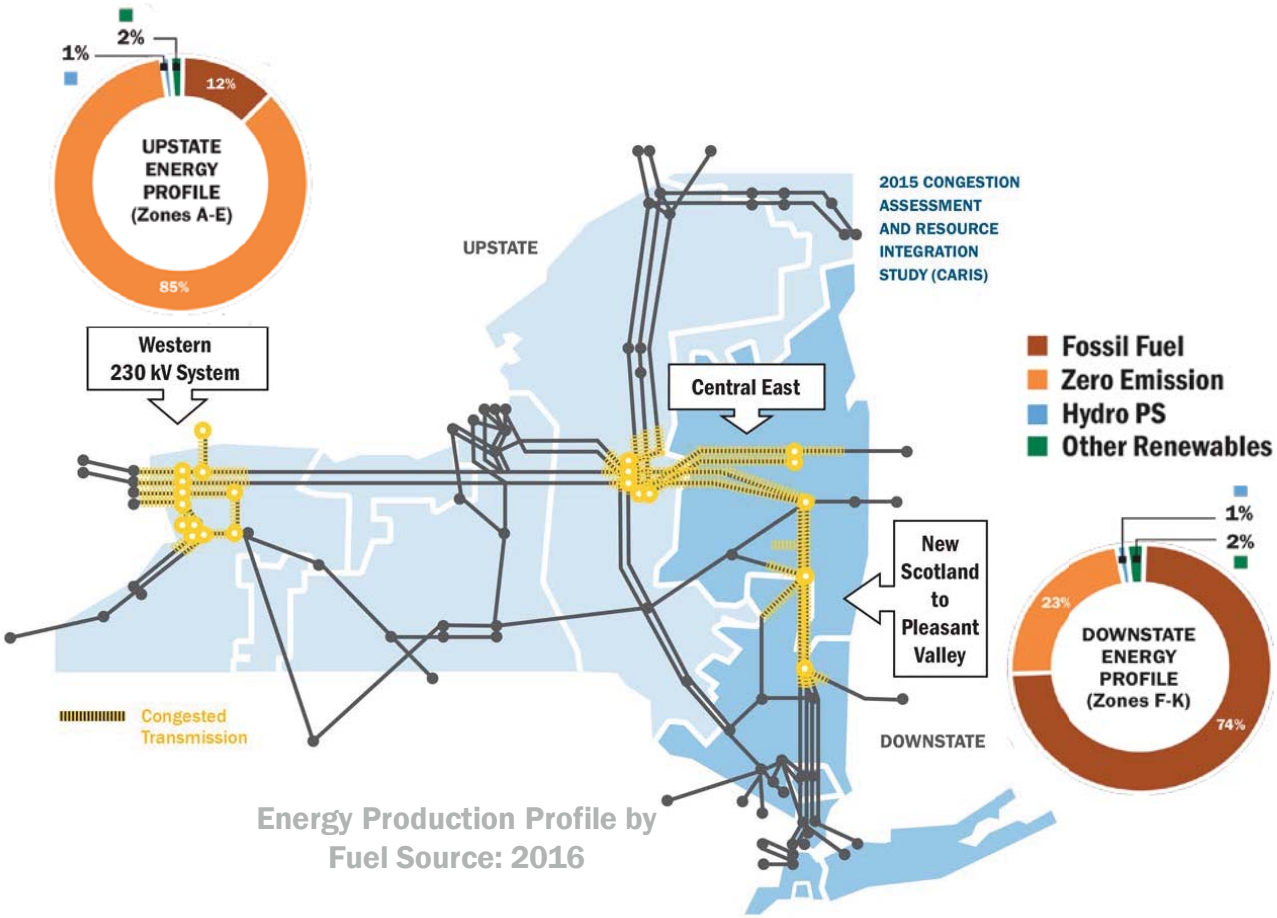
ENERGY

CHP Project" award from the Northeast Clean Heat and Power Initiative in 2014 and helped the Albany Medical Center earn a High Performance Building Plaque from NYSERDA.

Gas and electric service are provided throughout the county by National Grid and Central Hudson Gas and Electric. Central Hudson primarily operates in Rensselaerville, Westerlo, and Coeymans while National Grid serves the rest of the county.

Development Limitations

Albany County is located along one of the most congested transmission corridors in New York State between the Mohawk Valley and the lower Hudson Valley. This bottleneck is caused by high draw from New York City, which sometimes exceeds the capacity of the upstate transmission facilities, resulting in excess demand being met by more expensive and less efficient sources. While this bottleneck primarily affects downstate energy customers, addressing congestion would allow upstate power producers greater access to the downstate market and would lower energy costs for consumers.



Energy Production Profile by Fuel Source: 2016

New York State Transmission System. According to "The State of Storage" report developed by the New York Independent System Operator (NYISO) in December 2017, transmission of electricity from generators to consumers is constrained in the Hudson Valley (including Albany county), New York City, and Long Island due to congested transmission lines (Graphic Credit: NYISO).

ENERGY

The State recently attempted to mitigate the congestion by upgrading the lines between the Marcy substation, located just outside of Utica, and the substation in New Scotland. This project was completed in 2016 and provided an additional 440 MW of capacity.

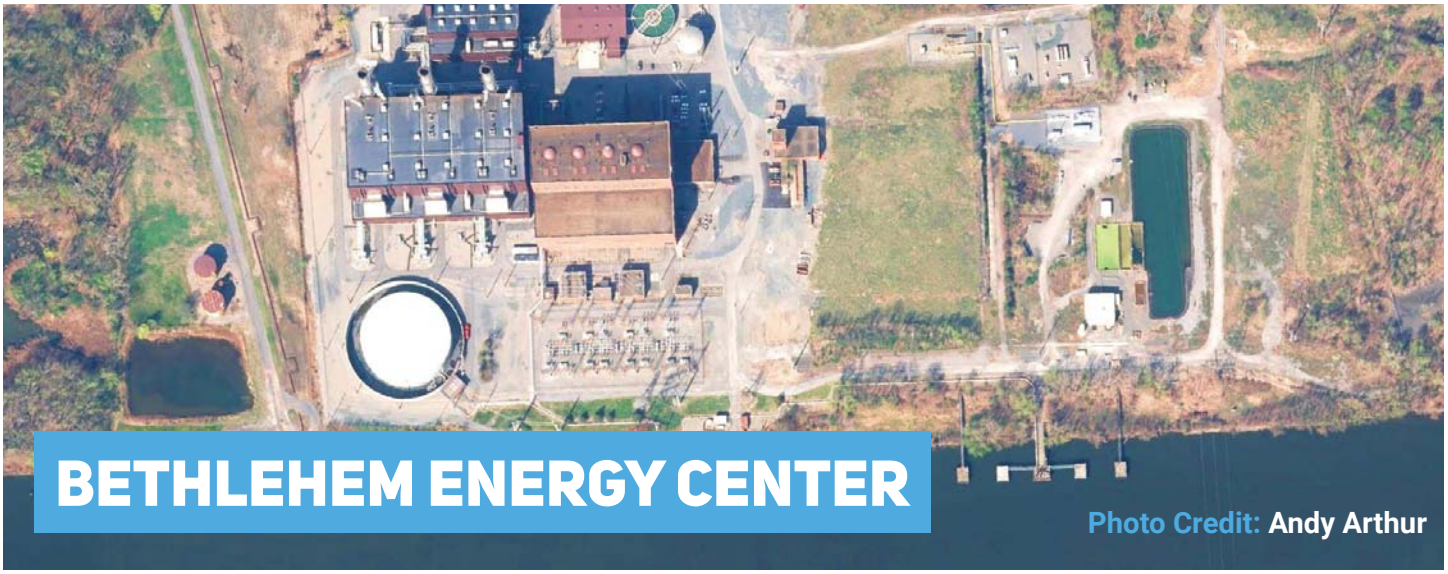
In addition to capacity, the age of the county's transmission lines is also of some concern. According to the NYS Transmission Assessment and Reliability Study, as of 2012 some of the county's high-voltage transmission lines were within 10 years of reaching their operational lifespans. As lines age, they are more susceptible to failure and require more outage time for maintenance, so the NYISO recommends replacing them instead of continually maintaining them.

In terms of generation, the non-renewable power infrastructure is relatively robust in Albany County and does not present any immediate impediments to development. In total, over 1,300 MW of electrical power can be produced by the county's non-renewable plants. This amount is sufficient to power 1,300,000 homes. For comparison, approximately 310,000 people live in Albany County. Thus, energy production capacity from non-renewable sources alone is sufficient to address the county's needs.

Opportunities

In order to increase reliability of the county's energy transmission system and transition towards emissions-free, renewable energy sources, the following opportunities were identified:

- Work with energy utilities and the NYISO to inventory the county's transmission lines and poles and develop an asset management plan to prioritize maintenance activities and proactively identify infrastructure that needs to be replaced (i.e., near the end of its operational lifespan).
- Encourage and incentivize renewable energy generation and distribution. Renewable energy sources are often derived from zero-cost resources (e.g., wind, solar), less impactful on the environment, and better for public health than non-renewable sources.



BETHLEHEM ENERGY CENTER

Photo Credit: Andy Arthur

ENERGY

RENEWABLE ENERGY SOURCES

Existing Conditions

Renewable energy is derived from sources that are naturally replenished on a human timescale, such as sunlight, wind, biomass, and hydropower. While renewable energy sources are inexhaustible, they are limited in the amount of energy that can be derived at any given time. There are nine energy facilities in Albany County that utilize renewable sources:

- Capital Region Community Solar Garden (5.5 MW capacity)
- Owens Corning solar farm (2.7 MW capacity)
- Bethlehem East solar farm (2.4 MW capacity)
- Colonie LFGTE biomass facility (6.4 MW capacity)
- MM Albany Energy biomass facility (5.9 MW capacity)
- School Street Hydroelectric Power Plant (42 MW capacity)
- Crescent Hydroelectric Power Plan (11.6 MW capacity)
- Green Island Hydroelectric Station (6 MW capacity)
- Normanskill Hydro Project (1.2 MW capacity)

Solar

Combined, the three solar farms in Albany County can generate up to 8.6 MW of electrical energy. The Owens Corning solar farm, established in 2013, is located in Bethlehem and is one of the State's largest industrial solar arrays. The solar array is 9-acres in size and was built on a former corn field adjacent to the Owens Corning plant; the solar array directly supplies the plant and provides approximately 6% of the plant's electricity needs.

The Bethlehem East solar farm is also located in the Town of Bethlehem and was established in 2016 on a former clay mine. Electrical energy derived from this solar facility directly supplies town facilities.

In April 2019, the Capital Region Community Solar Garden came online. This solar garden is the County's first community solar project and is one of the largest community solar projects in the State. The facility is located in the Village of Altamont and generates up to 5.5 MW of electricity.

Solarize Albany is a regional community-based initiative supporting the implementation of rooftop solar and community solar throughout the Capital Region, with the objectives of lowering the cost of solar power and transforming the local solar marketplace. Albany County has been a fundamental partner in supporting Solarize Albany, and has helped the initiative expand beyond the county to serve the entire Capital Region.

COMMUNITY SOLAR

Community solar programs significantly expand access to renewable energy generation; individuals can support solar energy production and save money on their monthly electricity bill without having to install solar panels on their own property. Instead, community solar projects are installed in a sunny location within a community, and any utility customer in the surrounding area (e.g., a National Grid customer) is able to subscribe to a community solar plan (short-term option with little to no upfront capital needed) or purchase a share of the community solar project (larger investment with greater potential savings). Community solar members continue to receive electricity from their local utility as well as solar credits that lower monthly electricity bills.

Solar Arrays in Albany County. The top image shows the Capital Region Community Solar Garden in Altamont, which came online in April 2019. The bottom image displays the Bethlehem East solar farm, which was developed on a former clay mine site and supplies town facilities with electricity. Photo credits: Solar Industry Magazine (top image); NextEra Energy Resources (bottom image).

ENERGY

Biomass

Combined, the two biomass facilities located in Albany County can generate up to 12.3 MW of electrical energy. The Colonie LFGTE (landfill gas to energy) biomass facility is located at the Town of Colonie's landfill in the City of Cohoes where landfill gas (predominantly methane and carbon dioxide) - a natural by-product of decomposition – is captured and converted into electricity. The MM Albany Energy biomass facility is located at the City of Albany's landfill on Rapp Road. Similar to the Colonie LFGTE, this facility collects and converts landfill gases into electrical energy. The City of Albany's Municipal Solid Waste (MSW) permit expires in June 2019 and the NYS DEC has not permitted any expansions of the facility; the City of Albany expects to close this landfill between 2022 and 2026. The NYS DEC recently approved an expansion of the Town of Colonie's landfill, enabling the landfill to operate through April 2028.

Hydropower

Combined, the four hydropower facilities in Albany County can generate up to 60.8 MW of electrical energy. The School Street Hydroelectric Power Plant was built in 1915 and is located in the City of Cohoes on the Mohawk River at the Cohoes Falls. This facility is owned by Brookfield Renewable Power and electricity produced by the School Street hydroelectric turbines flows directly into the State's electrical grid.

The Crescent Hydroelectric Power Plant is owned by the New York Power Authority (NYPA) and is located in the Town of Colonie on the Mohawk River. In 2017, NYPA completed significant upgrades at the Cresent Power Plant, including an overhaul of the facility's hydropower turbines and its plant control equipment.

School Street Hydroelectric Power Plant. Located on the scenic Cohoes Falls along the Mohawk River, this facility has a nameplate capacity of 42 MW, and all electricity generated flows into the State's electrical grid. Photo credit: Wikimedia.

ENERGY

The Green Island Hydroelectric Station is located in the Village of Green Island on the Hudson River at the west end of the Federal Dam. It is owned and operated by the Green Island Power Authority (GIPA), and all electricity generated is sold into the state's wholesale market. GIPA has plans to significantly expand the capacity of the Green Island plant; however, this $100 million expansion project has not yet been implemented.

The Normanskill Hydro Project is located in the Town of Guilderland at a dam on the Normanskill River. This dam creates the Watervliet Reservoir, which provides a source of drinking water for the City of Watervliet and the Town of Guilderland. The hydro power facility is owned and operated by the City of Watervliet, and electricity generated from this facility is used to pump water from the reservoir to the City of Watervliet's filtration plant. Excess power is sold to Niagara Mohawk. The City initiated the relicensing of this facility with the Federal Energy Regulatory Commission (FERC) in February 2017, as its current license will expire in February 2022.

Wind

Currently there are no existing or proposed large-scale wind farms in Albany County. Despite the lack of land-based wind facilities, two ports in Albany County – the Port of Cohoes and the Port of Albany – are poised to play a major role in the offshore wind supply chain. See the Freight Transportation Section on page 16 for more information about the potential role of the County's ports in the offshore wind industry.

State and County Renewable Energy Initiatives

New York's Clean Energy Standard (CDS) establishes an ambitious clean energy goal, requiring the state to obtain 50% of its electricity from renewable energy sources by 2030, reduce greenhouse gas emission by 40% by 2030 and by 80% by 2050. Recently, Governor Cuomo has called for the CES to be expanded by requiring the state to obtain 70% of its electricity from renewable sources by 2030. In an effort to achieve these goals, several State programs provide funding assistance for the development of renewable energy sources, many of which are administered by NYSERDA (e.g, NY-Sun, Clean Energy Fund, Green Bank).

In May 2017, Albany County became the first community in the Capital Region to earn the Clean Energy Community (CEC) designation. This designation recognizes the County's leadership in reducing energy use and supporting the development of clean energy. The four high impact actions that the County implemented to achieve its CEC designation include:

- Adoption of benchmark policies to track energy usage in over 40 County-owned or occupied buildings
- Participation in the community-based Solarize campaign to reduce solar project costs in Albany County
- Establishment of the Energize NY Finance Program that enables long-term clean energy financing for energy efficiency and renewable energy projects at commercial and not-for-profit buildings
- Installation of six electric vehicle charging stations at the Albany County Airport

Development Limitations

Solar and wind are intermittent resources that vary in time and magnitude and must be paired with energy storage resources (e.g., batteries, pumped storage) to achieve reliable and efficient energy supply to the electric grid. In general, wind power production typically peaks at night and solar power typically peaks around midday. Electricity demand, which varies by season, typically peaks around 4PM. This peak in electricity demand aligns well with solar production in the summer, but is not aligned with wind production during any season or solar production in the winter.

Furthermore, large solar (multiple arrays) and wind (multiple rows of turbines) installations require large swaths of open space. In Albany County, these locations are typically dedicated to agricultural or natural resource conservation uses. To avoid the displacement of agriculture and the clearing of forested land, opportunities to install solar and wind facilities on underutilized spaces (e.g., brownfields) and at smaller scales (e.g., rooftops) should be pursued.

ENERGY

Over 80% of the State's high voltage transmission lines are over 30 years old and require major upgrades. Given Albany County's location in the congested Hudson Valley, existing transmission infrastructure is likely insufficient to deliver renewable energy generated in Albany County to the large load centers of New York City and Long Island without support from energy storage resources.

Hydoelectric generation is more reliable than solar and wind energy resources and has a long history of being integrated into the state's electrical grid. In fact, hydroelectric plants meet approximately 17% of the State's total electrical energy demand. However, the construction of new, large-scale hydroelectric facilities is unlikely, as the construction of dams significantly alters waterways and is extremely resource-intensive. Instead, the future development of high-efficiency, small-scale hydroelectric technologies is much more likely.

Landfill biogas collection and conversion to electricity is currently inefficient at both the Albany and Colonie landfills. The Albany landfill is the third-largest source of methane emissions in the state, while the Colonie landfill is ranked 20th on the statewide methane emissions list. Methane is the most potent greenhouse gas and is a by-product of organic decomposition.

PERMITTING SIMPLIFIED FOR SOLAR ENERGY PROJECTS

Recent changes to the New York State Environmental Quality Review Act (SEQRA) regulations significantly reduce the environmental review requirements for solar projects. Specifically, the installation of solar arrays sized 25-acres or less on the following sites is now a Type II action (not subject to environmental review):

- Closed landfills
- Brownfield sites
- Inactive hazardous waste disposal sites
- Disturbed areas at publicly-owned wastewater treatment facilities
- Disturbed areas at sites zoned for industrial use
- Parking lots or parking garages
- Existing structures not listed or eligible for listing on the National or State Register of Historic Places and not located in a district listed on the National or State Register of Historic Places

Opportunities

In order to facilitate the development of renewable energy sources, increase the reliability and resiliency of the county's electrical system, and decrease greenhouse gas emissions, the following opportunities were identified for Albany County:

- Conduct an analysis to identify suitable, potential sites for the future development of solar and wind farms in order to guide the siting of future renewable energy development, ensure compatibility with existing land uses, such as agriculture and natural resource conservation, and establish clear expectations for developers.
- Partner with National Grid, NYSERDA, and NYPA to explore and pilot energy storage resources that are currently in the research and development phase to support the reliable integration of renewable energy resources into the electric grid.
- Collaborate with the Albany County Water Purification District and municipal water supply systems to pilot high-efficiency, small-scale hydroelectric technologies to generate power for County-owned and/or operated facilities.

ENERGY

- Partner with municipal and State agencies to test and implement new gas collection systems at the Albany and Colonie landfills to improve methane capture and conversion to electricity and to reduce emissions.
- Implement a county-wide organic waste diversion program to eliminate organic waste from landfills by establishing a large-scale composting program that converts organic waste into a valuable product and alleviates pressure on the County's space-constrained landfills.
- Collaborate with State, municipal, and utility partners to identify opportunities for the establishment of microgrids powered by renewable energy sources (paired with energy storage resources) to increase the resiliency of the County's electrical grid.

City of Albany Landfill is a Major Source of Methane Emissions. Despite the existence of systems to collect and convert landfill biogas into electricity, the Albany Landfill is the state's third largest producer of methane gas. The landfill is nearly at capacity, and the landfill is expected to close between 2022 and 2026. Photo credit: Times Union.

EXISTING CONDITIONS
TELECOMMUNICATIONS

INTRODUCTION

Reliable access to telecommunications services – meaning long distance and data telephone services as well as high speed internet connections (i.e., broadband) – is critical to the daily activities of residents, businesses, and visitors. Telecommunication services provide the technical foundation for communication, data sharing, and information access. Every sector and industry relies on telecommunications to some degree – from a simple phone call or email to navigation services to running a complex global enterprise. In particular, high-speed broadband is a powerful economic development tool that supports business operations, job creation, education, civic engagement, and bridges the digital divide for low-income communities.

This section addresses the following topics:

- Existing telecommunication service conditions and providers
- Access to broadband services
- Development limitations
- Opportunities

Existing Conditions

Providers

The primary providers of cellular service in Albany County include Verizon, Sprint, AT&T, and T Mobile, with Verizon and AT&T providing the most comprehensive coverage countywide.

The primary providers of broadband internet services in Albany County are Spectrum, Verizon, and Verizon Fios. The sole provider of broadband internet in urban areas is Spectrum. This lack of competition in urban areas contributes to affordability and access issues, particularly in low-income communities.

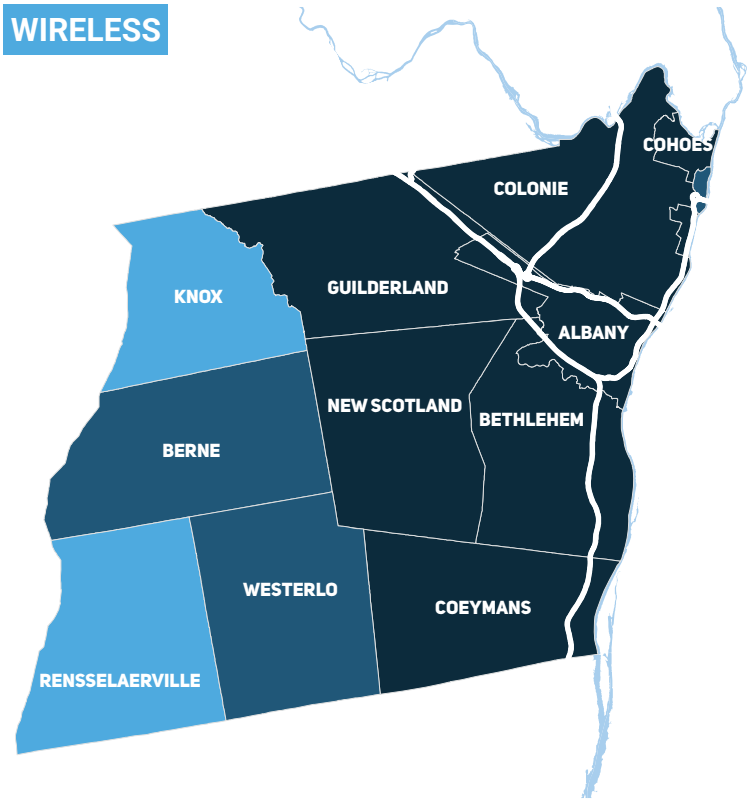
There are also several other local providers offering fiber optic, DSL, and fixed wireless services, however, their coverage is generally limited across the county. For example, FirstLight Fiber is headquartered in downtown Albany and has one of the largest fiber optic networks in the northeastern United States, with a dense fiber footprint in Albany County. FirstLight Fiber provides enterprise and carrier customers with high speed data, Internet, and cloud services.

Broadband Access

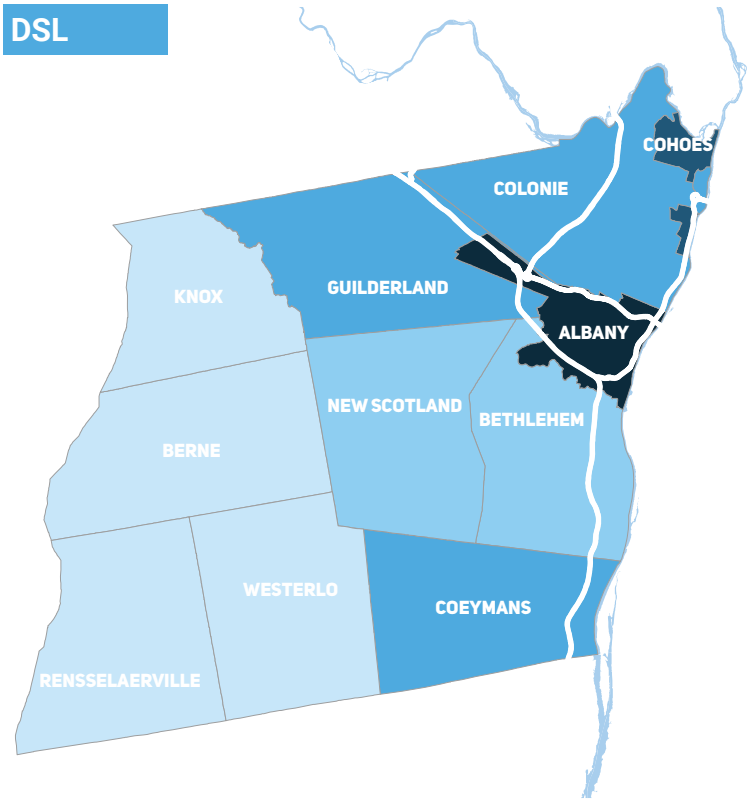
Urban and suburban areas generally experience the greatest access to a diversity of broadband internet options and service coverage, while broadband services in rural areas are limited. Wireless (fixed or mobile) and cable broadband are the most widely available internet services in Albany County, and with the exception of Westerlo, a majority of housing units in rural towns have access to these services. DSL broadband is most accessible in urban and suburban areas, but is not a viable option for most rural residents. Access to high speed fiber optic internet services are limited countywide; in most towns, less than 50% of housing units have access to fiber internet.

Despite the relatively high percentage of households with access to wireless, DSL, and cable services in the City of Albany, a "Broadband Assesment and Feasibility Study" conducted in 2017 indicates that many of the City's residents (approximately 35%) do not have access to high-

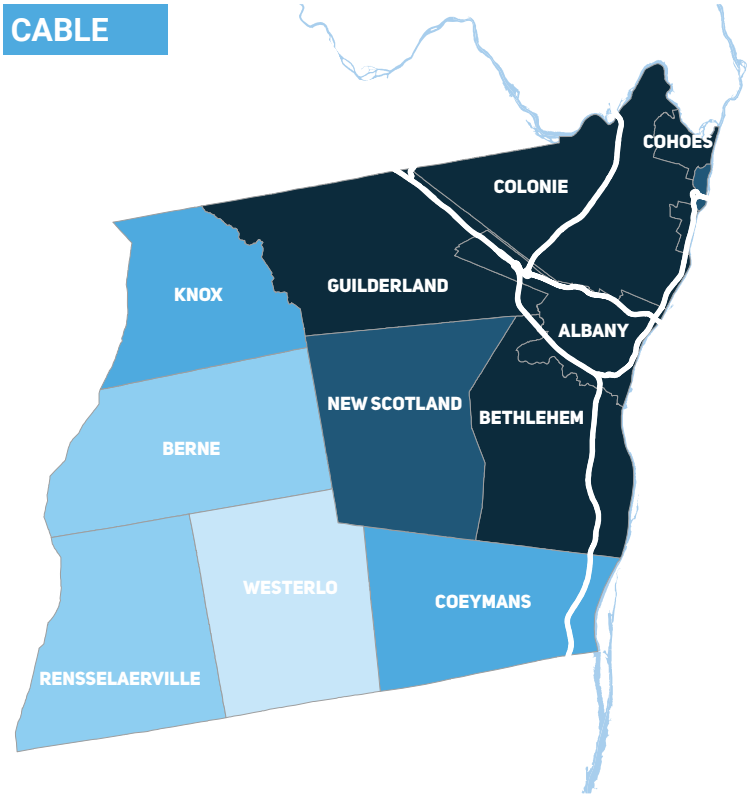
WIRELESS



DSL



CABLE



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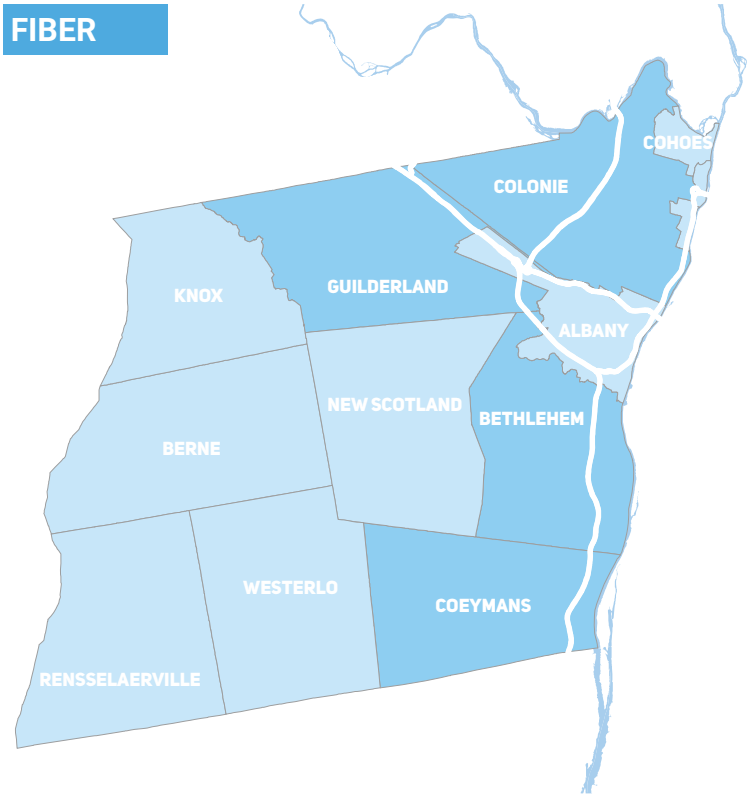

BROADBAND ACCESS

PERCENT OF HOUSING UNITS WITH ACCESS

<50%	50% - 75%	76% - 90%	91% - 95%	>95%

TELECOMMUNICATIONS

speed internet (25-100 mbps), and this lack of access is particularly prevalent in low-income communities. Affordability is the primary reason such a high percentage of City residents do not have high speed internet access in their homes.

In rural areas, access to broadband internet services is particularly limited for county farms, according to the Albany County Agriculture and Farmland Protection Plan Update (2018). Approximately 25% of the county's farms do not have access to internet service, and those farms that do have internet service consistently have experience issues with quality and reliability.

Development Limitations

Despite the presence of broadband infrastructure in the City of Albany, a high percentage of City residents do not have access to high-speed internet, largely due to the high cost of these services. Unfortunately, only one broadband provider serves City residents (Spectrum), making it impossible to access more afforable options. The high cost of high-speed internet access disproportionately affects low-income communities, and exacerbates issues related to educational attainment, poverty, and unemployment.

Many rural households do not have reliable, high-quality access to broadband services. This lack of broadband access in rural areas severely limits opportunities for telecommuting and is challenging for farmers, particularly those who have electronic data interchange needs for managing client accounts.

Access to fiber optic broadband services is generally low countywide. Fiber optic is the fastest (and most expensive) internet technology currently available and is critical to attracting tech start-ups and fueling economic growth.

Opportunities

Reliable access to high speed internet and cellular phone service are fundamental to economic development and public safety. Several opportunities exist to expand broadband access in Albany County, including:

- Apply for State grants through the New NY Broadband Program to enhance broadband access countywide, with a particular emphasis on low-income urban communities and county farms.
- Pursue public-private partnerships with technology companies to install fiber optic cable in areas targeted for economic growth.
- Pursue the development of an alternative high-speed broadband network for the City of Albany to increase competition, affordability, and access.
- Leverage the rapidly growing cellular broadband network (4G and 5G LTE) to build-out high-speed community broadband services. 5G LTE infrastructure, which promises better coverage and higher bandwith (100+ Mbps) than 4G, is currently being deployed throughout the City of Albany.
- Coordinate with municipalities to evaluate the feasibility of establishing high speed, municipal-owned internet networks to provide free or affordable internet service, particularly in underserved areas or areas well-positioned for economic growth.

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02

LAND USE:
EXISTING CONDITIONS + OPPORTUNITIES

EXISTING CONDITIONS

LAND USE

INTRODUCTION

Understanding the existing mix of land uses and how these land uses are distributed in relation to major infrastructure systems (e.g., railroads, roadways, transit, public utilities) are important first steps in identifying future opportunities and priority areas for new development. Albany County is comprised of a diversity of land uses, with residential uses comprising a majority of the county's area (60%). Unlike residential uses, which are relatively evenly distributed throughout the county, commercial and industrial uses typically cluster along major transportation corridors, such as interstate systems and rail lines. The distribution of recreation and community service uses generally coincide with more densely populated areas, while conservation and agricultural uses are typically concentrated where infrastructure systems are limited and population density is low.

This section describes the characteristics and distribution of the following land uses across Albany County:

- Agricultural
- Residential
- Commercial
- Industrial
- Public Service
- Recreation + Community Service
- Conservation
- Vacant

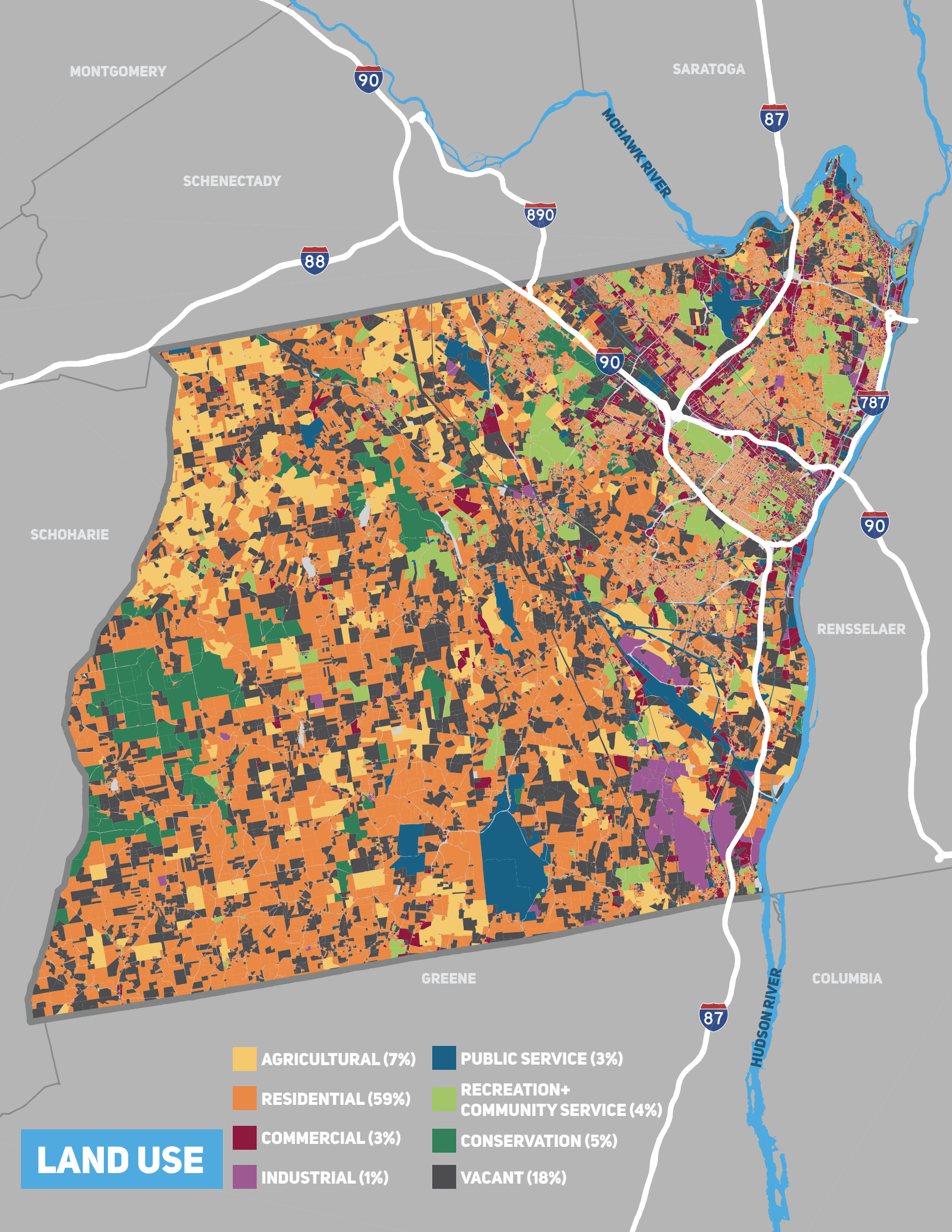
AGRICULTURAL

Agricultural uses comprise approximately 7% of the total area in Albany County and are concentrated in the towns of Guilderland, Knox, Berne, Westerlo, Rensselaerville, New Scotland, Coeymans, and Bethlehem. Agricultural uses are sparse or completely absent in the Town of Colonie and the Cities of Albany, Green Island, Cohoes, and Watervliet.

Nearly 500 farms are in operation in Albany County. Most farms in the county are diversified and areas of specialization include: beef cattle, oilseed and grain, hay production, sheep and goats, poultry and eggs, vegetables and melons, and floriculture. In 2012, the market value of farm products sold in Albany County totaled $46 million.

Approximately 15% of the land in Albany County is located in an agricultural district, which is more than double the land area currently classified as an agricultural use. Agricultural districts represent lands that are protected by the New York State Agricultural District Law, which was enacted in 1971 to, "protect and promote the availability of land for farming purposes." These protections include landowner incentives that are designed to prevent the conversion of farmland to non-agricultural uses. Incentives include partial real property tax relief, protections against overly restrictive local laws, access to government funded acquisition or construction projects, and protections against private nuisance suits involving agricultural practices. The law also grants counties the authority to create, modify, and approve agricultural districts (the approval process also requires certification from the Commissioner of Agriculture and Markets that the proposed or amended district meets the intent of the law). While not all lands within an agricultural district are currently classified as an active agricultural land use (many are classified as residential or vacant land uses), all agricultural districts overlap with priority farmland flagged for protection by Albany County.

In 2018, Albany County updated its Agriculture and Farmland Protection Plan. This Plan was developed to advance the following vision, "Protect and enhance the agricultural industry in Albany County in a manner that


MONTGOMERY
SARATOGA
SCHENECTADY
MOHAWK RIVER
SCHOHARIE
RENSSELAER
GREENE
COLUMBIA
HUDSON RIVER
90
87
890
88
787
LAND USE
AGRICULTURAL (7%)
RESIDENTIAL (59%)
COMMERCIAL (3%)
INDUSTRIAL (1%)
PUBLIC SERVICE (3%)
RECREATION+ COMMUNITY SERVICE (4%)
CONSERVATION (5%)
VACANT (18%)

LAND USE

protects the farmers' ability to operate profitably while providing for community character, natural resource protection, and open-space needs." A major component of the updated plan was the development of an agricultural economic development plan, which summarizes current challenges that farmers face in Albany County and recommends solutions to overcome these challenges. These challenges include:

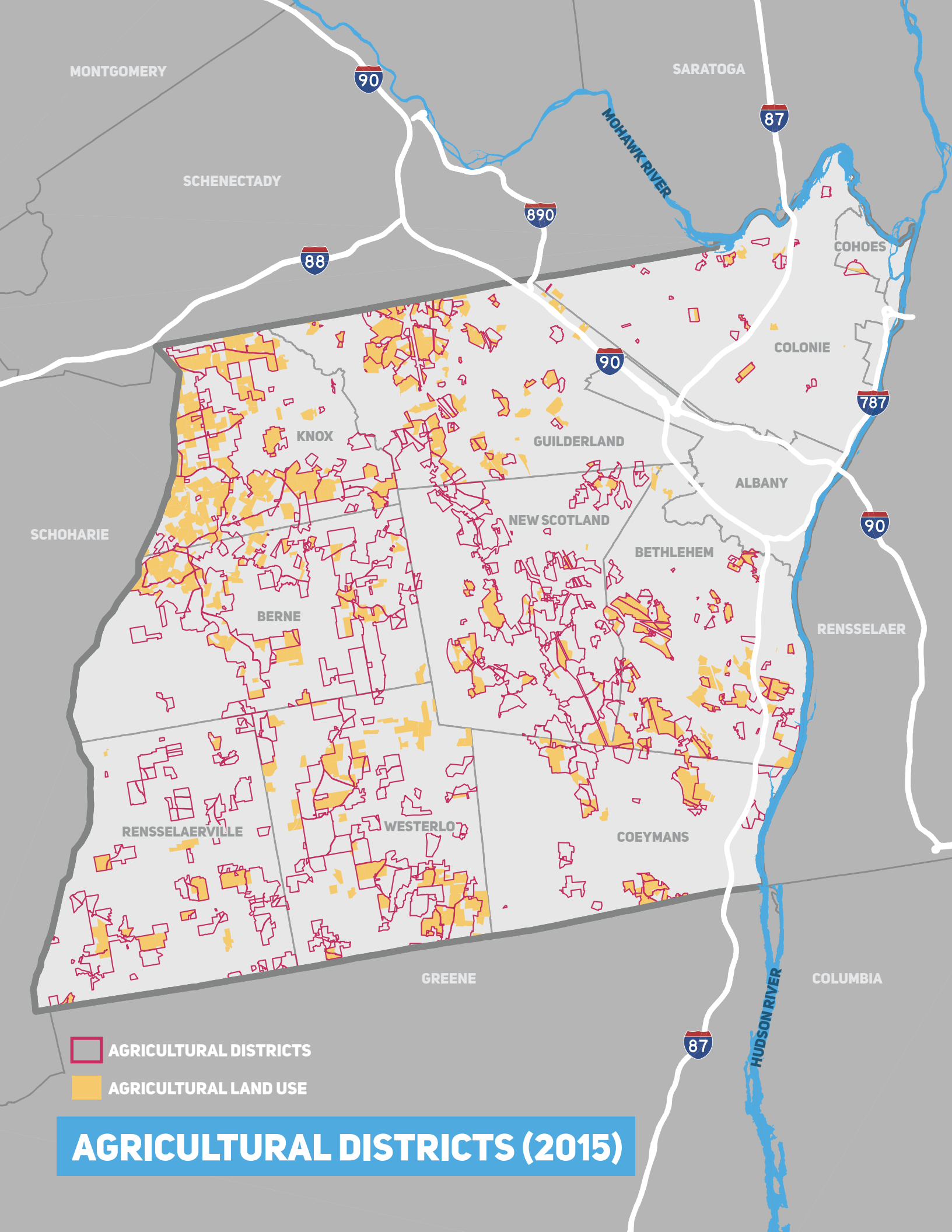
- **High cost of doing business.** Farmers highlighted the following issues as economic challenges: high property tax burdens relative to neighboring Mid-Atlantic states, high costs of maintenance and repair due to the cost of locally inventoried goods and third-party shipping delays, and efficiencies of scale.

PRESERVING WORKING LANDSCAPES

The Mohawk Hudson Land Conservancy (MHLC) utilizes conservation easements to proactively preserve historic and productive farmlands in the Capital Region. This legal agreement between MHLC and the land owner conserves farmland in perpetuity by limiting future development and encouraging continued agricultural uses on the land.

In particular, Rensselaerville, which is characterized by pastoral landscapes and productive forests, has been identified by the MHLC as a critical link to the Catskill Mountains and the Capital Region. The MHLC has prioritzed the preservation of healthy working landscapes in the the Town of Rensselaerville to ensure local food production is accessible to future generations and that the bucolic character of the area is maintained.

- **Competition for land resources.** The expansion of existing farms and the establishment of new farms are impaired by the lack of large, contiguous swaths of high productivity soils. Further, the land value in Albany County has been steadily increasing due to pressures generated by suburban sprawl and competition between farmers for access to high quality parcels of land. According to the Agriculture and Farmland Protection Plan, farmland currently costs approximately $3,100 per acre, which is nearly 20% higher than statewide land values.
- **Market development.** Farmers selling directly to retail customers find it difficult to compete with convenience-oriented shopping options that are available 24/7. In wholesale markets, farmers are challenged by increased demand for value-added products, merchandising, grower contracts, and new and emerging food safety requirements in the global and national supply chains.
- **Infrastructure development.** As discussed in Section 1 of this report, farmers are challenged by rural road conditions and a lack of reliable access to broadband internet services.
- **Beginning farmer support.** Nearly 92% of farm operators are 45 years old or older. There is a clear need to attract and support new farmers to ensure agriculture has a future in the county.
- **Access to economic and business development resources.** Farmers require local access to specialized training to ensure they stay up-to-date with technological advances. Cornell Cooperative Extension, located in Voorheesville, provides several critical services to farmers, but does not have the capacity to provide "wrap-around" services such as product development, feasibility analysis, market research, brand development, and intellectual property development.



AGRICULTURAL DISTRICTS (2015)

LAND USE

In response to these challenges, the Agriculture and Farmland Protection Plan recommended a suite of solutions focused on transforming the local and regional agricultural markets, improving entrepreneurial services, and updating critical infrastrtucture. Albany County was identified as a potential lead agency for the following recommendations:

- Enhance craft beverage supply-chain development
- Create a forest product innovation plan
- Support the study of specialty processing opportunities
- Create an electronic exchange system for production assets and farm services
- Enhance the Hudson Valley Agribusiness Development Corporation membership
- Support the creation of a regional beginning farmer mentor-protégé program that extends reach of existing programs
- Improve broadband access
- Encourage greater use of community scale alternative fuels in combined heat and power projects

Photo Credit: **MHLC**

Albany County's Agricultural Landscapes. **Top left:** Farmland in the Town of Rensselaer preserved by a conservation easement with the Mohawk Hudson Land Conservancy (MHLC) and the Open Space Institute (photo credit: MHLC). **Top right:** Eight Mile Creek Farm, a diverse organic farm, in the Town of Westerlo (photo credit: USDA, NRCS NY). **Bottom:** Cattle at a family-owned farm in the Town of Berne (photo credit: AtEase Acres Farm).

LAND USE

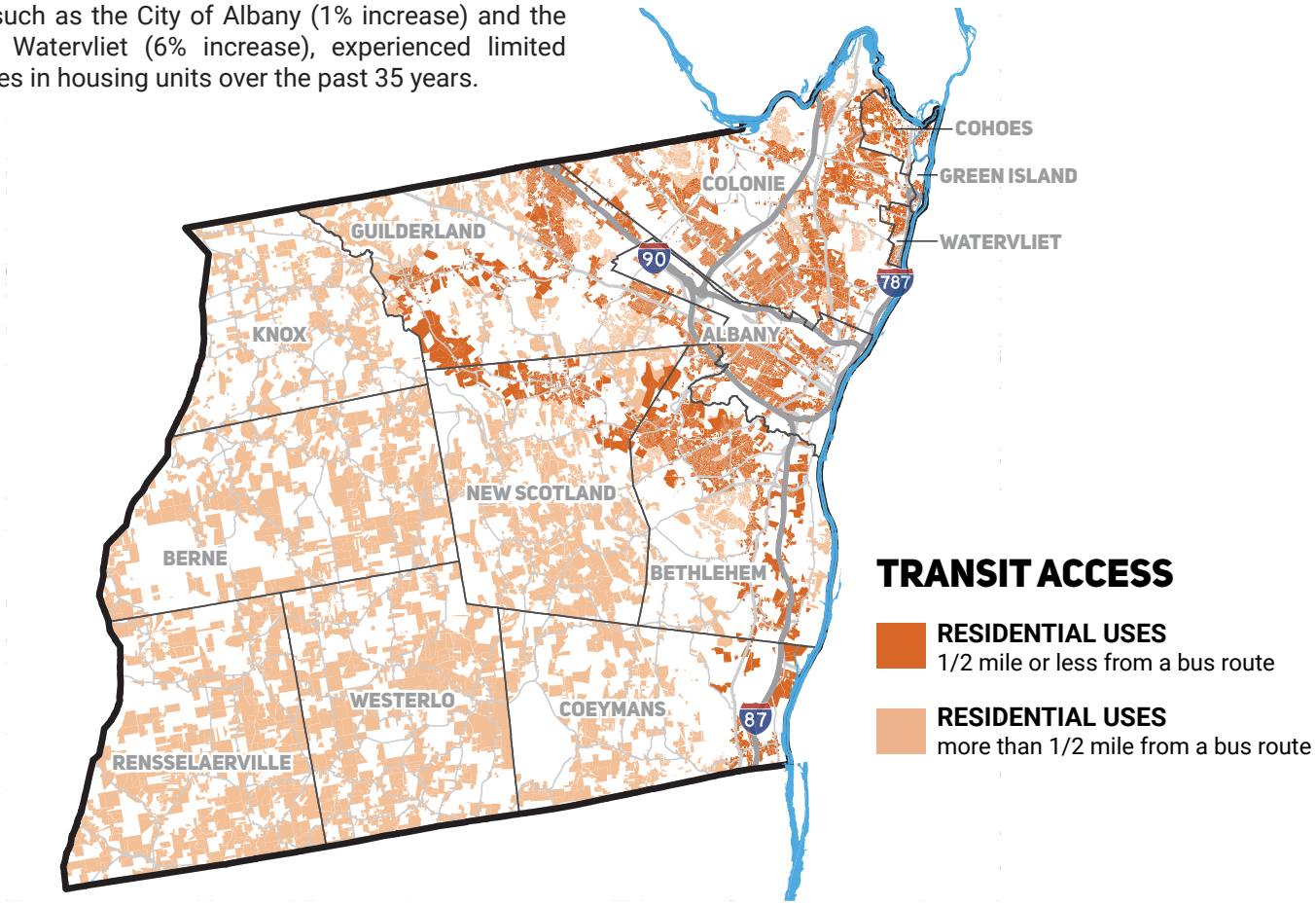
RESIDENTIAL

Residential uses comprise approximately 60% of the total land area in Albany County and are relatively evenly distributed throughout the county. Single family homes are the dominant residential use in the towns of Berne, Bethlehem, Coeymans, Colonie, Guilderland, Knox, New Scotland, Rensselaerville, and Westerlo, while the cities of Albany, Cohoes, and Watervliet and the Village of Green Island offer more diverse housing options (e.g, single family, two-family, multifamily).

Between 1980 and 2015, several municipalities experienced substantial increases in the construction of new housing units, including: Bethlehem (66% increase), Guilderland (57% increase), Berne (41% increase), Knox (34% increase), Colonie (33% increase), and Westerlo (33% increase). Conversely, more densely populated areas, such as the City of Albany (1% increase) and the City of Watervliet (6% increase), experienced limited increases in housing units over the past 35 years.

From 2005 to 2015, several municipalities built new roads to provide access to residential developments. In particular, the Town of Colonie built nearly 14 miles of new roads over this 10-year period; however, only 18% of these new roads included sidewalks, despite the residential uses that the new roads served.

Nearly 80% of all residential parcels are located within one-half mile of a bus route, indicating that a majority of residences in the county have access to public transportation. This is particularly true for residential uses in urban areas and oriented along major roadways. Large lot residential parcels and rural residences generally do not have access to public transportation services.



TOTAL POPULATION			HOUSING UNITS			ROAD INFRASTRU	
2010	2050 (PROJECTED)	% CHANGE	1980	2015	% CHANGE	ROADS BUILT (MILES)	SIDEW (N
97,856	98,324	**1%**	46,209	46,837	**1%**	3.53	
2,794	2,965	**6%**	1,173	1,658	**41%**	0	
33,656	36,899	**10%**	8,921	14,804	**66%**	7	
7,418	7,457	**1%**	3,021	3,338	**10%**	0.2	
16,168	16,784	**4%**	7,554	8,881	**18%**	2.37	
81,591	86,363	**6%**	26,707	35,592	**33%**	13.88	
2,620	2,538	**-3%**	1,132	1,418	**25%**	0	
35,303	38,403	**9%**	9,813	15,383	**57%**	4.24	
2,692	2,851	**6%**	861	1,152	**34%**	0	
8,648	8,918	**3%**	3,047	3,666	**20%**	0.72	
1,843	1,860	**1%**	1,060	1,284	**21%**	0	
10,254	10,271	**0.2%**	5,017	5,319	**6%**	0	
3,361	3,550	**6%**	1,218	1,614	**33%**	0	

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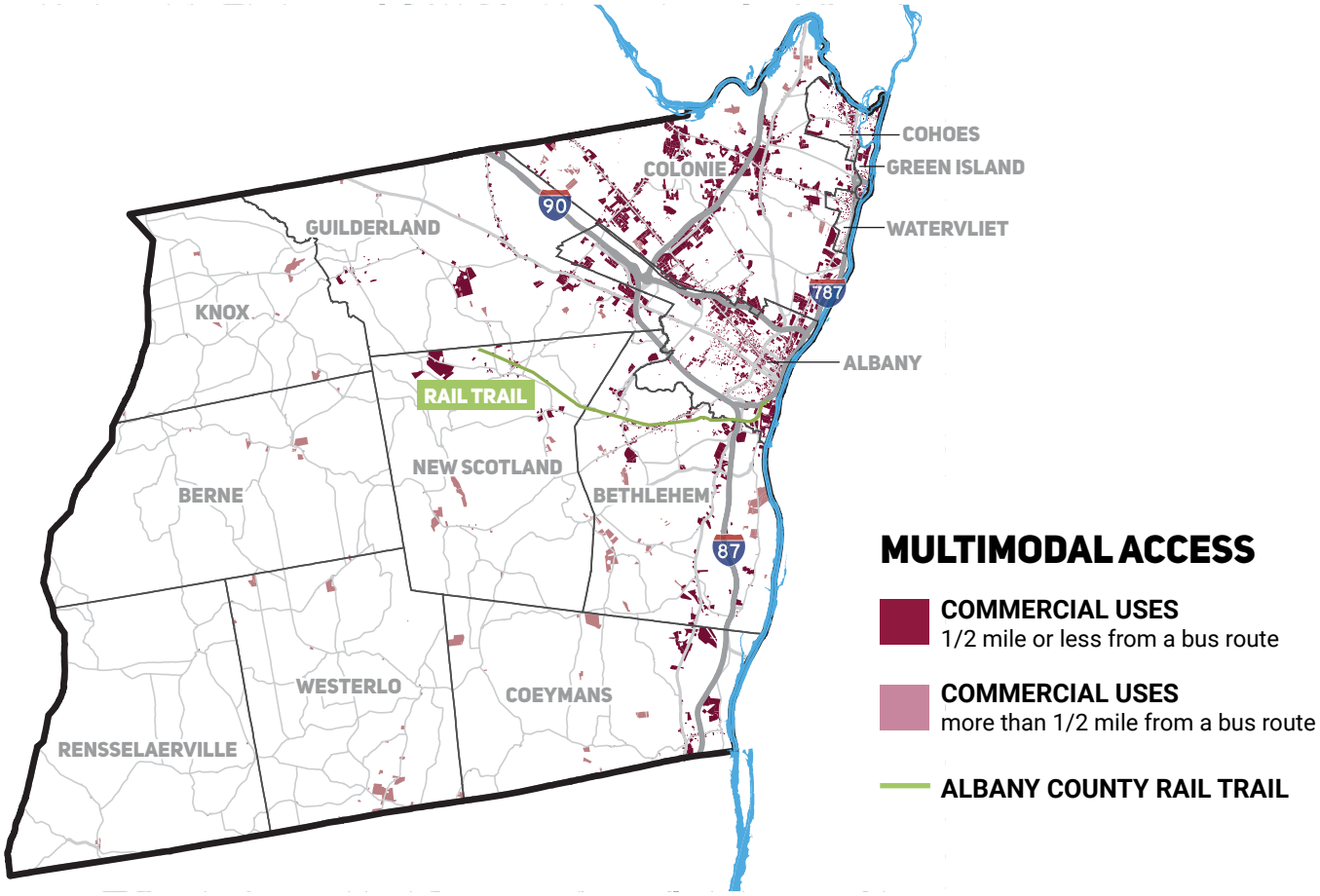
LAND USE

COMMERCIAL

Commercial uses comprise approximately 3% of the total land area in Albany County. These uses are generally clustered in the northeastern portion of the county along major roadways, such as State Route 9W, Central Avenue (State Route 5), Western Avenue (US Route 20), Delaware Avenue (State Route 443), and Wolf Road, and in densely populated areas, such as the City of Albany. Due to this distribution pattern, nearly 95% of the commercial parcels are within one-half mile of a bus route.

Large commercial parcels located in rural areas are often associated with agricultural and tourism-related uses. Examples of these rural commercial uses include Indian Ladder Farms and Van Wie Farms, LLC in New Scotland and the Shepard Farm, LLC in Westerlo. Specifically, Shepard Farm is a former resort that closed in the 1980s and is currently being considered for redevelopment to provide space for local businesses.

The Albany County Helderberg Rail Trail, which transects the City of Albany and the Towns of Bethlehem and New Scotland, provides multimodal access to suburban and rural commercial uses, particularly those located along State Route 443 and in the hamlets of Delmar and Slingerlands and the Village of Voorheesville.



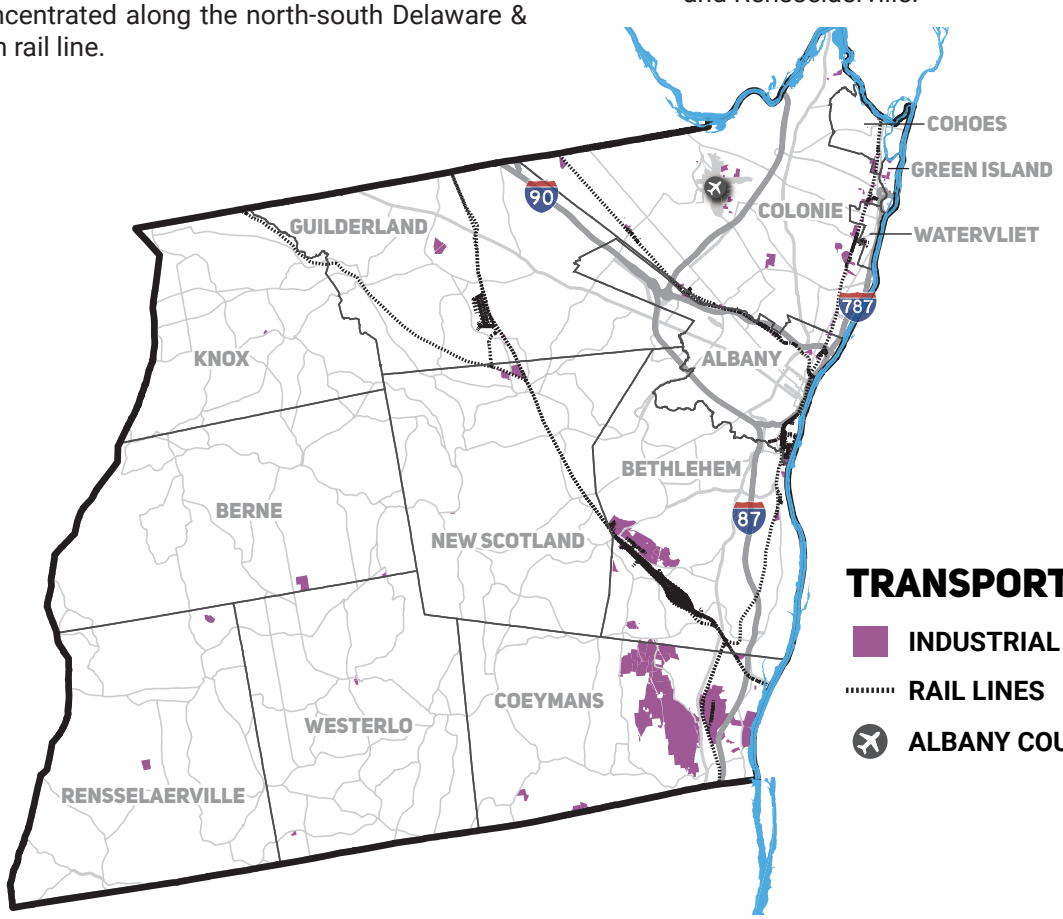
LAND USE

INDUSTRIAL

Industrial uses comprise approximately 1% of the total land area in Albany County and are concentrated in the southeastern portion of the county as well as along major roadways (e.g., I-87 and I-787) and rail lines and adjacent to the Albany County Airport. Industrial activities span a variety of services, including but not limited to: construction, distribution, manufacturing and advanced manufacturing (e.g., chemical, medical, plastics), aggregate and cement production, bottling, Port of Albany activities, and municipal recycling centers.

The distribution and characteristics of industrial uses vary by municipality:

- In the City of Albany are largely confined to the east-west CSX rail line and the Port of Albany.
- In the Cities of Watervliet and Cohoes, industrial uses are concentrated along the north-south Delaware & Hudson rail line.
- Industrial uses in the Town of Colonie cluster around the airport and along the CSX and Delaware & Hudson rail lines.
- The Town of Bethlehem has several smaller industrial uses located along the Delaware & Hudson rail line and a large industrial complex consisting of GE Noryl (plastics manufacturing) and Owens Corning (insulation systems manufacturing) located adjacent to the CSX Selkirk Rail Yard.
- The Town of Coeymans has several large-scale manufacturing industries located along the CSX rail line, I-87, and the Port of Coeymans, including: Atlantic Cement Company, Callanan Road Improvement Company, activities at the port, and the Coeymans recycling center.
- Industrial uses are sparse in the Towns of Guilderland, New Scotland, Knox, Berne, Westerlo, and Rensselaerville.



ELECTRONICS MANUFACTURING, COHOES
Photo Credit: PVA

LAFARGE CEMENT PLANT, RAVENA
Photo Credit: Aggregates Manager

BETHLEHEM INDUSTRIAL CENTER, SELKIRK
Photo Credit: Spotlight News

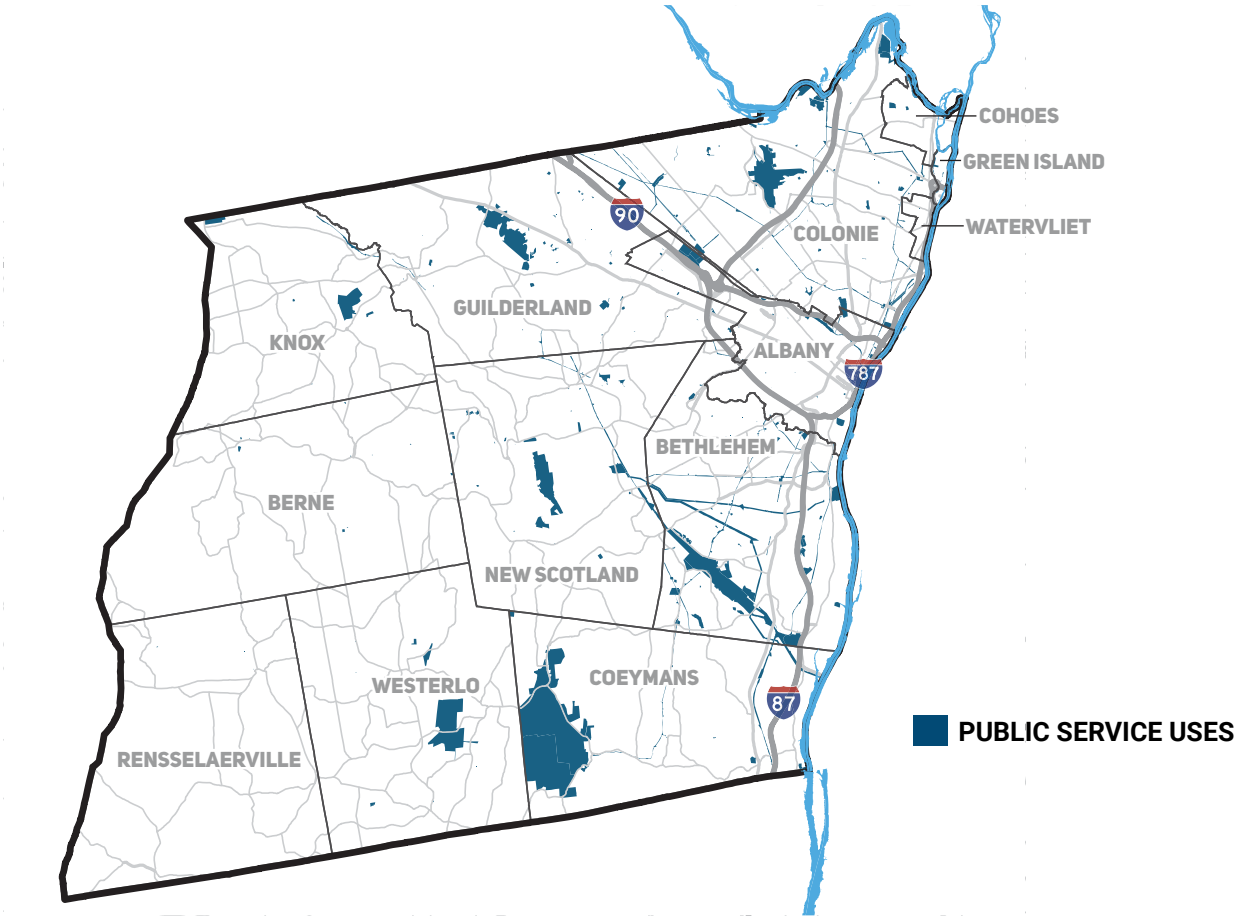
LAND USE

PUBLIC SERVICE

Public service uses comprise approximately 3% of the total land area in Albany County and include areas designated to the provision of public services, such as water supply, treatment, and transmission; telecommunication; transportation services; pipelines; electric and gas facilities; waste disposal; and, sewage treatment.

The distribution and characteristics of public service uses vary by municipality:

- Public service uses are not present in the Town of Rensselaer and are limited in the City of Watervliet.
- In the City of Albany, the predominant public service uses are related to the landfill on Rapp Road, sewage treatment, and rail transportation corridors.
- In the Town of Colonie, many of the public service uses are associated with water supply and treatment, electric utilities, the Albany County airport, and the Town's landfill.
- In Bethlehem, public service uses are comprised of water distribution, sewage treatment electricity and gas transmission, and rail transportation infrastructure.
- In the Towns of Guilderland, Knox, New Scotland, Westerlo, and Coeymans large areas are dedicated to the protection reservoirs and municipal water supplies.



BETHLEHEM WATER PURIFICATION PLANT
Photo Credit: Times Union

ALCOVE RESERVOIR, COEYMANS
Photo Credit: Flikr

ALBANY COUNTY AIRPORT, COLONIE
Photo Credit: Wikipedia

LAND USE

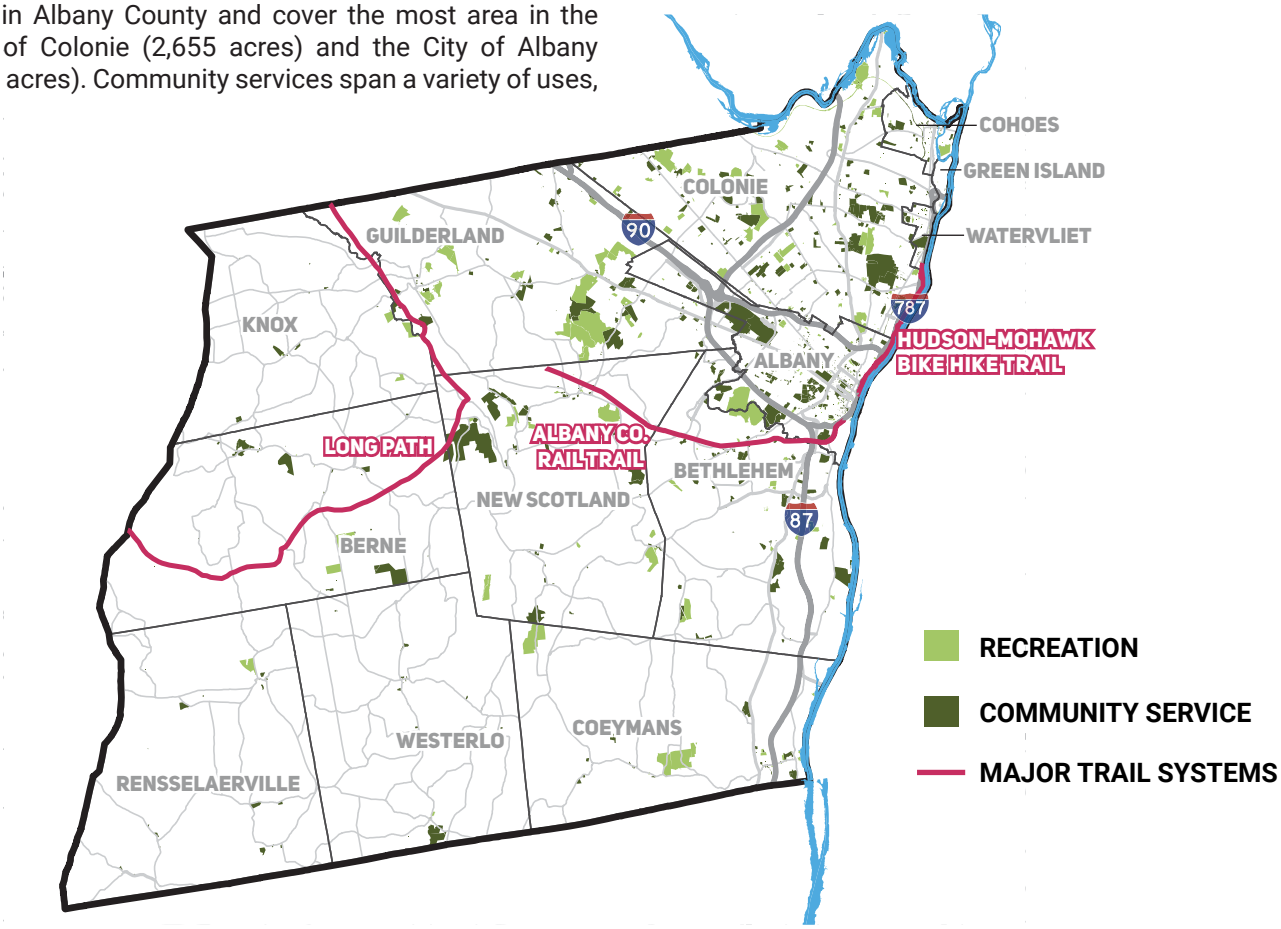
RECREATION + COMMUNITY SERVICE

Recreation and community services uses comprise approximately 4% of the total land area in Albany County and are concentrated where population is relatively dense.

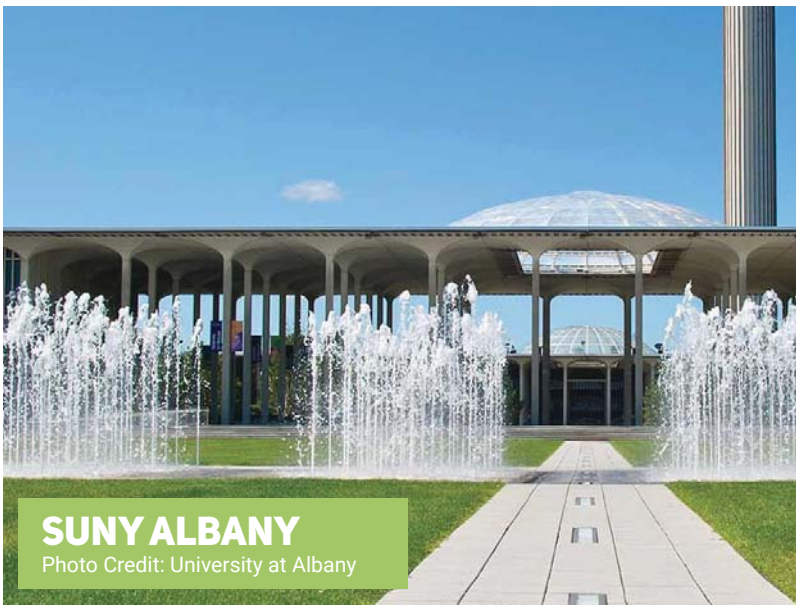
Recreation uses cover approximately 6,900 acres across the county. Recreation uses in Albany County include theaters, sports facilities (indoor and outdoor), amusement facilities, country clubs, marinas, camping facilities, and parks and playgrounds. Outdoor sports facilities (e.g., public and private country clubs, swimming pools, and riding stables) cover the greatest area in Albany County (3,960 acres), followed by parks and playgrounds (1,410 acres), camping facilities (565 acres), and amusement facilities (515 acres).

Community service uses comprise approximately 10,500 acres in Albany County and cover the most area in the Town of Colonie (2,655 acres) and the City of Albany (1,985 acres). Community services span a variety of uses, including educational, religious, healthcare, government, public safety, cultural and recreational facilities, and cemeteries. Countywide, community service uses covering the greatest area include: educational uses (3,255 acres), religious uses (2,640 acres), cemeteries (1,415 acres), and government facilities (780 acres). Nearly half of the area dedicated to government facilities is located in the City of Albany (435 acres).

Approximately 50% of recreation uses and 65% of community service uses are within one-half mile of a bus route. Major countywide trail systems, such as the Long Path and the Albany County Helderberg-Hudson Rail Trail provide additional multimodal connectivity to more rural recreation opportunities and community services.



WASHINGTON PARK
Photo Credit: Discover Albany



SUNY ALBANY
Photo Credit: University at Albany

LAWSON LAKE
Photo Credit: Andy Arthur

CAREY INSTITUTE FOR GLOBAL GOOD
Photo Credit: Duane Fernandez

LAND USE

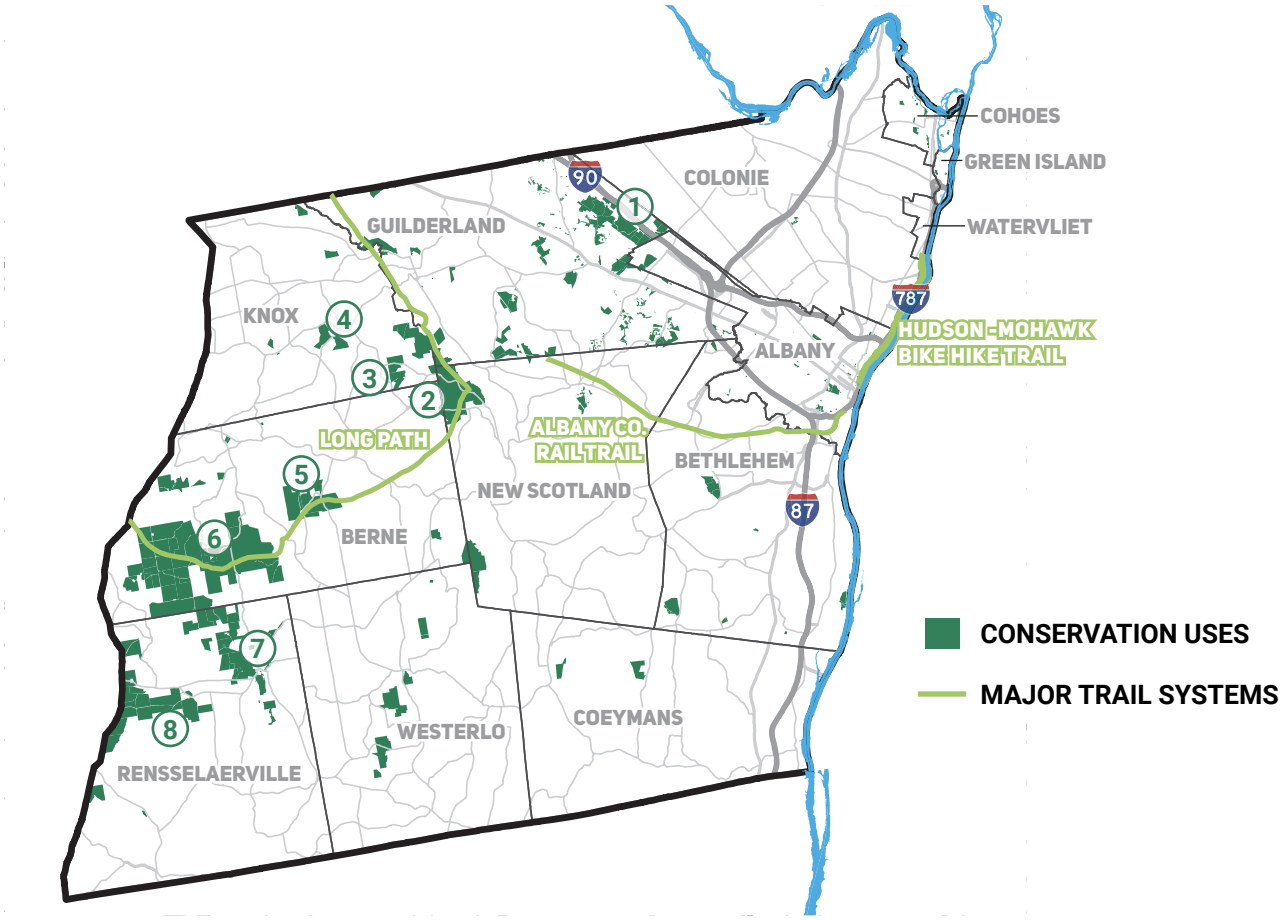
CONSERVATION

Conservation uses comprise approximately 5% of the total area in Albany County and are concentrated in the more rural towns of Rensselaerville (7,575 acres), Berne (7,170 acres), Guilderland (3,330 acres), and New Scotland (1,625 acres).

Large, contiguous areas of conservation lands in Albany County include the following parks, preserves, and wildlife management areas:

1. Pine Bush Preserve
2. John Boyd Thacher Park
3. Thompson's Lake State Park
4. Margaret Burke Wildlife Management Area
5. Cole Hill State Forest
6. Partridge Run Wildlife Management Area and State Forest
7. Huyck Preserve
8. Rensselaerville State Forest

Connectivity between these conservation areas is provided by the Long Path, a 357-mile trail system connecting New York City to the Capital District, and to a lesser extent, the Albany County Helderberg-Hudson Rail Trail.



JOHN BOYD THACHER STATE PARK
Photo Credit: Open Space Institute

HUYCK PRESERVE
Photo Credit: All Over Albany

THOMPSON'S LAKE
Photo Credit: Andy Arthur

ALBANY PINE BUSH PRESERVE
Photo Credit: Albany Pine Bush Preserve

LAND USE

VACANT

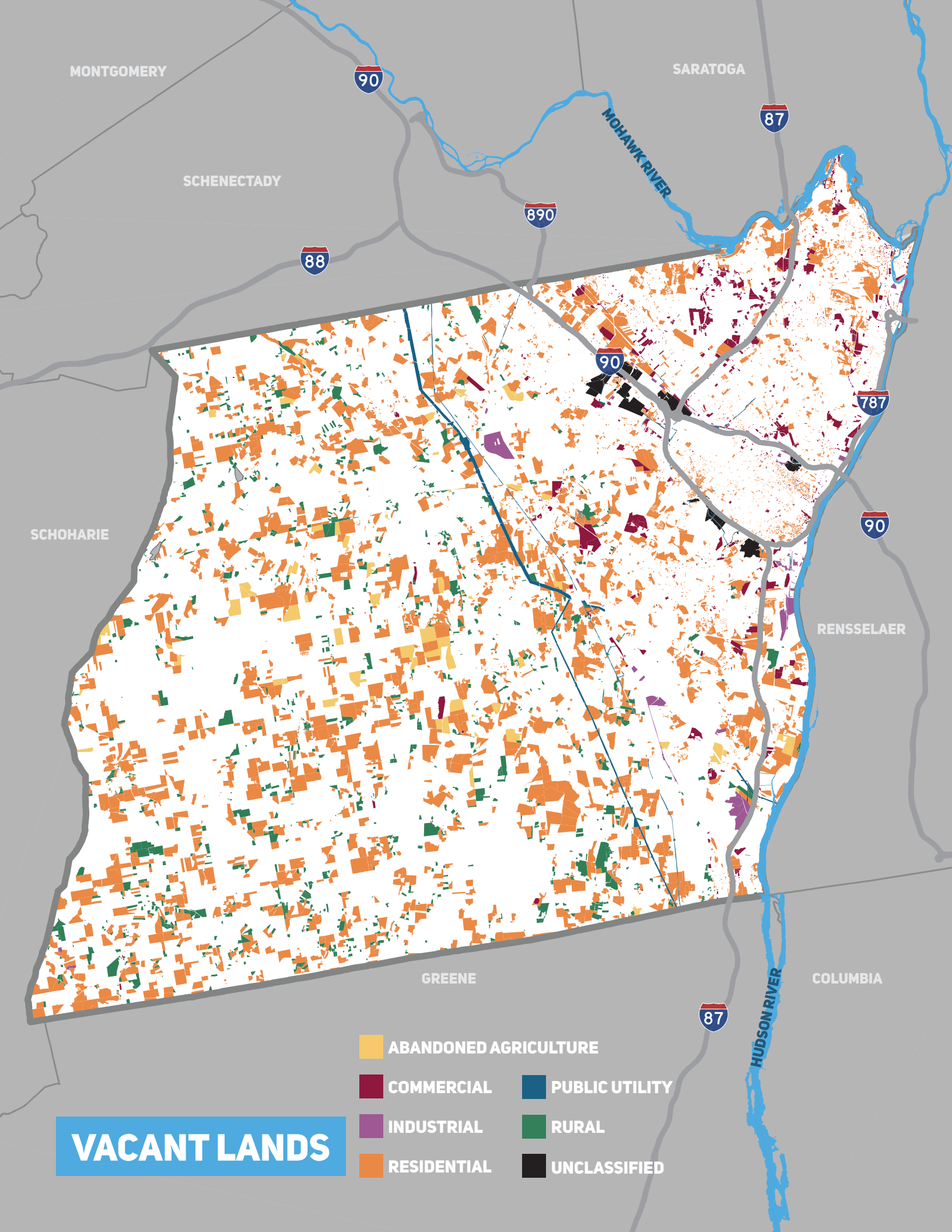
Vacant land uses comprise 18% of the total land area in Albany County and are relatively evenly distributed throughout the county. Vacant land uses are classified into several different categories by the New York State Department of Taxation and Finance, and these different categories of vacant land are described below and summarized in the map on page 79.

- Abandoned agricultural lands are concentrated in the Towns of Berne (1,330 acres) and New Scotland (1,025 acres).
- Vacant commercial lots are most abundant in the Towns of Colonie (2,040 acres) and Bethlehem (795 acres); conversely, the City of Watervliet has less than 1 acre of vacant commercial land.
- Vacant industrial lots are most common in the Towns of Bethlehem (490 acres) and Coeymans (375 acres) and the City of Albany (230 acres), while the Towns of Colonie (15 acres), New Scotland (10 acres) and Cohoes (0.5 acres) have less than 20 acres of vacant industrial lands.
- Vacant land owned by public utilities is concentrated in the Towns of Guilderland (615 acres), New Scotland (500 acres), and Coeymans (340 acres).
- Vacant residential lots occur throughout the county, with the Towns of Rensselaerville (10,500 acres), Westerlo (7,765 acres), New Scotland (6,945 acres), Berne (6,060 acres), and Coeymans (6,042 acres) all exceeding 6,000 acres of vacant residential land.
- Vacant rural lots are concentrated in the rural towns of Rensselaerville (2,315 acres), Coeymans (1,540 acres), Westerlo (1,500 acres), Knox (1,280 acres), Berne (1,170 acres), and New Scotland (1,150 acres).

TYPES OF VACANT LAND IN ALBANY COUNTY

data derived from parcel data provided by Albany County

LAND USE CLASSIFICATION	TOTAL AREA (ACRES)	PERCENT OF VACANT LAND (%)
ABANDONED AGRICULTURAL LAND	3,433	4%
COMMERCIAL LOTS	4,582	6%
INDUSTRIAL LOTS	1,367	2%
PUBLIC UTILITY LAND	1,615	2%
RESIDENTIAL LOTS	60,333	74%
RURAL LOTS	10,248	13%
UNCLASSIFIED	174	0.2%
TOTAL VACANT LAND	81,750 ACRES	


MONTGOMERY
SARATOGA
SCHENECTADY
SCHOHARIE
RENSSELAER
GREENE
COLUMBIA
MOHAWK RIVER
HUDSON RIVER
90
87
890
88
787
VACANT LANDS
ABANDONED AGRICULTURE
COMMERCIAL
INDUSTRIAL
RESIDENTIAL
PUBLIC UTILITY
RURAL
UNCLASSIFIED

PLANNING EFFORTS

INTRODUCTION

Planning represents a critical first step in defining a community's economic development goals and initiatives. In particular, comprehensive plans and other land use plans provide important decision-making frameworks for local governments and create transparency and predictability for existing and future businesses by identifying strategic areas, supported by existing infrastructure, for future development. These plans also ensure residents experience a high quality of life by prioritizing the development of public infrastructure systems, the provision of community services, and the conservation of land to enhance public recreation, ecological function, and preserve the natural beauty of a place.

A community's ability to create and maintain comprehensive land use plans and implement supporting policies is directly related to its organizational capacity. Frequently, sparsely populated, rural towns with limited budgets are unable to regularly update land use plans and/or develop resources to advance those plans, while more urbanized areas with a large tax base have sufficient capacity to maintain land use plans as well as develop resources that support quality of life and business development.

This section addresses the following topics:

- Municipal planning efforts + local capacity
- County planning efforts + capacity
- Opportunities

MUNICIPAL PLANNING EFFORTS + LOCAL CAPACITY

Comprehensive plans, which define a community's vision and establish long-range goals and land-use strategies for achieving that vision, directly impact economic development. The comprehensive planning process is characterized by extensive community engagement, data collection, and analysis, and culminates with the development of a final master plan. This final plan serves as a local government's decision-making framework to ensure new development is consistent with the community's vision and goals.

With the exception of the Town of Green Island, all towns and cities in Albany County have comprehensive plans. The Town of Berne and the City of Cohoes updated their comprehensive plans in 2017, and several towns and cities are currently updating their comprehensive plans or are planning to in the near future, including: the Town of Colonie, the Town of Bethlehem, the Town of New Scotland, and the City of Albany. The Towns of Coeymans, Guilderland, and Rensselaerville have not updated their comprehensive plans in ten or more years.

Albany County municipalities have varying degrees of local capacity to conduct planning and proactive economic development initiatives (see tables on pages 81-83). Urban and suburban municipalities, such as the City of Albany and the Towns of Bethlehem and Colonie, generally have more capacity to develop resources and implement strategies that improve residents' quality of life, create a sense of place, and foster economic development that is aligned with the community's vision and goals. More rural, less populated municipalities, such as the Towns of Berne, Coeymans, Rensselaerville, and Westerlo, have limited capacity and focus more on enforcing existing land use regulations than proactively developing resources that advance the community's vision and economic development goals.

City of Albany

The City of Albany recently overhauled its zoning code and adopted a Sustainable Development Ordinance

PLANNING EFFORTS: ALBANY COUNTY MUNICIPALITIES

MUNICIPALITY	COMPREHENSIVE PLANS		OTHER PLANNING EFFORTS, RESOURCES, & CAPACITY*
	DATE ADOPTED	UPDATE STATUS	
ALBANY, CITY	April 2012	Updating the plan is a priority, but no timeline has been established	• Unified Sustainable Development Ordinance (adopted June 2017) • Planning & Development Department • Industrial Development Agency • Albany Port District Commission • Historic Resources Commission • Robust Geographic Information System and online mapping tools • Small Cell Aesthetic Standards (2019) • Albany Energy Plan (2015)
BERNE	April 2017	N/A	• Zoning ordinance (adopted 2005) • Conservation Board
BETHLEHEM	August 2005	The Town is preparing to update its comprehensive plan and has conducted a series of community forums in preparation	• Zoning ordinance (updated April 2016) • Industrial Development Agency • Economic Development & Planning Department • Bicycle & Pedestrian Committee • Development Planning Committee • Local Waterfront Revitalization Advisory Group • Conservation Easement Exemption Program • Open Space Plan: Conservation Criteria Implementation (Dec. 2017)
COEYMANS	August 2006	N/A	• Zoning ordinance (updated July 2017) • Conservation Advisory Council formed in 2016 to inform and enhance the preservation of the Town's natural and historic resources

**All towns and cities in Albany County have zoning appeal boards and planning boards that adminster the zoning code and oversee the site plan/development plan review process.*

PLANNING EFFORTS: ALBANY COUNTY MUNICIPALITIES (CONT.)

MUNICIPALITY	COMPREHENSIVE PLANS		OTHER PLANNING EFFORTS, RESOURCES, & CAPACITY*
	DATE ADOPTED	UPDATE STATUS	
COHOES	August 2017	N/A	• Zoning ordinance (updated May 2019) • Economic and Community Development Department • Industrial Development Agency • Historic Preservation & Architectural Review Board
COLONIE	2005	The Town is currently undergoing a comprehensive planning process. A draft update of the comprehensive plan was publicly released in April 2019.	• Zoning ordinance (adopted in 2007) • Planning and Economic Development Department provides a suite of land use-related services • Industrial Development Agency • Local Development Corporation • Small Business Advisory Council • Conservation Advisory Council • Website providing one-stop-shop for businesses • Robust Geographic Information System and online mapping tools
GREEN ISLAND	None	N/A	• Zoning ordinance (updated Sept. 2018) • Industrial Development Agency
GUILDERLAND	August 2001	N/A	• Zoning ordinance (updated Jan. 2016) • Planning Department processes subdivision applications, coordinates review among agencies, maintains the official zoning map, engages with the public, and administers the Town's Geographic Information System (including an interactive mapping website) • Industrial Development Agency • Conservation Advisory Council • Land Use Advisory Committee

**All towns and cities in Albany County have zoning appeal boards and planning boards that adminster the zoning code and oversee the site plan/development plan review process.*

PLANNING EFFORTS: ALBANY COUNTY MUNICIPALITIES (CONT.)

MUNICIPALITY	COMPREHENSIVE PLANS		OTHER PLANNING EFFORTS, RESOURCES & CAPACITY*
	DATE ADOPTED	UPDATE STATUS	
KNOX	2015	N/A	• Zoning ordinance (updated May 2017) • Building/Zoning Department administers zoning and building codes • Agricultural Advisory Committee • Conservation Advisory Council • Broadband Committee
NEW SCOTLAND	July 2012	The Town is currently undergoing a comprehensive planning process. A draft update of the comprehensive plan was publicly released in July 2018.	• Zoning ordinance (updated July 2006) • Comprehensive Plan Update Committee to guide the planning process associated with the Town's comprehensive plan update
RENSSELAERVILLE	March 2007	N/A	• Zoning ordinance (updated Sept. 2015) • Wind Study Committee formed to draft zoning regulations and recommend policies related to wind power facilities (no activity since 2010) • Telecommuniciations Committee formed to improve public safety emergency communications systems, increase cellular telephone access, and expand broadband access (no activity since 2007)
WATERVLIET	January 2010	N/A	• Zoning ordinance (updated Sept. 2013) • Planning and Community Revitalization Department works with the Watervliet Business Association to improve the commercial climate for existing and potential businesses
WESTERLO	May 2014	N/A	• Zoning ordinance (updated Mar. 2018) • Broadband Research Committee

**All towns and cities in Albany County have zoning appeal boards and planning boards that adminster the zoning code and oversee the site plan/development plan review process.*

PLANNING EFFORTS

(USDO) in 2017, which consolidates all of the City's development-related regulations into a single unified code document. The USDO creates a more consistent, logical, and predictable framework for reviewing and encouraging new development. The City is also pursuing several initiatives and capital infrastructure projects to address the following priorities:

- Waterfront connectivity (e.g., South End Connector, which will connect the Helderberg-Hudson Rail Trail to the Mohawk-Hudson Bike Hike Trail)
- Neighborhood connectivity (e.g., complete streets policy
- Multimodal connectivity (e.g., Clinton Avenue infrastructure project to improve multimodal access)
- Updating older plans (e.g., Albany 2030, the City's comprehensive plan, and the City's Bicycle Master Plan) and implementing existing plans (e.g., park improvement plans)

The City of Albany also prioritizes the improvement of business development resources and is in the preliminary stages of pursuing a project that would create a one-stop-shop for businesses. The City already has a robust online GIS database, but is interested in integrating this asset with additional resources, such as permitting and licensing requirements and tools to facilitate the identification of properties that meet a developer's needs.

Town of Bethlehem

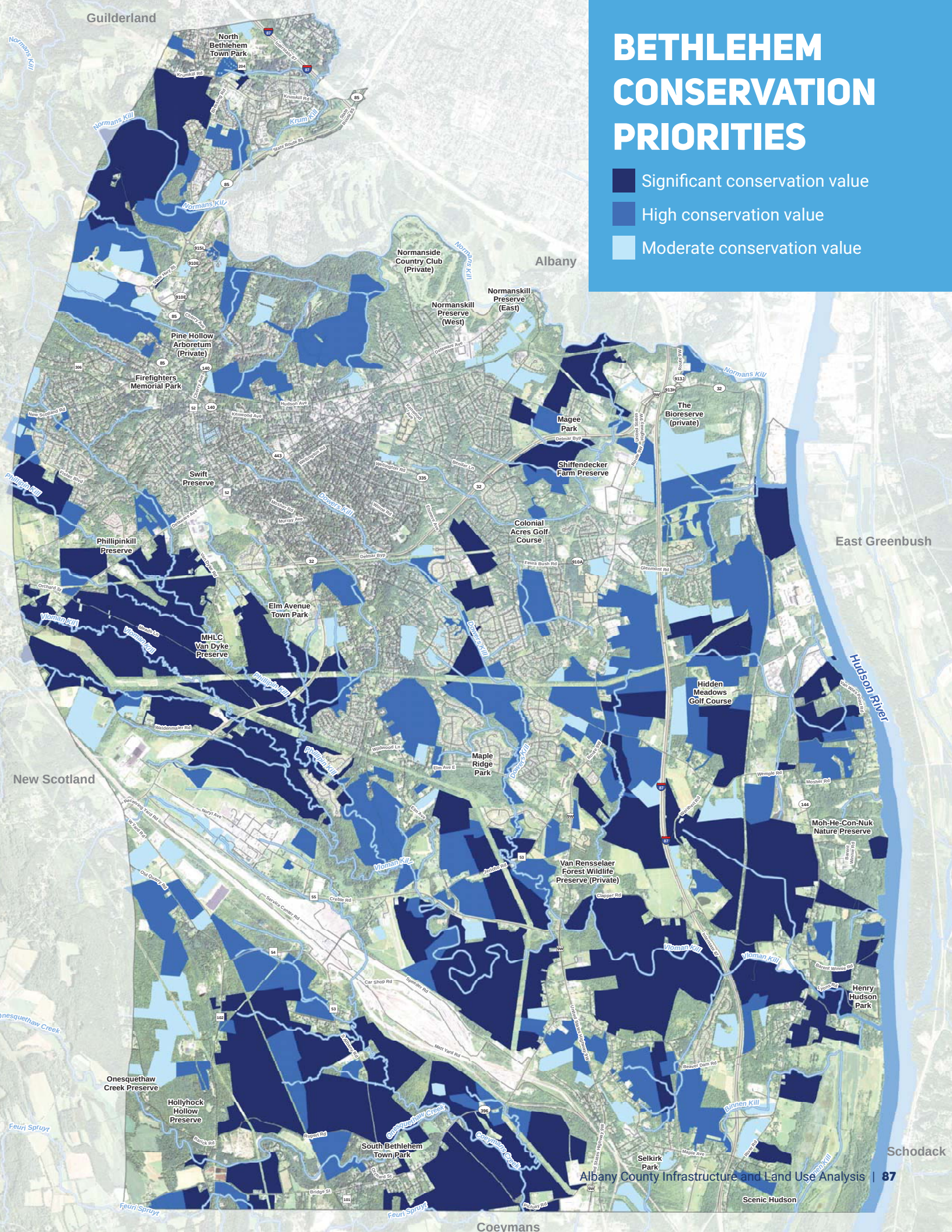
The Town of Bethlehem is currently updating its 2005 comprehensive plan. The Town has conducted a series of community listening sessions to begin to understand how the community's values and interests have changed in the past 15 years. Preliminary results indicate the community wants to maintain its sense of place and suburban character (proximity to urban and rural areas), as well as highlight multimodal and environmental sustainability priorities. The Town is also pursuing several infrastructure projects, such as water treatment plant upgrades, and has integrated solar PV into its zoning law to better accommodate future development.

In an effort to preserve and enhance the Town's natural resources, the Town developed an Open Space Plan in 2017, which includes a town-wide inventory of open spaces and a list of 25 data-driven Conservation Criteria to evaluate open space land for its conservation value. In conjunction with this open space planning effort, the Town also created a GIS Conservation Analysis Tool to evaluate and prioritize the conservation of open space. This plan and associated tools are used to inform decision-making by the Town Board, Planning Board, Planning Department, and the Conservation Easement Review Board. The Town also established a Conservation easement Exemption (CEE) program, which is intended to conserve open space, maintain the town's scenic character, and provide financial incentives to property owners willing to forego development rights in order to maintain open space.

The Town of Bethlehem's Economic Development & Planning Department maintains and regularly updates an inventory of targeted sites for future economic development. The inventory includes property location and ownership information, property size, available infrastructure, and regulatory requirements. Example target sites include Vista Park in the Slingerlands, the Gateway Commerce Center in Selkirk, and Beacon Harbor in Glenmont.

Town of Colonie

The Town of Colonie is currently updating its 2005 comprehensive plan and has produced a full draft update. The draft plan includes a vision statement that defines the desired future for the Town, including an "exceptional quality of life with strong, well-established neighborhoods, excellent schools, and generous amenities such as parks, trails, and conserved open lands." The vision also addresses diversified transportation options, fiscal responsibility, infrastructure maintenance, the provision of high quality community services, the protection of natural resources, sustainable development practices, diverse housing stock, and the creation and retention of jobs. Compared to the Town's 2005 comprehensive plan, the updated plan modifies almost all of the goals included in the 2005 plan and also introduces new goals to achieve the Towns updated vision. These new goals include:


BETHLEHEM CONSERVATION PRIORITIES
Significant conservation value
High conservation value
Moderate conservation value
Guilderland
Albany
East Greenbush
New Scotland
Coeymans
Schodack
North Bethlehem Town Park
Normanside Country Club (Private)
Normanskill Preserve (East)
Normanskill Preserve (West)
Pine Hollow Arboretum (Private)
Firefighters Memorial Park
Swift Preserve
Phillipinkill Preserve
Elm Avenue Town Park
MHLC Van Dyke Preserve
Maple Ridge Park
Magee Park
The Bioreserve (private)
Shiffendecker Farm Preserve
Colonial Acres Golf Course
Hidden Meadows Golf Course
Moh-He-Con-Nuk Nature Preserve
Van Rensselaer Forest Wildlife Preserve (Private)
Henry Hudson Park
Onesquethaw Creek Preserve
Hollyhock Hollow Preserve
South Bethlehem Town Park
Selkirk Park
Scenic Hudson
Hudson River
Normans Kill
Vloman Kill
Dowers Kill
Onesquethaw Creek
Coeymans Creek
Binnen Kill
Feuri Spruyt

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- Continue to maintain and enhance the Town's extensive water, sewer, and local roadway infrastructure. Work with utilities and providers of fiber optic and other communications infrastructure to ensure that high quality services are available to meet the growing needs of residents and businesses. Consider adaptation strategies to ensure the resiliency of the Town's infrastructure in response to a changing climate.
- Encourage low-impact development techniques and green infrastructure to address stormwater management.
- Promote energy efficiency and conservation, the use of renewable energy, and waste reduction in the Town.

In addition to overhauling its comprehensive plan, which is a critical step in shaping the future of development within the town, the Town of Colonie has extensive capacity and resources to undertake land use planning and business development initiatives. For example, the Town of Colonie has an entire website dedicated to business resources, which:

- Consolidates important resources related to codes, permits, and licensing;
- Clearly defines the Town's approach to economic development;
- Links business to the Town's Industrial Development Agency, Local Development Corporation, and Small Business Advisory Council; and,
- Provides access to a web-based mapping application with parcel and land use information.

COUNTY PLANNING EFFORTS + CAPACITY

Albany County does not have a comprehensive plan, but the county has completed several planning studies that address land use, including the:

- **Agricultural and Farmland Protection Plan (2018).** This plan defines goals and strategies for supporting and enhancing Albany County's agricultural industries and lands. This plan is discussed in more detail on pages 52-56 of this report.
- **Multi-Jurisdictional Multi-Hazard Mitigation Plan (2018).** The purpose of this plan is to provide a comprehensive risk assessment for the county and to propose mitigation actions that proactively minimize the costs and impacts of future disasters. The plan specifically addresses climate change adaptation, existing plans/ordinances focused on reducing the impacts of natural hazards, the County's vulnerability to natural hazards (e.g., flood events, severe thunderstorms, wildfire, winter storms, extreme temperatures, etc.), and mitigation strategies to reduce risk.
- **Normans Kill Riparian Corridor Study (2007).** This report provides an overview of natural and recreational resources within the Normans Kill Riparian Corridor, which is important tributary to the Hudson River and is critical to the water quality of the Watervliet Reservoir, and makes recommendations regarding habitat protection and recreational opportunities.

Departments + Boards

Albany County has several departments and boards that focus on land use planning and economic development. These include the Department of Planning and Land Use (housed within the Department of Public Works), the Department of Economic Development and Conservation, the Planning Board, the Agricultural and Farmland Protection Board, and the Albany County Industrial Development Agency. A primary responsibility of the Department of Planning and Land Use and

PLANNING EFFORTS

the Planning Board is to administer New York State General Municipal Law Article 12-B, §239-l, m, and n, which requires local municipalities to refer particular development applications, proposed zoning changes, and comprehensive plans to the County Planning Board for review, comment, and recommendations before a project is permitted to proceed. The County Planning Board requires applicants to complete a "Planning and Zoning Action Referral Form," which describes the action and project. However, the Planning Board does not provide any standard guidance to applicants regarding the County's development goals/policies, application review criteria, and decision-making timelines.

Resources

The County maintains a robust interactive online mapping system that enables the public to explore several different datasets, including: property ownership, parcel boundaries, district boundaries, recreational resources, transportation infrastructure, healthy food access, floodzones, wetlands, soils, and topography. The Department of Economic Development and Conservation also maintains a website that summarizes incentive program resources, demographic and economic data, and provides contact information for inquiries.

Albany County Government Building in Downtown Albany.

PLANNING EFFORTS

Opportunities

There are several opportunities for Albany County to work with its partners to undertake planning and business development initiatives in order to clearly define the county's vision and objectives for future development, streamline the referral process, and consolidate municipal resources into a comprehensive County database of development goals, resources, and strategic sites:

- Work with local municipalities to develop an Albany County Comprehensive Plan. This plan would define a unified vision for the County, create a transparent framework for land-use decisions, foster economic growth, and ensure future development is sustainably and strategically located. Several of the opportunities identified in Section 1 of this report (Infrastructure) could be addressed through and in support of an Albany County Comprehensive Plan, including the implementation of transit-oriented development policies, enhancement of the county's trail and recreational network, source water protection, and the development of an intermunicipal asset inventory of infrastructure. The County's recently completed Agricultural and Farmland Protection Plan represents an important component of a future comprehensive plan.
- Provide planning support to municipalities with limited capacity in order to create and/or update comprehensive plans for all Albany County municipalities.
- Partner with the MHLC and local municipalities to create an open space plan for Albany County that defines priority areas for conservation (e.g., recreational, agricultural, and natural resources) establishes goals and strategies for achieving the County's conservation priorities, and develops a suite a best management tools for municipalities (e.g., conservation easement programs, strategies for integrating climate change issues and increasing community resilience)
- Streamline the County referral process by developing a guide that outlines the County's goals, expectations, and project evaluation criteria and collaborate with local municipalities to identify opportunities to improve the referral process for municipal-led projects (e.g., opportunities for early coordination, establishment of criteria to define which projects require thorough review vs. projects that are pre-approved).
- Establish a clear chain of communication between County and local economic development entities to ensure the county is well-aware of municipalities' economic development goals, resources, and strategic sites.
- Collaborate with local municipalities to develop a one-stop-shop for developers and business development, including a shared GIS parcel database highlighting economic development priorities, consolidation of license and permitting requirements by location, and infrastructure access (including guidelines for early coordination with utilities).