New Visions 2050 Regional Transportation Plan

Transit White Paper

CDTC
CAPITAL DISTRICT
TRANSPORTATION COMMITTEE

September 2020

**CDTC is monitoring the mobility impacts of COVID-19 and plans to update this chapter based on changing trends and new uncertainties.*

- Page intentionally left blank-

Acknowledgements

The Capital District Transportation Committee (CDTC) reestablished a Transit Task Force as part of its regional transportation plan update to 2050. The Task Force met throughout 2019 to discuss and update CDTC's New Visions 2040 transit goals and recommendations. This document summarizes CDTC's role and commitment to supporting a safe, reliable and accessible transit system for all. CDTC's relationship with the Capital District Transportation Authority (CDTA) and other providers of public transportation is crucial to maintaining a viable transit system. CDTC would like to thank CDTA for its assistance in developing this White Paper and the members of the Transit Task Force for their time and contributions.

Transit Task Force Members:

Jeff Buell, Redburn Development
Tina Carton, City of Saratoga Springs
Ross Farrell, CDTA
Michael Franchini, Executive Director
Brad Glass, City of Albany
Leah Golby, Transit Rider
David Hogenkamp, Schenectady Metroplex
Bill Hollister, Amtrak
Greg Isoldi, University at Albany
Richard Mai, NYSERDA
Robyn Marquis, NYSERDA
Kate Maynard, CDRPC
Darlene McGraw, Transit Advocate
Errol Millington, University at Albany
Sandy Misiewicz, Principal Transportation Planner
Charles Moore, City of Rensselaer
Cliff Perez, Independent Living Center
Bob Pistilli, Albany Medical Center
Adam Ruder, NYSERDA
Steve Strichman, City of Troy
Tom Vaughn, NYSDOT Main Office Transit Bureau
Linda Von der Heide, Rensselaer County
Monique Wahba, Town of Colonie
Carrie Ward, Senior Transportation Planner
Dave Wheatley, City of Watervliet
Mike Williams, CDTA

All errors or omissions are the responsibility of the principal author, Sandy Misiewicz, AICP. Mapping was provided by Teresa LaSalle, Sandy Misiewicz and Carrie Ward of the CDTC and Mike Williams of the CDTA staff. Primary research, data collection, and general assistance were provided by Ross Farrell and Mike Williams of the CDTA as well as Carrie Ward and Jordan Solano-Reed of the CDTC staff. CDTC would like to thank CDTA for the use of images throughout this document.

This white paper was funded in part through grant[s] from the Federal Highway Administration and the Federal Transit Administration, U.S. Department of Transportation. The views and opinions of the authors expressed herein do not necessarily state or reflect those of the U.S. Department of Transportation.

Table of Contents

List of Tables

List of Figures

1. Introduction

The Capital District Transportation Committee (CDTC) is the Metropolitan Planning Organization for Albany, Rensselaer, Schenectady and Saratoga Counties (except for the Town of Moreau and the Village of South Glens Falls). One of CDTC's primary responsibilities is to develop a regional transportation plan (RTP) with a long term (20+ year) planning horizon, updated every five years. The RTP establishes regional planning and investment principles, strategies and actions that lead to an integrated multi-modal transportation system facilitating the safe and efficient movement of people and goods. CDTC is currently updating its regional transportation plan which will be known as New Visions 2050.

To support the development of New Visions 2050, CDTC reestablished a Transit Task Force in May 2019 which was tasked with updating the 2015 Transit White Paper. The update will focus on public transit provided by the Capital District Transportation Authority (CDTA) as well as other providers of public transportation in the Capital Region. The Task Force met bi-monthly to review the status of transit recommendations in the current regional plan, review what has changed since the current plan was adopted and develop a new set of recommendations to be considered for incorporation into the new plan. Transit data, regional transit system changes, demographic data, development scenarios and federal transit performance measures were all considered. The updated Transit White Paper will support the update of New Visions and the Capital District Transportation Authority's (CDTA) Transit Development Plan.

2. Local and Regional Transit Services

The Capital Region has a variety of local, regional and inter-city transit providers. All transit services are bus based except for Amtrak which provides long distance passenger rail service. The following describes the transit systems in the region and Figure 1 shows the primary routes of the various bus transit providers.

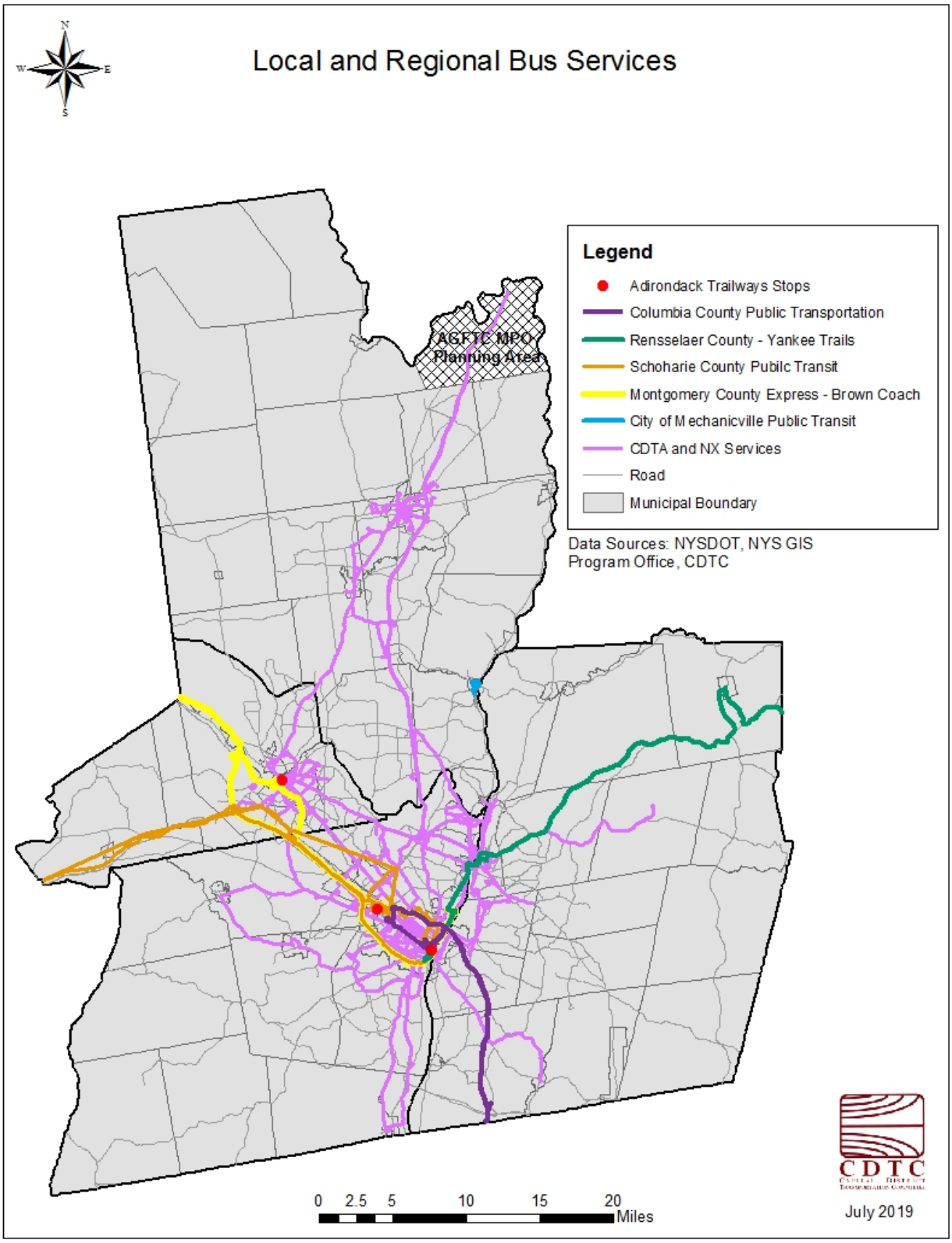
Capital District Transportation Authority (CDTA)

CDTA is the region's direct recipient of federal funds through the Federal Transit Administration (FTA) and provides transportation services within Albany, Rensselaer, Saratoga and Schenectady Counties. The bus transportation system includes 55 fixed routes and approximately 300 vehicles. The vast majority of CDTA's trips are for work and shopping purposes with the remainder for school, medical or recreation purposes. Along with fixed route service, CDTA provides commuter express service (including the Northway Express operated by Upstate Transit) and paratransit service for people with disabilities. In the last few years, CDTA has expanded its transportation services to include the region's bike share program (CDPHP Cycle!), trolleys, vanpools and microtransit (CDTA Flex). CDTA also owns and operates the Rensselaer Rail Station and the Saratoga Springs Train Station.

Rural and Local Bus Services

Rensselaer County provides bus transportation, operated by Yankee Trails, between downtown Albany and Bennington, Vermont. One morning round trip begins in Hoosick Falls ending at the

Figure 1: 2019 Local and Regional Bus Based Transit Routes



Albany Greyhound station, returning through Rensselaer County to Bennington on weekdays. A midday one-way trip is also provided from Bennington to Albany and an evening round trip is provided from Albany to Bennington. Passengers are not able to board the bus between Sycaway in Rensselaer County and downtown Albany but can get off and use CDTA's services within that area.

The City of Mechanicville provides bus transportation through a partnership with New York State and the Saratoga County Office for the Aging. Seniors over the age of 60 may ride at no cost while those under the age of 60 must pay a fare of $0.65 each way. The bus operates within the City of Mechanicville from 9:30 a.m. to 1:30 p.m. Monday through Friday, and on Saturdays between 3:00 p.m. and 5:30 p.m.

Commuter Bus Services

There are several, commuter-oriented bus services within and beyond the four-county region. These services typically utilize full size coach vehicles and operate during peak commute times, primarily into and out of the Cities of Albany and Schenectady. Commuter transportation is provided by Brown Coach to and from Montgomery and Fulton Counties while Columbia and Schoharie Counties provide their own transportation to and from downtown Albany. Yankee Trails also provides contracted shuttle service to state employees on four routes in Albany and Menands, connecting workers from satellite parking lots to state office buildings.

Inter-City Bus

Inter-city bus routes originate, stop and end in the Albany area due to the large number of college students, Albany's proximity to very large cities like New York and Boston, and a highway network that converges in the heart of the region. Greyhound owns the Albany Bus Terminal and provides service via I-87 and I-90, connecting Albany with Montreal, Buffalo, Boston and New York City. Adirondack Trailways owns the bus terminal in Schenectady and provides service between Albany, Schenectady and the University at Albany to Buffalo and Binghamton. Megabus provides bus service from the Rensselaer Rail Station and the University at Albany to New York City. Our Bus provides transportation to college students traveling to and from Ithaca and Boston on college breaks. Fox Bus and Peter Pan also provide transit service from Albany to New York City, Boston, Montreal, Buffalo and beyond.

Passenger Rail

Amtrak provides passenger rail service from stations in Rensselaer, Schenectady and Saratoga Springs to Boston, Chicago, New York City, Toronto, Vermont and Montreal. In an agreement with CSX, Amtrak operates, dispatches, and maintains approximately 100 miles of the Empire Corridor between Poughkeepsie and Schenectady providing the capacity needed to expand rail service, improve service reliability and decrease trip times along the Empire Corridor.

The route between the Rensselaer Rail Station and New York City is the busiest intrastate passenger rail line in New York State. In 2018, the Rensselaer Rail Station had 30 daily trains, was the 9th busiest Amtrak station in the nation and the 2nd busiest in the State with 800,368 boardings and alightings. The Schenectady Amtrak Station had 50,950 boardings and alightings making it the 11th busiest station in the State served by twelve daily trains. The Saratoga

Amtrak Station was the 14th busiest in the State with 38,170 boardings and alightings served by four daily trains.

3. Performance Measures

Performance-based planning and programming uses data to inform decisions that can improve project and program delivery, inform investment decisions, better focus on regional priorities and provide greater transparency and accountability. With limited financial resources, transit agencies are under increased scrutiny to demonstrate where federal and state funding is being spent and the effectiveness of those investments. The Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) now require recipients of federal funding like CDTA to report on the performance of their transit systems.

Federal transportation law requires transit performance measures for Asset Management and Safety. As part of a performance-based approach, CDTC must link its project priorities identified in the Statewide Transportation Improvement Program (STIP) and Transportation Improvement Program (TIP) with achievement of its performance targets and to develop a Transit Asset Management plan. CDTC and CDTA must use performance measures to document expectations for future performance.

In addition to federal performance measures, CDTC established transit system performance measures for CDTA in New Visions 2040. CDTC's performance measures were based on those identified in the CDTA Transit Development Plan and monitor transit access, ridership, service quality and cost effectiveness. The following section summarizes CDTC's evaluation of CDTA's transit system between 2015 and 2019 using federal and regional performance measures.

Federal Transit Performance Measures

Transit Asset Management

The FTA published a final Transit Asset Management (TAM) rule on July 26, 2016. The rule applies to all recipients and subrecipients of Federal transit funding that own, operate, or manage public transportation capital assets. The TAM rule defines the term "state of good repair," requires that public transportation providers develop and implement TAM plans, and establishes State of Good Repair standards and performance measures for four transit asset categories: rolling stock (i.e. buses), transit equipment (i.e. support vehicles), facilities (i.e. bus garages) and infrastructure (i.e. track or dedicated busways). At this time, CDTA does not own assets in the infrastructure category therefore it is not included in this evaluation.

CDTA is required to develop its own Transit Asset Management plan, performance measures and targets as it owns, operates, or manages at least one hundred and one vehicles in revenue service during peak fixed route service. Other providers in the region are considered Tier II as they have small fleets (less than 100 vehicles in revenue service) or they are subrecipients under the 5311 Rural Area Formula Program. A subrecipient is an entity that receives Federal transit grant funds indirectly through the State or CDTA as the region's direct recipient. Tier II providers must develop their own TAM plans or participate in a group TAM plan. Amtrak is overseen by the Federal Rail Administration and is not subject to FTA requirements.

The FTA TAM final rule established the Useful Life Benchmark (ULB) as the default value for performance measures. Default ULB's have been set as the expected service years for vehicles in the rolling stock and equipment asset classes. ULB is the average age-based equivalent of a 2.5 rating on the FTA Transit Economic Requirements Model (TERM) Scale[1] while the condition of facilities is represented as the percentage of assets with a condition rating below 3.0 on the FTA TERM Scale[2]. Transit agencies can adjust their Useful Life Benchmarks with approval from FTA. To reflect CDTA's operational experience and policy for fixed asset depreciation and capitalization, CDTA has opted to utilize a more stringent, CDTA defined asset Expected Useful Life (EUL) in place of the default ULB.

Performance targets were set by CDTA and approved by CDTC in 2019 based on the percentage of assets per class that exceed CDTA's EUL or the 3.0 TERM Scale rating for facilities. These targets will be used in capital planning to highlight where additional investment is needed. Tables 1 through 3 summarize CDTA's asset management performance measures, targets and current asset conditions.

Table 1: CDTA Rolling Stock Performance Measures and Targets

Rolling Stock Performance Measure		Percentage of revenue vehicles within an asset class that have either met or exceeded their Expected Useful Life (instead of the Useful Life Benchmark) – Measures state of good repair					
Type	**Asset Class (Revenue Vehicles by Mode)**	**Useful Life Benchmark (ULB) Category**	**Quantity in FY 2020**	**ULB (Years)**	**Expected Useful Life (Years)**	**2019 & 2020 Target**	**FY 2020 % Exceeding Expected Useful Life**
Transit Coach	Bus – Articulated (60 foot)	Articulated Bus	9	14	12	10%	0%
	Bus – BRT	Bus	15	14	12	10%	0%
	Bus - Hybrid (30 foot)	Bus	8	14	10	10%	100%
	Bus - Hybrid (40 foot)	Bus	64	14	12	10%	9%
	Bus - Large Bus (30 foot)	Bus	8	14	10	10%	100%
	Bus - Large Bus (40 foot)	Bus	134	14	12	10%	6%
Transit Commuter	Bus - Commuter Service (40-45 foot)	Over-the-Road Bus	14	14	12	10%	36%
	Bus - Medium Bus (26-29 foot)	Cutaway Bus	2	10	7	10%	50%
Paratransit	Bus - Small Bus (20-25 foot)	Minibus	30	10	5	10%	10%
Trolley	Trolley	Trolleybus	7	13	10	10%	14%

Source: CDTA

[1] FTA's Transit Economic Requirements Model (TERM) is an analysis tool designed to estimate transit capital investment needs. Assets with a rating of 2.5 or below should be added to CDTA's State of Good Repair backlog. https://www.transit.dot.gov/TAM/TERMLite

[2] TERM uses a scale of 1 (poor) to 5 (good) to report facility condition. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/Facility%20Performance%20Assessment%20Guidebook.pdf

Table 2: CDTA Equipment Performance Measures and Targets

Equipment Performance Measure		Percentage of revenue vehicles within an asset class that have either met or exceeded their Expected Useful Life (instead of the Useful Life Benchmark) – Measures state of good repair					
Type	**Asset Class (Non-Revenue Support, Service and Maintenance Vehicles)**	**Useful Life Benchmark (ULB) Category**	**Quantity in FY 2020**	**ULB (Years)**	**Expected Useful Life (Years)**	**2019 & 2020 Target**	**FY 2020 % Exceeding Expected Useful Life**
Non-Revenue	Car/Van/SUV	Automobile	25	8	5	20%	40%
	Non-Revenue	Automobile	2	8		20%	50%
	Truck - (1) Light Duty	Automobile	0	8	5	20%	0%
	Truck - (2) Medium Duty	Automobile	6	8	7	20%	100%
	Truck - (3) Heavy Duty	Automobile	4	8	10	20%	50%
	Truck - (4) Heavy Heavy Duty	Automobile	1	8	12	20%	100%
Service Truck	Non-Revenue	Automobile	1	8		20%	
Forklift	Non-Revenue	Automobile	6	8		20%	
Wheel Polisher	(blank)	(blank)	1	8		20%	

Source: CDTA

Table 3: CDTA Facility Performance Measures and Targets

Facilities Performance Measure		Percentage of assets with condition rating below 3.0 on FTA TERM Scale[3] - Measures facility condition		
Type	**Asset Class (Maintenance and Administrative Buildings, Passenger Stations and Parking Facilities)**	**2020 TERM Condition Assessment**	**2019 & 2020 Target**	**% Exceeding TERM Scale 3.0**
Administration & Maintenance	Albany Transportation Building (110 Watervliet Avenue)	4	20%	0%
	Albany Planning & Marketing Building (85 Watervliet Avenue)	4	20%	0%
	Troy Transportation Building	4	20%	0%
	Schenectady Transportation Building	4	20%	0%
	Rensselaer Rail Station	4	20%	0%
	Saratoga Rail Station	4	20%	0%

Source: CDTA

[3] Facilities with a rating of 3.0 or below should be added to CDTA's State of Good Repair backlog. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/Facility%20Performance%20Assessment%20Guidebook.pdf

In six out of ten rolling stock categories, CDTA is at or not meeting its TAM targets for expected useful life. Funds programmed in CDTC's 2019-2024 TIP will allow for replacement of some vehicles, bringing the useful life of CDTA's rolling stock closer to its TAM targets. As funding allows, CDTA typically purchases twelve fixed route vehicles per year, about six paratransit vehicles per year and one or two commuter coach vehicles per year. The lifespan of these transit vehicles is impacted by roadway condition much more than maintenance practices. Poor pavements result in greater wear and tear on vehicles and uncomfortable rides for customers. It is important that this relationship be considered in pavement management practices and capital project prioritization.

Safety Performance

On July 19, 2019, the Public Transportation Agency Safety Plan (PTASP) Final Rule became effective, requiring CDTA to develop a Safety Plan with safety performance measures and targets. The rule applies to all operators of public transportation systems that are recipients and subrecipients of federal financial assistance under the Urbanized Area Formula Program (Section 5307). FTA is deferring applicability of this requirement for operators that only receive funds through FTA's Enhanced Mobility of Seniors and Individuals with Disabilities Formula Program (Section 5310) and/or Rural Area Formula Program (Section 5311).

CDTA's PTASP and performance targets must be shared with CDTC by July 20, 2020 and must be referenced in CDTC's TIP and Regional Transportation Plan updated or amended after July 20, 2021. There are seven safety performance targets by mode:

- Total number of reportable fatalities by mode.
  (Fatalities confirmed within 30 days of the incident)

- Fatality rate per total vehicle revenue miles (VRM) by mode.

- Total number of reportable injuries by mode.
  (1 or more persons needing immediate transport away from the scene for medical attention)

- Injury rate per total VRM by mode.

- Total number of safety events by mode.
  (Reportable safety events include collisions, fires or any event that meets a reporting threshold other than immediate transport for medical attention for one person)

- Safety event rate per total VRM by mode.

- System reliability measured as the mean distance between major mechanical failures by mode.

CDTA is currently developing its PTASP and expects to meet the July 2020 deadline for submission to CDTC. In anticipation of CDTA's plan and performance measure data, CDTC assembled baseline safety performance data available for 2018 through the FTA National Transit Database (NTD) as shown in Table 4. This data will be updated and tracked in the future as part of CDTC's System Performance Report.

Table 4: Baseline Safety Performance Data (2018)

Reporting Agency	Public Transit Mode (NTD)	Service Type	Fatalities and Fatalities/ VRM	Injuries	Injuries/ VRM	Events	Number of Mechanical Failures*
CDTA	Commuter Bus	Purchased Service	0	0	0	0	5
	Demand Response	Directly Operated	0	2	0.000002	2	67
	Demand Response	Purchased Service	0	0	0	0	Unknown
	Demand Response	Purchased Service	0	3	0.000002	3	Unknown
	Bus	Directly Operated	0	47	0.000006	41	1668
	Bus	Purchased Service	0	0	0	0	Unknown
	Bus Rapid Transit	Directly Operated	0	0	0	0	Unknown
	Vanpool	Directly Operated	0	0	0	0	Unknown
	Vanpool	Purchased Service	0	0	0	0	1
City of Mechanicville	Bus	Directly Operated	0	0	0	0	Unknown

** Commuter Bus: Coach style vehicles used on Northway Xpress; Demand Response – paratransit service (STAR vehicles), Microtransit and taxi service for medical trips*
*** Directly Operated: Service directly operated by CDTA; Purchased Service – CDTA contracted services.*
**** Baseline reliability data not available. As a proxy, the number of mechanical failures by mode is reported. Source: National Transit Database*

New Visions 2040 Performance Measures

New Visions 2040 identified four performance measure categories with multiple measures to evaluate the performance of CDTA's fixed route transit system. Those measures include transit access, use, cost effectiveness and service quality. Viable transit requires easy access to the system for a significant portion of the population and is measured as the population living within ½ mile and ¼ mile of fixed route transit. Transit use measures ridership changes over time while cost effectiveness measures the productivity of fixed route transit in terms of boardings per revenue hour of service. The quality of transit service is determined by measuring headways, service span, passenger loads, Bus Rapid Transit (BRT), on-time performance, bus stop spacing and street amenities for all fixed transit routes.

The New Visions 2040 performance measures for CDTA are comprehensive but reflect data that is difficult to compare year to year due to the restructuring of routes (which occurred in Saratoga County in 2016) or due to incomplete data as some attributes have not been collected. As CDTA updates its Transit Development Plan (TDP) in 2020 (see page 30), CDTC should reconsider the number and types of regional performance measures and refine them based on the outcome of the TDP update. An overall summary of CDTC's New Visions performance measure assessment for CDTA's fixed route transit system is provided in Table 5 and the details for all the measures can be found in Appendix A.

Table 5: Summary of New Visions 2040 Performance Measures

New Visions 2040 Transit Objectives		Measure	Data Assessment*	
Increase Access to Transit		% of population residing within ¼ mile of a transit stop/station	Increased slightly	
		% of population residing within ½ mile of a transit stop/station	No change	
Increase Transit Use		Total boardings	Decreased	
Increase Transit Cost Effectiveness		Boardings per revenue hour of service	Decreased	
Increase Transit Quality of Service	Headway	Time interval between vehicles moving in the same direction on the same route	Decreased slightly (positive impact)	Decreased Overall
	Span	Service hours of operation by route	Decreased slightly (negative impact)	
	Passenger Load	Average number of customers on a vehicle at all stops divided by the seating capacity of the bus	Decreased (positive impact)	
	Bus Rapid Transit	2 million or more annual boardings	Decreased (negative impact)	
		Station pairs exceed 100 boardings per day	Decreased (negative impact)	
	On-Time Performance	Percent of trips arriving between 1 minute earlier or 5 minutes later than the scheduled arrival	Increased (positive impact)	
	Bus Stop Spacing	Average distance between stops per route and service classification	Unavailable	
	Street Amenities	Number and % of benches and shelters at bus stops	Decreased slightly (negative impact)	

** The timeframes of the assessed data vary. Whenever possible, the timeframe used was between 2015, when New Visions 2040 was adopted, and 2019. For more information see Appendix A.*

Performance Measure Findings

As indicated by the federal and CDTC transit performance measures, CDTA's fixed route transit service has been shown to have a fleet that is beginning to age. In addition, while access to transit increased slightly since 2015 likely due to recent population growth and consolidation of services in areas of concentrated development, ridership, cost effectiveness and service quality have declined. This indicates that the current fixed route transit system is strained but has yet to see the impact of new services that will be operational in the next three years.

As CDTA undertakes its Transit Development Plan update in 2020, there will be a need to focus on its fleet replacement plans and to re-evaluate underperforming routes. The region should also work together to ensure land use decision-making supports transit, that equity is always considered with service adjustments and in areas of low density, there should be an acknowledgement that there is going to be limited, if any, fixed route transit options.

4. Status of New Visions 2040 Recommendations

The New Visions 2040 Transit White Paper identified an ambitious set of twelve short term and six long term recommendations specific to transit. Many were identified as actions for CDTA to implement as the region's primary public transportation provider and mobility manager, focusing on improving access to transit, encouraging transit use and improving overall transit service. Other recommendations were intended to increase coordination with non-CDTA transit providers including Amtrak, inter-city bus systems and rural systems.

Of the eighteen New Visions 2040 recommendations, five were identified as key recommendations. The key recommendations are:

- Support Implementation of CDTA's Transit Development Plan
- Investigate New Funding Mechanisms to Support CDTA Transit Operations
- Promote Bus/Transit Only Travel Lanes
- Identify Potential Streetcar or Light Rail Transit Corridors
- Encourage Improved Intermodal Connections

CDTC's Transit Task Force reviewed the status of all eighteen transit recommendations and documented the progress made on each over the last five years. A detailed summary of this review is provided in Tables 6 and 7. The Task Force found that several initiatives have been completed and will be removed from further discussion. A few major initiatives are substantially complete or underway and will be carried forward into the new plan while other initiatives for which circumstances have changed or no progress was made may be revised or dropped from further consideration. The progress made on all of these recommendations will be considered in the development of transit related strategies and actions for New Visions 2050.

Table 6: Status of New Visions 2040 Short Term Recommendations (as of December 2019)

Short Term Recommendations (1-5 years)	Accomplishments	Progress
1. Support Implementation of CDTA's Transit Development Plan		
a. Expand BusPlus to the River Corridor (Blue Line) and the Washington/Western Avenue Corridor (Purple Line)	Purple Line in Design; Blue Line in Construction	Substantial
b. Strengthen regional transit routes with the objective of keeping the strong routes strong	CDTA annually reviews transit route performance and implements route adjustments as needed to rebalance available operating funds	Ongoing
c. Implement fare changes on express and BusPlus routes	CDTA's *Navigator* fare media was introduced in 2017 which slightly reduce base fares when used. There were no other fare adjustments.	Limited
d. Reintroduce articulated buses for use on BusPlus and trunk routes	In 2019, CDTA has 9 articulated buses	Ongoing
e. Provide commuter coaches on all express routes	Commuter coaches are only available on NX routes (Northway Express)	Complete
f. Install Intelligent Transportation System components on all vehicles	New Computer Aided Dispatch/Automated Vehicle Location (CAD/AVL) system has been implemented	Complete
g. Plan and construct transit centers	Uncle Sam Transit Center in Design; Crossgates Mall Transit Center opened 2019; Schenectady Amtrak Station rebuilt and opened 2018	Ongoing
h. Implement BusPlus infrastructure throughout the CDTA system (i.e. bus only lanes, transit signal priority, more shelters with improved snow clearing, etc.)	Upgrades to the pedestrian, bicycling and transit environment in the River and Washington/Western Corridors have been planned, designed and partially implemented. Additional implementation is underway.	Ongoing
i. Better integrate pedestrian, transit, and bicycle infrastructure	CDTA regularly partners with the state and local governments to implement complete street projects at stations and stops	Ongoing
2. Investigate New Funding Mechanisms to Support CDTA Transit Operations		
a. Novel sales tax concepts such as an alcoholic beverage pouring fee	New York State approved a 6% rental car surcharge in 2019 to support upstate public transportation	Ongoing
b. Increase base fares appropriately on fixed route services to support operations	Fare increases have not been explored	No Progress
c. Expand CDTA's Universal Transit Access Program (financial partnerships with employers/institutions providing free transit to employees, students, etc.)	CDTA has 20 Universal Access partners with three added in the last two years	Ongoing
3. Update CDTC's Transportation Improvement Program (TIP) Project Evaluation Process		
a. Revise the TIP project evaluation process to consider transit in the benefit/cost ratio	A new transit merit score was utilized in the 2016-2021 and 2019-2024 TIPs	Complete
b. Further evaluate greenhouse gas emission impacts during project selection	A new greenhouse gas emissions reduction score was utilized in the 2016-2021 and 2019-2024 TIPs	Complete
c. Research inclusion of maintenance agreements.	Research has not been conducted on maintenance agreements.	No Progress
4. Promote Bus/Transit Only Travel Lanes		
a. Beyond those planned for the Washington/Western BRT Corridor, promote bus only lanes, particularly in BusPlus corridors.	Training was provided to planners and engineers in 2018 on the National Association of City Transportation Officials Transit Street Design Guide	Some

Short Term Recommendations (1-5 years)	Accomplishments	Progress
5. Identify Potential Streetcar or Light Rail Transit Corridors		
a. Use national criteria to identify transit corridors with the potential to support streetcar or light rail transit.	A methodology has been tested and was shared with CDTA.	Substantial
6. Develop Complete Street Design Policies that Integrate Transit and ADA Compliant Transit Access		
a. Encourage the state and municipalities to develop Complete Street project designs that incorporate the needs of transit (including articulated buses).	CDTC is developing a Complete Streets Design Guide and funds Complete Streets workshops to assist with policy development and implementation.	Ongoing
b. Encourage universal design elements (those that accommodate the widest range of users such as sidewalks, curb ramps, etc.) within ADA (Americans with Disabilities Act) Transition Plans.	CDTC's ADA Working Group shared best practices in the creation of ADA Transition Plans for pedestrian infrastructure. CDTC staff distributed comprehensive sidewalk location data to each municipality.	Ongoing
7. Ensure that ADA Requirements are Being Met		
a. Implement universal design techniques adjacent to all transit routes, on transit vehicles and on paratransit (STAR) vehicles	CDTA is continuously improving curbside access points for transit vehicles to improve accessibility.	Ongoing
b. Explore further use of audio and video technologies on buses.	CDTA's new CAD/AVL system offers improved stop announcements. On board video monitors provide additional information to customers.	Ongoing
8. Support Transit Oriented Development		
a. Promote integrated land use and transportation planning that supports transit oriented development and land uses that encourage transit use	Transit oriented development is a strategy in CDTC's Linkage Planning Program. Several local governments have updated zoning codes to allow transit supportive development in priority transit corridors.	Ongoing
b. Improve local understanding of development finance in real estate markets for transit oriented development	Not explored	No Progress
9. Encourage Improved Intermodal Connections		
a. Improve connections among transit providers (i.e. Amtrak, intercity bus carriers, etc.) as well as walking, bicycling, and motor vehicle travel connections.	Integration of fare media and other transfer policies has not yet occurred. Mobility hubs and transit centers are being planned. Progress has been made with the installation of walking and biking infrastructure in priority transit corridors.	Some
b. Work with CDTA and regional transit carriers to develop shared intermodal stations.	A state task force to study a new Albany Intermodal Center was established in 2019. The rebuilt Schenectady Train Station will be owned and operated by Amtrak with Schenectady Metroplex owning and operating the parking lot.	Some
10. Engage Major Public and Private Stakeholders in Transportation Demand Management (TDM)		
a. Encourage employer use of TDM programs such as transit, vanpools, carpools, etc.	The Universal Transit Access Program continues to expand and bikeshare (CDPHP Cycle!) is now available as an option. Vanpools have grown significantly through effective marketing (over 30 with almost all at the Watervliet Arsenal).	Ongoing
b. Monitor significant private development in order to structure future transit service, Universal Transit Access agreements and transit supportive development practices.	CDTA staff monitors major development proposals to market transportation options and discourage single occupant motor vehicle travel	Ongoing

Short Term Recommendations (1-5 years)	Accomplishments	Progress
11. Educate about the Benefits of Transit		
a. Develop marketing or education materials targeted to elected officials, developers, financers, etc. about the benefits of transit and the cost to provide transit	CDTC staff supported the development of a Fixed Route Transit fact sheet, created by the NYS Association of Metropolitan Planning Organizations	Ongoing
12. Open Communication Between NYSDOT and Transit Providers		
a. Continue to encourage open communication between NYSDOT and transit providers	CDTC's Complete Streets Advisory Committee allows for direct communication and coordination on transportation project design. NYSDOT and CDTA are members.	Ongoing

Table 7: Status of New Visions 2040 Long Term Recommendations (as of December 2019)

Long Term Recommendations (5-20^{+} years)	Accomplishments	Progress
1. Explore New Funding Mechanisms for Both Capital Projects and Operations		
a. Explore best practices for developer contributions, mitigation fees, transit oriented development, and a variety of value capture tools.	CDTC worked with the Town of Colonie to develop a mitigation fee procedure for the Route 9/Bought area which includes transit. An update of Colonie's Airport Area GEIS is expected in the next year which also includes a transit.	Limited
b. Continue to explore parking pricing options.	CDTC is updating its Transportation Demand Management Program in which this will be explored.	No Progress
2. Explore New technologies to Improve the Reliability and Efficiency of Transit		
a. Improve the reliability and efficiency of transit by deploying advanced technology (such as light rail style vehicles, off board fare collection, traffic signal coordination, etc.)	CDTA is deploying additional BusPlus buses and has worked with communities to implement transit signal priority systems. CDTC's proposed Operations Program in 2020 may offer the opportunity to explore additional options at traffic signals.	Some
b. Consider a working group that coordinates the management of transit signal priority/coordination across jurisdictions.	To be explored in the CDTC Regional Safety and Operations Advisory Committee in 2020. CDTA and NYSDOT are members.	No Progress
3. Explore the Potential Impact of Automated Vehicles on Transit		
a. Explore the potential impacts that automated vehicles may have on transit as well as the potential for automated transit vehicles.	To be explored in the NV 2050 update	Limited
4. New York State High Speed Rail Program Development		
a. Continue to work with New York State on the development of a high speed rail program.	The Federal Rail Administration is expected to release the Final Environmental Impact Statement on high speed rail in 2020. Several projects to improve the speed and efficiency of Amtrak service have been implemented including a second track between Schenectady and Albany.	Ongoing
5. Implement Additional BRT (BusPlus)		
a. Implement additional BRT corridors in the Capital Region, beyond the River and Washington/Western Corridors	To be explored in the CDTA Transit Development Plan update.	No Progress
6. Explore Upgrading BRT (BusPlus) Corridors to Fixed Guideway		
a. Further explore opportunities to upgrade BRT (BusPlus) corridors to fixed guideway.	To be explored in the NV 2050 update	No Progress

5. Transit Capital Project Status

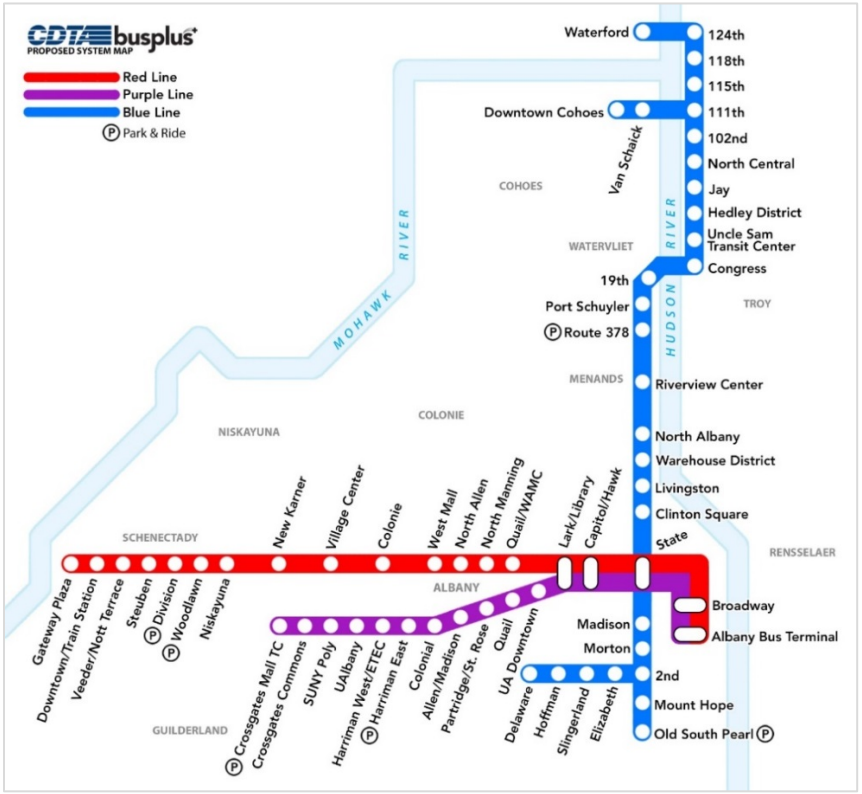
CDTA Related Capital Projects

Since New Visions 2040 was adopted in 2015, CDTA has made numerous improvements to its transit system and facilities. Bus Rapid Transit (BRT) investment, station improvements, electric vehicle purchases and coordination with state and local government on major street improvement projects are just a few of the many initiatives that have been led by CDTA.

Bus Rapid Transit

CDTA continues to pursue the implementation of 40 miles of BRT, branded as BusPlus (see Figure 2). The system currently includes the 17-mile Red Line (NY 5 Corridor) between downtown Albany and downtown Schenectady. CDTA Route 905 (BusPlus), Route 1 (Central Avenue local service between downtown Albany and Wolf Road) and Route 355 (Central Avenue and State Street local service between Wolf Road and downtown Schenectady) collectively have over 3 million annual passenger boardings. These three routes represent nearly 20% of CDTA's entire annual ridership. With an estimated initial capital investment of $30 million in 2011, the capital cost per ride since the BRT system opened is estimated to be $1.25. **Investment in BRT has proven to be cost effective and has had significant regional benefits.** Having the right service in the right area will attract riders.

Figure 2: CDTA 40 Miles of Bus Rapid Transit Map



Blue Line (River Corridor)

The River Corridor (Blue Line) project has completed the design process and entered the construction phase. The Blue Line will run parallel to the Hudson River providing service to Albany, Menands, Colonie, Watervliet, Troy, Cohoes and Waterford. FTA accepted the most recent Project Management Plan (PMP) for construction in July 2019. The PMP is an evolving document used by CDTA to define the scope of work and to disseminate CDTA policies and practices for governing all project activities. It is a "living" document which is updated as certain milestones are reached throughout project delivery.

In 2019, FTA awarded CDTA a Section 5309: Small Starts Capital Investment Grant (CIG) to support construction of the River Corridor BRT. This nearly $27 million award complements awards from the FTA Section 5339: Bus & Bus Facilities program, the NYS Upstate Revitalization Initiative, New York State Transit Capital Funding and local resources from the Cities of Albany and Troy to complete a $42.5 million construction funding package. Blue Line operations should begin in December 2020 with construction completed by Spring 2021.

Purple Line (Washington/Western Avenue Corridor)

The Purple Line will operate from downtown Albany to Crossgates Mall and is being designed and implemented in phases. The system will include a busway with bus only lanes on the Harriman State Office Campus and the University at Albany's Uptown Campus, moving the Purple Line from basic to enhanced BRT. Bus only lanes will provide operational efficiencies that are not possible with mixed traffic BRT.

CDTA has submitted the Purple Line to FTA for funding consideration through the CIG/Small Starts Program. The $81.1 million scope of work includes construction of the busway and University at Albany Uptown Campus Station, five "standard" BRT stations on Western Avenue with related roadway work (at Colonial, Allen/Madison, Partridge/St. Rose, Quail and the Harriman East Station), and expansion of the Albany Division Garage. The scope of work also includes renovation of the Albany Bus Terminal and the creation of a direct, indoor connection between the Albany Bus Terminal BRT station and the intercity waiting and ticketing area to create an integrated transfer facility. Stations at Harriman West and the University at Albany's Downtown Campus have received funding through the Transportation Alternatives Program and are being constructed. CDTA reconstructed the Crossgates Mall Transit Center and the Lark Street/Albany Public Library station in 2019.

New Lark/Library BRT Station in Albany, completed 2019

Other Major CDTA Capital Projects

While CDTA's focus has been on the implementation of the Blue and Purple Line BRT projects, there have been numerous sub-projects and other CDTA projects that have sought to improve the regional transit system. Table 8 summarizes the major capital initiatives.

Table 8: Major CDTA Capital Projects

Project Name	Location	Description	Status
Uncle Sam Transit Center	Troy	Construct a transit center at the Uncle Sam parking garage	In Design
Menands/Riverview Center Road Diet	Menands	Implement a road diet and new lane striping on Broadway to support the River Corridor BRT	In Design – Project now combined with Menands Bike/Ped Connector
Lark/Washington Station	Albany	Relocate the Lark/Washington Station to the Albany Public Library on Washington Avenue. Reconfigure the approach to the Lark/Washington intersection with safety improvements.	Complete
Transit Signal Priority on Washington & Western Avenues	Albany	Replace signals along Washington and Western Avenues and incorporate the installation transit priority in the traffic signal system	Complete
Crossgates Mall Transit Center	Albany	Relocate and expand the transit station at Crossgates Mall, allowing for improved transit access	Complete
ETEC / Harriman West Station	Albany	Construction of bus-only roadway, site work, traffic signals, and pedestrian infrastructure for locations served by the Purple Line BRT	Underway
University at Albany Downtown Campus	Albany	Construct a BRT station at the University at Albany's downtown campus	In Design
University at Albany Busway to Campus Center	Albany	Construct a dedicated busway on the University at Albany's Uptown Campus for the Washington/Western BRT.	In Design
Albany Bus Garage Expansion	Albany	Expansion to consider Purple Line BRT fleet, electric buses and additional fleet changes	In Design
Gateway Transit Center	Schenectady	Reconstruct the Gateway BRT transit station as part of the redevelopment of Gateway park	Completed
Electric Bus Purchase and Delivery	Region	Purchase and delivery of four electric buses	Completed

Amtrak Capital Projects

Several major Amtrak projects (See Table 9) have been completed since 2014, primarily funded through the Federal Rail Administration (FRA) High-Speed Intercity Passenger Rail grants awarded to NYSDOT as a result of the 2009 American Recovery and Reinvestment Act. These projects represent the Base Alternative in the 2014 High Speed Rail Empire Corridor Tier 1 Draft Environmental Impact Statement and represent a commitment of over $150 million in federal, state, and local funding. This investment resulted in increased ridership, reduced train delays, improved safety, and consistently improving service. The FRA and NYSDOT announced in 2019 a May 2020 target to complete the Final Environmental Impact Statement, the final step needed for the state to seek federal funding, if available, to go beyond the Base Alternative.

While rail infrastructure has been improving, the Livingston Avenue bridge connecting Albany and Rensselaer remains a concern. The bridge is over 100 years old and is approaching the end of its serviceable life. The replacement or major rehabilitation of the bridge is paramount to maintaining safe and efficient passenger rail in the Capital Region.

Table 9: 2014-2019 Completed Amtrak Capital Projects

Capital Project	Description
Albany-Schenectady Second Main Track	A second mainline track was built between Albany and Schenectady, facilitating 110 mph speeds and eliminating a bottleneck for Empire Service passenger and freight trains.
Albany-Rensselaer Amtrak Station 4th Track	A fourth track was built at the Albany-Rensselaer Station in 2016, facilitating improved train movements and eliminating a bottleneck for over 30 trains per day. In early 2017, platform extensions and replacement of yard signals were completed, allowing for more efficient passenger boarding and better on-time performance.
Schenectady Amtrak Station	A new station was built in downtown Schenectady in 2018. Expanded pedestrian access to the station should be facilitated through the Erie Boulevard reconstruction project and with enhanced streetscape treatments along Lower State Street.
Hudson Line Signal Improvements	Aging signals were replaced in Rensselaer County and further south, reducing train delays while facilitating higher speed Amtrak trains along the Hudson Line.
Empire Corridor South Grade Crossing Improvements	Three at-grade railroad crossings were replaced in the Town of Schodack, increasing safety and facilitating higher train speeds. Additional crossings have been upgraded or replaced since 2016 in Albany County, Schenectady County, and Rensselaer County as part of other Empire Service projects.
Double Track in Ballston Spa	A second main line track between Ballston Spa and the Saratoga Springs yard and passenger station was constructed to improve capacity on the Adirondack Corridor.

Inter-City Bus

Megabus now has a home station at the north end of the Rensselaer Rail Station surface parking lot with an additional stop at the University at Albany. In the 2019 New York State budget agreement, the state established an Intermodal Center Task Force to plan for a replacement for the current Greyhound station in Downtown Albany. Investing in new intermodal facilities for inter-city bus services will significantly improve the quality of inter-city bus travel.

Capital District Gondola

Capital District Gondola has raised $1.7 million (as of October 2019) of the $25 million needed to construct a Gondola between downtown Albany and the City of Rensselaer over the Hudson River. The Gondola project has been designed at a conceptual level of detail and the City of Rensselaer has been designated as the lead agency on the environmental impact study. The environmental review will include 11 towers along a 4,500-foot-long route. The towers are expected to range in height from 40 feet to 133 feet. Capital District Gondola estimates 900,000 passengers would annually cross over the Hudson River.

6. Transit Service and Operational Changes

CDTA Service and Operational Changes

CDTA publishes an annual Route Performance Report which measures ridership and productivity, assesses previous service changes, and recommends service changes for the next fiscal year. The most recent report covers fiscal year 2018-2019 and noted that ridership declined by 4%, 24 out of 49 fixed routes operated below productivity thresholds and service changes led to a decrease in 6,000 service hours. These findings support the earlier conclusion in the performance measure section that the transit system is strained.

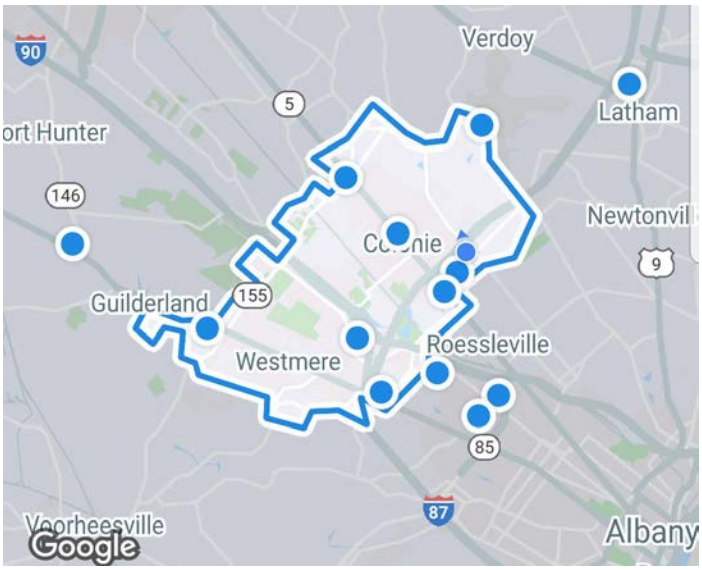
Service changes consider several factors including ridership, demographics (low-income, seniors, people with disabilities, etc.), universal access partnerships and potential rider generators. Each year CDTA adjusts transit routes through service enhancements (increased frequency and span), service reductions (decreased service based on low productivity) and other changes such as new routing or new stations and stops as a result of new development, redevelopment or other land use changes or with the addition of new Universal Access partners.

Microtransit Pilot

A microtransit pilot project will be pursued in winter 2020 to be known as CDTA Flex. Microtransit can best be described as the public transportation version of ridesharing services like Uber and Lyft. Customers will be able to request a ride through a mobile app or phone call for a trip within a certain geographic area. The service would be curb to curb and will connect to transit hubs, major businesses, and other trip generators. It is likely best suited for lower density areas that have trouble supporting traditional fixed route transit, generally in suburban and rural areas. Microtransit is highly flexible since there is not a designated route and it can easily adapt to changes in demand. The pilot may help CDTA identify untapped transit markets for fixed route service or identify areas where less efficient fixed transit routes or segments of fixed route transit can be replaced. It can also provide supplemental service during off-peak times (nights, weekends) and may assist with the Guaranteed Ride Home program.

The pilot service area is primarily between Wolf Road and New Karner Road in the Towns of Colonie and Guilderland and the western section of the City of Albany as shown in Figure 3. The service will be free for the first 6 months and would then be priced somewhere between standard CDTA bus fares ($1.50) and ridesharing (currently a minimum of $7.00 per ride).

Figure 3: Microtransit Pilot Service Area



Navigator

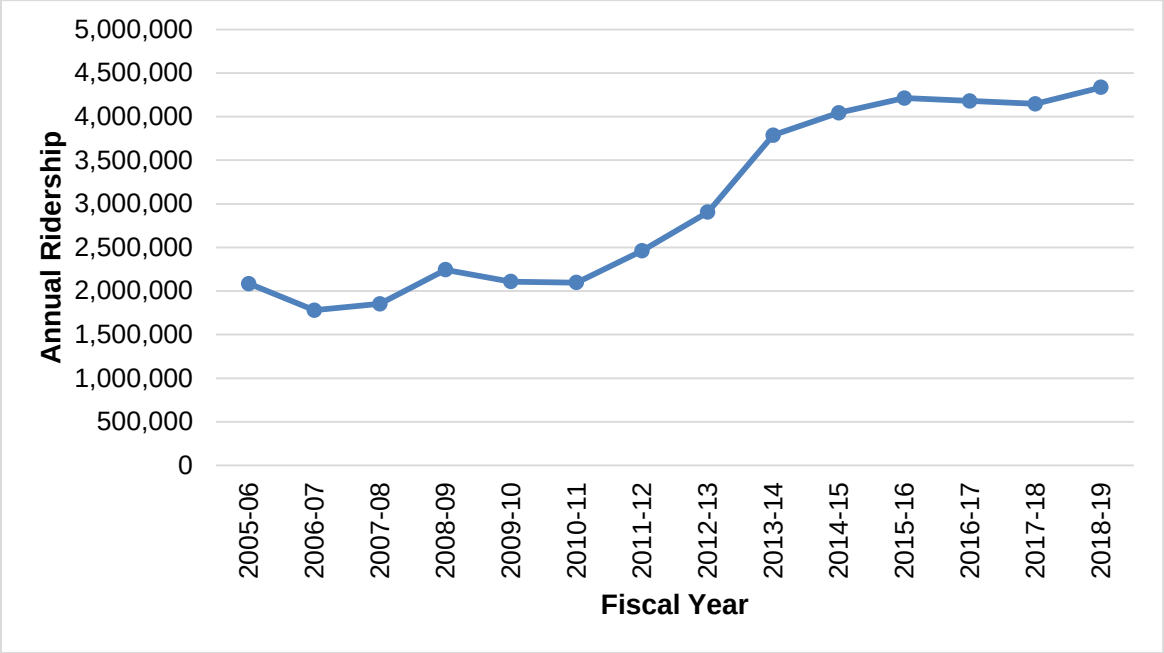
In 2017, CDTA implemented Navigator, a new fare collection system that replaced the previous fare payment system (Swiper) with contactless smart cards and mobile phone payments connected to customer accounts. These accounts may be loaded with unlimited ride passes, stored values, or both, and can be reloaded online or at CDTA sales outlets.

Since the implementation of Navigator, the use of day cards and 1- or 2-ride passes has decreased dramatically as Navigator generally offers more convenient and equivalent options. The reduced use of day cards is helping CDTA to improve dwell time as on-board purchases, which entail a lengthy purchase process, have been discontinued. Cash utilization has slightly increased, most likely due to a small percentage of previous Swiper users not making the transition to Navigator. As Navigator has been fully deployed for less than two years and improvements are still being made to the system, CDTA expects that its use will increase in the future and cash payments will decrease as more customers transition to Navigator.

Universal Access Program

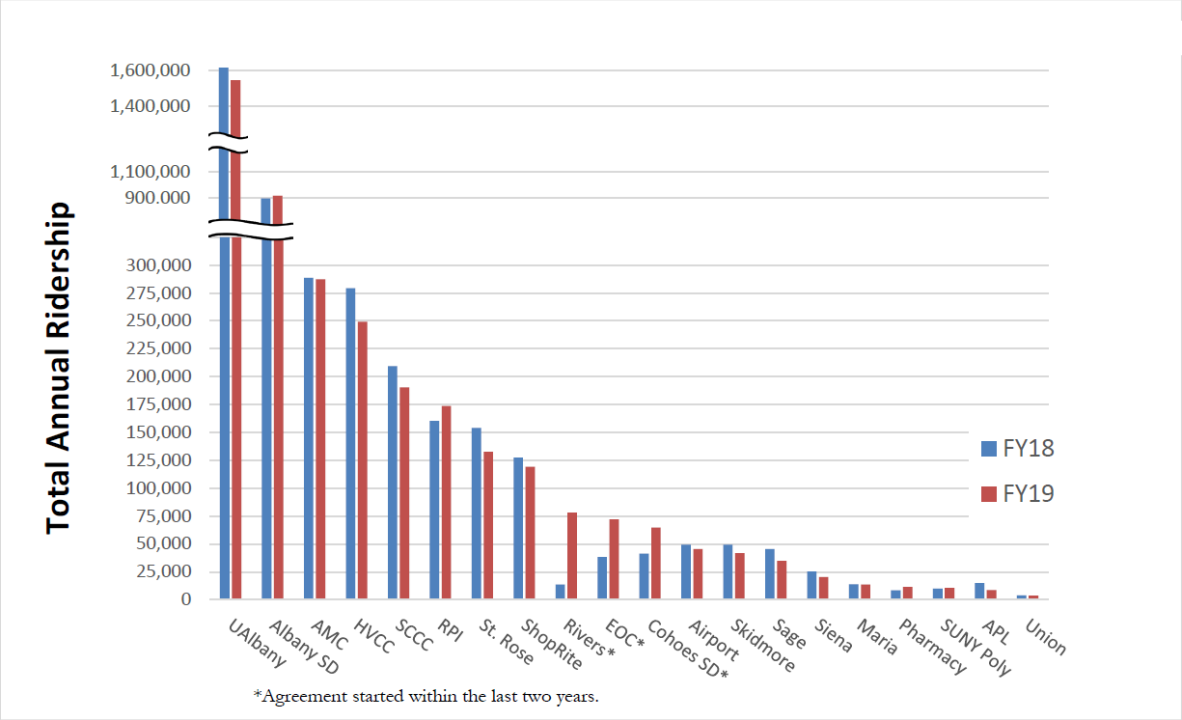
CDTA's Universal Access program has changed the way transit services are consumed in the region. More than 20 partners work with CDTA to provide free access to transit for employees and students. CDTA technology allows ID cards to be recognized on buses, billing the program partner according to a prearranged contract. In FY 2019, these arrangements accounted for 4.3 million boardings, or nearly 30% of all CDTA ridership (Figure 4). Progressive businesses and colleges have recently worked with CDTA to expand transportation, or mobility, options (i.e. bike share, etc.) that their constituents want and need (Figure 5).

Figure 4: Universal Access Agreements – Ridership in FY2018 vs. FY2019



Source: CDTA

Figure 5: Universal Access Agreements – Ridership in FY2018 vs. FY2019



Source: CDTA

Universal Access contracts that experienced significant ridership changes in 2018-2019 include:

- **Rivers Casino**: added 64,500 rides (+470%) due to operation of a new contract for a full year
- **Hudson Valley Community College Equal Opportunity Center**: added 33,800 rides (+88%) due to operation of a new contract for a full year
- **Cohoes School District**: added 23,500 rides (+57%) due to operation of a new contract for a full year and addition of new service
- **Albany School District**: added 21,600 rides (+2%) due to the addition of new services
- **Albany Public Library**: lost 6,200 rides (-42.0%) due to stricter enforcement of eligible rides

CDTA will add Albany Law School and the New Scotland Village apartment development as Universal Access partners in the next year. Partnering with private residential developers is a new opportunity that could rapidly expand in areas of concentrated development. Universal Access can save developers money as they may not need to construct parking spaces or parking garages. The program also buffered CDTA from more significant ridership declines. While overall CDTA ridership declined by 4%, contract ridership increased by 4.6%. CDTA will continue to pursue opportunities for new and expanded Universal Access agreements.

Other CDTA Service and Operational Changes Since 2015

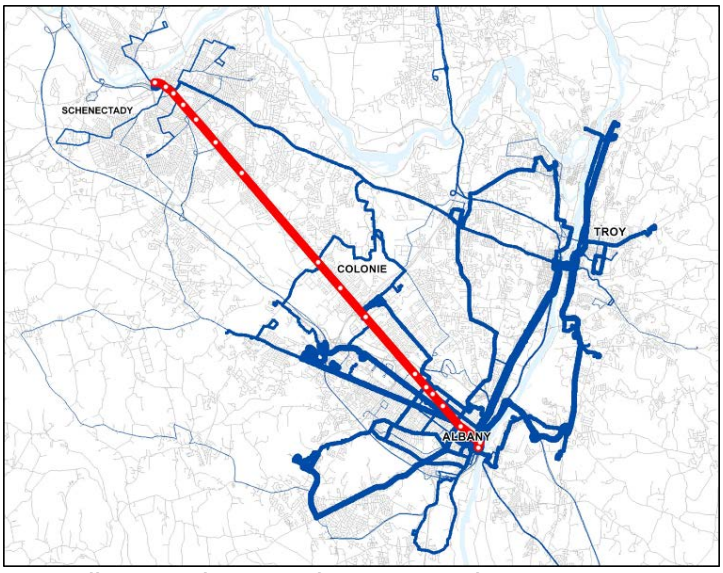
Table 10 summarizes major service and operational changes implemented by CDTA between 2015 and 2019. As each route is constantly monitored by CDTA, adjustments to schedules are not uncommon. While they are too numerous to mention, any street level route adjustments can be seen in Figure 6 which compares the routes in 2013 to those in 2019. Because CDTA Flex is a pilot service that launched in early 2020, it is not included in this summary.

Table 10: Operational and Service Changes between 2015 and 2019

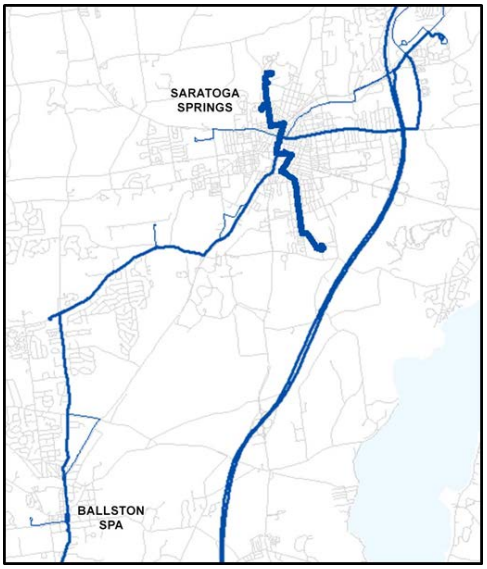
Operational/ Service Change	Description	Ridership Impact
New 800 Series Routes	CDTA "spun off" trips from several Albany-based routes in 2019 that deviated from regular route patterns to increase peak hour service. These trips now operate as standalone routes (#805 to #809).	The routes from which these trips originated may experience ridership declines during FY20, as they are now handled by the 800-series.
Trolleys	Trolley routes were introduced in 2017 and provide service for residents, tourists, and visitors to downtown attractions in Albany, Schenectady, and Saratoga Springs.	Trolley ridership in Albany and Schenectady is low; Saratoga Springs is more productive but is challenged by ridesharing.
Saratoga County Route Restructure (2016)	A new transit route network was developed with stakeholders allocating more service to high demand corridors and provides connections to destinations that previously did not have service.	The restructure improved access to transit and may have limited the ridership loss being experienced by CDTA throughout the region.
Route and Segment Specific Adjustments	Service adjustments are made on approximately 5 to 10 routes per year. Typically, span and frequency increase when ridership is over 20 rides/hour, equity or jobs access issues are addressed and/or the route is on the priority network. Decreases occurred on routes with less than 12 rides/hour and in low density rural or suburban areas.	Varied depending on whether the change enhanced or reduced service.

Figure 6: Visual Representation of CDTA Route Changes between 2013 and 2019

2013 CDTA Routes

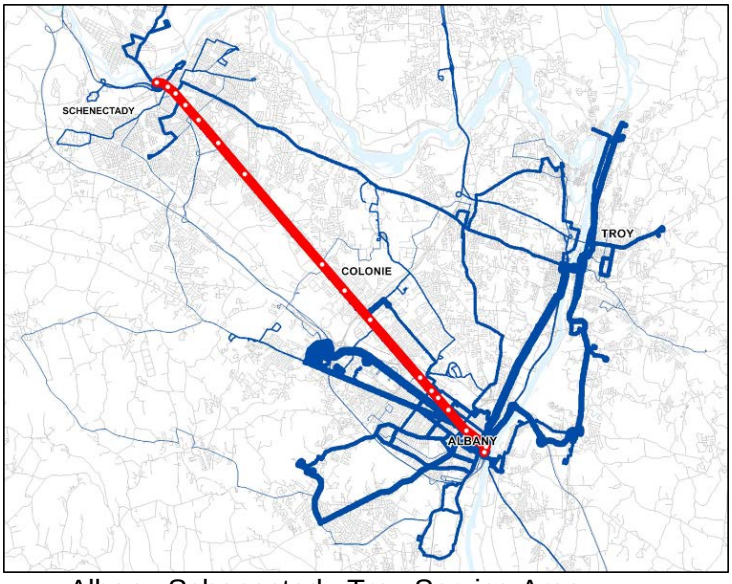


Albany-Schenectady-Troy Service Area

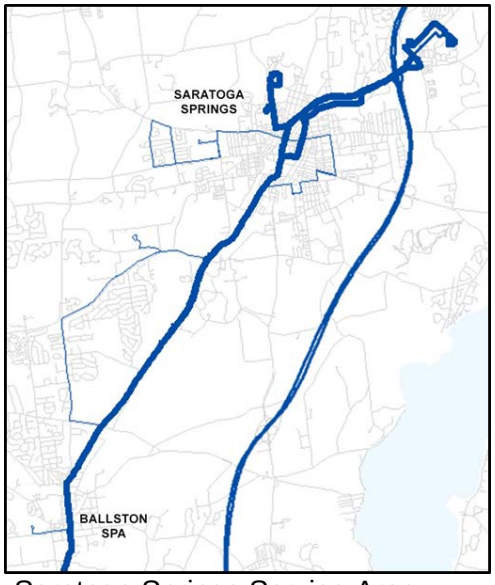


Saratoga Springs Service Area

2019 CDTA Routes



Albany-Schenectady-Troy Service Area



Saratoga Springs Service Area

Note: Line thickness is correlated with route frequency. Source: CDTA

Evolving Mobility Options

Travel choices for the first and last mile of a trip to and from a fixed route transit stop have increased in the region in the last five years. These transportation (or mobility) options improved transit access by extending its reach beyond the traditional half mile walking distance to a transit stop. These options are more thoroughly discussed in CDTC's Mobility Management White Paper. The following summarizes the services CDTA is operating directly or subsidizing and notes major private options in the region as well.

Bike Share – CDPHP *Cycle*!

Launched in 2017, CDPHP *Cycle*! is the region's bike share program managed by CDTA. CDPHP *Cycle!* provided 41,000 rides to over 12,000 members in 2019.

Carshare

CDTA provides financial support to Capital CarShare, a non-profit that offers a shared vehicle transportation network with vehicle hubs in the Cities of Albany and Troy. As a member, a driver can get access to a vehicle for up to 50 miles an hour or up to 150 miles a day. Carshare services through Zipcar are also available to students at the University at Albany.

Vanpools

Vanpools are considered public transportation and CDTA subsidizes Vanpools through Commute with Enterprise. The number of vanpools increased in the region from less than 10 in 2018 to over 30 in 2019 as an effective promotion strategy was launched to federal employees at the Watervliet Arsenal. Federal employees are eligible for an additional Vanpool subsidy from the federal government.

Navigator Transit Pass Subsidies

To encourage transit use, CDTA has several programs to assist Capital Region residents with access to transit. New homeowners on bus routes meeting an income requirement as well as refugees, immigrants and victims of domestic violence may receive free transit passes for up to 12 months.

Ridesharing – Transportation Network Companies (TNC)

Ridesharing companies or TNCs (i.e. Uber and Lyft) were allowed by New York State to operate in the Albany area in 2017. Since that time, these services have proliferated, impacting transit ridership, significantly reducing taxi ridership and forever changing the way technology and transportation interface. For transit agencies, ridsharing has reduced ridership by roughly 2% each year since 2017 but they also offer new partnership opportunities. In the future, if New York State allows the carpooling versions of ridesharing (i.e. UberPool and Lyft Line) to operate in the Capital Region, significant impacts could be felt in terms of transit ridership losses and increased congestion.

7. Transit Planning and Funding

CDTA and CDTC are required to maintain transit related plans that support the federal transportation funding decision making process. Several of these plans have recently or soon will be updated and are summarized below.

Transit Plans

CDTC Coordinated Transportation – Human Services Transportation Plan (2019)

A Coordinated Transportation – Human Services Transportation Plan identifies opportunities to assist people with disabilities, seniors and low income residents with access to transportation through improved communication and coordination of transportation providers. In addition to CDTA, there are many human service agencies providing transportation to these populations including government agencies and non-profit groups. The 2019 Coordinated Plan will be included in New Visions 2050 as a separate White Paper. Key plan components include:

- An assessment of available services and transportation providers
- An assessment of transportation needs for individuals with disabilities, older adults, and people with low incomes
- Strategies, activities and/or projects to address the identified gaps between current services and needs, as well as opportunities to improve efficiencies in service delivery
- Priorities for implementation based on existing resources

CDTA Transit Development Plan (to be updated in 2020)

The Transit Development Plan (TDP) was last adopted by CDTA in 2014 and is CDTA's ten-year tactical plan for system improvements and performance. The TDP includes a five-year list of proposed projects that address service, infrastructure and fleet condition. It also identifies thresholds for performance and provides guidelines for investment. CDTC supports the TDP by programming federal funds for planning and capital projects (see Table 11 page 33). CDTC also incorporated into New Visions 2040 CDTA's performance measures, transit propensity index and transit priority network. CDTA plans to complete an update of its TDP in 2020 as CDTC develops New Visions 2050.

Asset Management Plan (CDTA)

A new requirement for transit providers enacted since New Visions 2040 was adopted is the Asset Management Plan. The Asset Management Plan catalogs the condition of CDTA's vehicle fleet, facilities and support vehicles. The plan articulates CDTA's approach to maintaining its fleet and facilities in a state of good repair and provides a list of the condition of every asset owned and maintained by CDTA. This data is used to develop the federal Asset Management Performance measures and assists CDTC with tracking CDTA's fleet management progress.

Safety Plan (CDTA)

CDTA's System Safety Program Plan was developed and implemented in January 2018. The plan includes a policy statement that commits CDTA to provide "safe and reliable transportation to the general public at a reasonable cost". The policy covers training and safe working conditions for staff, defensive driving and customer relations training for drivers and a commitment for all employees to comply with the provisions of CDTA's accident prevention program. In 2020, CDTA will be required to develop a Public Transportation Agency Safety Plan that will include safety targets in federally required categories. The plan and targets must be provided to CDTC by July 20, 2020.

Title VI (CDTA) and Public Participation

The Title VI Program (2017-2020) is a detailed inventory of all procedures and policies that CDTA follows to implement and otherwise comply with Title VI of the Civil Rights Act of 1964. The components are required by FTA and USDOT policy and the document is available on CDTA's website. The objectives of Title VI are to ensure that the level and quality of transit service is provided in a nondiscriminatory manner, to promote full and fair participation in decision-making without regard to race, color, or national origin; and to ensure meaningful access by persons with Limited English Proficiency (LEP). The Title VI Program document also includes CDTA's public participation plan. CDTA intends to update its Title VI Program in 2020.

Transit Funding

Federal Transit Administration (FTA) Resources

CDTA utilizes a variety of funding programs to support the region's transit system. On the Federal side, CDTA and other regional transit providers (i.e. City of Mechanicville, Rensselaer County, Adirondack Trailways) receive funding through several Federal Transit Administration competitive and formula programs authorized under the FAST Act. Formula funds are typically distributed based on Urbanized Area population. CDTC's planning area includes two urbanized areas (Albany-Schenectady and Saratoga Springs) and CDTA is the provider of public transportation for both. The primary funding programs include:

Section 5307 – Urbanized Area Formula Grants: Provide funding to public transit systems in Urbanized Areas for capital, planning, job access and reverse commute projects and some operating expenses. Associated Transit Improvements (ATI) are also eligible under 5307 and include projects like bus shelters and bus stop signs.

Section 5309 – Capital Investment Grants: Provide competitive funding for large scale capital projects including rail and bus rapid transit.

Section 5310 – Enhanced Mobility of Seniors & Individuals with Disabilities: Provide formula funds to states to assist private nonprofit groups with meeting the transportation needs of seniors and persons with disabilities.

Section 5339 – Grants for Buses and Bus Facilities Formula Program: Provide formula funds to states and transit agencies to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities.

Federal Highway Administration (FHWA) Programs

While the bulk of federal funding utilized by CDTA is from the FTA programs, CDTC has dedicated a significant amount of federal funding to CDTA through FHWA's competitive programs. FHWA funding programs that have been utilized by CDTA include:

National Highway Performance Program (NHPP): Supports the condition and performance of the National Highway System (NHS), construction of new facilities on the NHS, and projects that help State's meet NHS asset management performance targets.

Surface Transportation Block Grant Program (STPBG): This is the most flexible Federal-aid highway program as it promotes regional decision making to assign funding to best address State and local transportation needs. Transportation Alternatives are funded as a set-aside of STPBG funds.

Transportation Alternatives Program (TAP): Supports a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails and safe routes to school projects.

Congestion Mitigation and Air Quality Improvement Program (CMAQ): Provides flexible funding to State and local governments for transportation projects and programs that reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for areas like CDTC that are former nonattainment areas now in compliance (maintenance areas).

CDTC Role in Funding Transit Projects

As the Metropolitan Planning Organization for the region, CDTC develops a capital program of projects known as the Transportation Improvement Program (TIP). The TIP provides a list of all capital and operating (transit) projects in the region utilizing the funding programs of the FTA and FHWA. Current TIP projects are shown in Table 11. The FTA funding is generally only available to CDTA and therefore is not competitive. FHWA funding can be used by any CDTC member agency and is therefore highly competitive. CDTC's 2019-2024 TIP reserves federal funds for projects in two regional set-asides using NHPP and STPBG funds:

TIP ID# RG131: Bus Rapid Transit ($19.4 M over five years) – The Hudson River Corridor BRT Phase 1 (TIP ID# T107) and Washington/Western BRT Phase 1 (TIP ID# T109) projects were funded from RG 131.

TIP ID# RG130: Travel Demand Management (TDM) & Multimodal ($3.0 M over five years) – The TDM Multimodal Implementation (TIP ID# T108) was funded from RG 130 and includes CDTA's guaranteed ride home program, transit pass subsidies, park & ride leases, Try Transit, capital carshare, and the regional bikeshare network.

CDTA can request use of set-aside funding by submitting a TIP amendment for a new project. The funds allocated to CDTA through CDTC demonstrate a substantial commitment to maintaining a modern and efficient regional transit system and allow CDTA to leverage dollars when applying for competitive FTA, other federal grant and state grant programs. CDTC's

support was critical to CDTA's success in securing funds through the Capital Investment Grant Program (Small Starts) for the River Corridor BRT project.

Table 11: 2019-2024 CDTC Transportation Improvement Program Transit Projects

TIP #	Project Name	Description	Sponsor	Fund Source(s)	5 Year Total Cost ($M)
T6A	Enhanced Mobility of Seniors and Individuals with Disabilities Program	Mobility management and other capital projects, including vehicles, improving access and mobility for seniors and individuals with disabilities.	Multiple	FTA Section 5307 & 5310-Saratoga Springs	$3.875
T6B	STAR Buses Replacement and Expansion	Replacement of STAR (Special Transit Service Available by Request) vehicles for paratransit.	CDTA	FTA Section 5339 and 5307	$3.751
T9	Facility Improvements	Renovation of bus washers.	CDTA	FTA Section 5339	$0.450
T11	Passenger Facility Improvements at Various Locations	Improvements and additions to passenger amenities, including repair, upgrade and replacement of bus shelters and bus stop signage.	CDTA	FTA Section 5307-ATI	$0.957
T14A	Transit Operating Assistance	Federal transit operating funds.	Multiple	Transit Operating Assistance	$204.881
T14B	Saratoga Service Transit Operations Support	Section 5307-Saratoga funds are allocated for transit (capital or operating) use in Saratoga Springs as a small urban area.	CDTA	5307-Saratoga Springs and Transit Operating Assistance	$9.312
T16	Transit Support Vehicles	Replacement of non-revenue support vehicles for supervisory and maintenance use.	CDTA	FTA Section 5339	$1.040
T17	Transit Bus Replacement/ Expansion	Purchase or lease transit buses to maintain existing fixed route service levels.	CDTA	FTA Section 5339, 5307 and 5339-Saratoga Springs	$13.861
T57	Preventive Maintenance	Ongoing activities to maintain capital assets to ensure bus fleet and other capital items operate efficiently throughout their useful lives	CDTA	FTA Section 5307	$73.633
T72	Safety and Security	Incorporation of FTA's top 20 Security Program Action Items for Transit & recommendations from CDTA's Facilities Study	CDTA	Local	$1.000
T77	Commuter Service Capital Cost	Capital cost of contracted commuter service in the Capital District to points North, West and South	Sub-recipient is Adirondack Trailways	FTA Section 5307	$3.000
T107	Hudson River Corridor BRT: Phase 1	Includes transit signal priority, station site work, pedestrian infrastructure, Uncle Sam Transit Center and design of the Troy bus garage expansion.	CDTA	BRT Set-Aside (NHPP and STP-Flex)	$3.668

TIP #	Project Name	Description	Sponsor	Fund Source(s)	5 Year Total Cost ($M)
T108	TDM Multimodal Implementation	Includes guaranteed ride home program, park & ride leases, Try Transit, Capital CarShare, and the regional bike share network.	CDTA	TDM & Multimodal Set-Aside (STP-Flex and Local)	$0.601
T109	Washington/ Western BRT Phase 1	Bus stops, enhanced lighting, raised medians, turn lanes, on-street parking, signalized mid-block pedestrian crossings, curb extensions and bump outs on Washington Avenue from Dove Street to Lexington Avenue	CDTA	BRT Set-Aside (NHPP and STP-Flex)	$0.500
T122	Hudson River Corridor BRT: Final Phase	Buses, stations, transit signal priority, replacement of ten traffic signals, queue bypass lanes, real-time bus arrival information, two park and ride facilities, expanded Troy garage and professional services.	CDTA	FTA Section 5309	$42.153 (Includes FTA Small Starts Award)
T123	CDTA Washington/ Western BRT Phase 2	Intersection adjustments, reconstruction of Western Avenue west of Thurlow Terrace with BRT site work, new pedestrian crossings, and a center median, as well as replacement of on-street parking at UAlbany Downtown Campus. Also includes Harriman Campus ring-road lane reduction from 6 to 4 lanes, new traffic signals for pedestrian crossings, BRT station site work, bus-only lanes with a bus-only roadway between UAlbany's Uptown Campus and the Harriman Campus.	CDTA	BRT Set-Aside (STP-Flex), TAP and Local	$8.253
T124	Hudson River Corridor BRT Operations	Service and operational related expenses (i.e. drivers, fuel, bus maintenance, etc.) of the River Corridor BRT beginning in late 2020.	CDTA	CMAQ and Local	$15.430
		Total Value of Transit Related Projects on CDTC 2019-2024 TIP:			**$386.37**

CDTC Transit Priority Network

Transportation projects are typically added to CDTC's TIP through a competitive solicitation and evaluation process that occurs once every two to three years. As part of the evaluation, all projects receive a benefit/cost score (or an equivalent for bicycle and pedestrian projects) and a merit score which assigns points to projects with a variety of benefits that are not captured in the benefit/cost ratio. For transit, merit score points (up to 5) are assigned based on how well a project furthers a major CDTA regional transit initiative, substantially expands transit access or implements transit components such as bus lanes, shelters, sidewalks and transit signal priority. CDTC's Transit Priority Network is an important consideration in the merit score.

CDTC's Transit Priority Network (Figure 7) is based on CDTA's Transit Priority Corridors identified in its Transit Development Plan (2014). Transit priority corridors communicate where CDTA will focus fixed route service and infrastructure improvements. CDTC's Priority Network includes the CDTA transit priority corridors without route deviations and adds connections to the Albany International Airport and Saratoga Springs train station, as well as the segment of I-87 between Route 7 and I-90. CDTC's Priority Network Map and its transit merit score methodology will be updated following completion of CDTA's Transit Development Plan update.

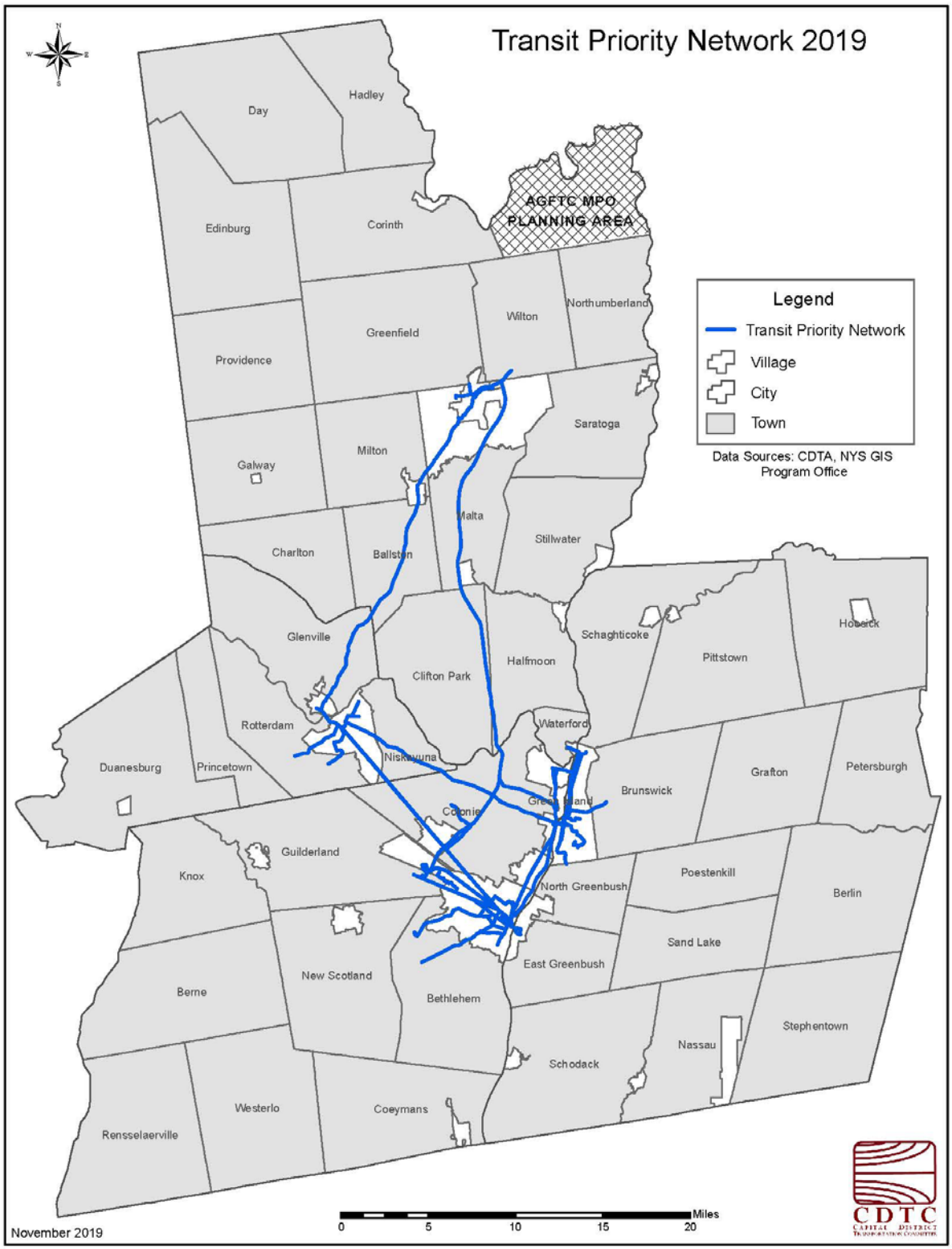
Statewide Mass Transportation Operating Assistance Program (STOA)

STOA is a permanent New York State program enacted in the 1970's in response to ongoing operating deficits at transit agencies. In 2018, CDTA received roughly $38 million through STOA to operate the transit system. A portion of the Petroleum Business Tax (gas tax on petroleum businesses operating in New York State) is dedicated to STOA for upstate transit systems like CDTA. The STOA payment formula is based on a dollar value per passenger and a dollar value per vehicle mile.

State Economic Development Funding

In May 2019, New York State awarded CDTA $7.3 million from the Capital Region's Upstate Revitalization Initiative fund to support construction of Bus Rapid Transit. The funding is primarily for the River Corridor BRT (Blue Line) but will also support some initial components of the Washington/Western BRT (Purple Line). These funds are significant and critical to progress the implementation of BRT as they have been leveraged by CDTA to access other funds, particularly the federal Capital Investment Grant Small Starts Program funding awarded to CDTA for the River Corridor BRT.

Figure 7: CDTC Transit Priority Network

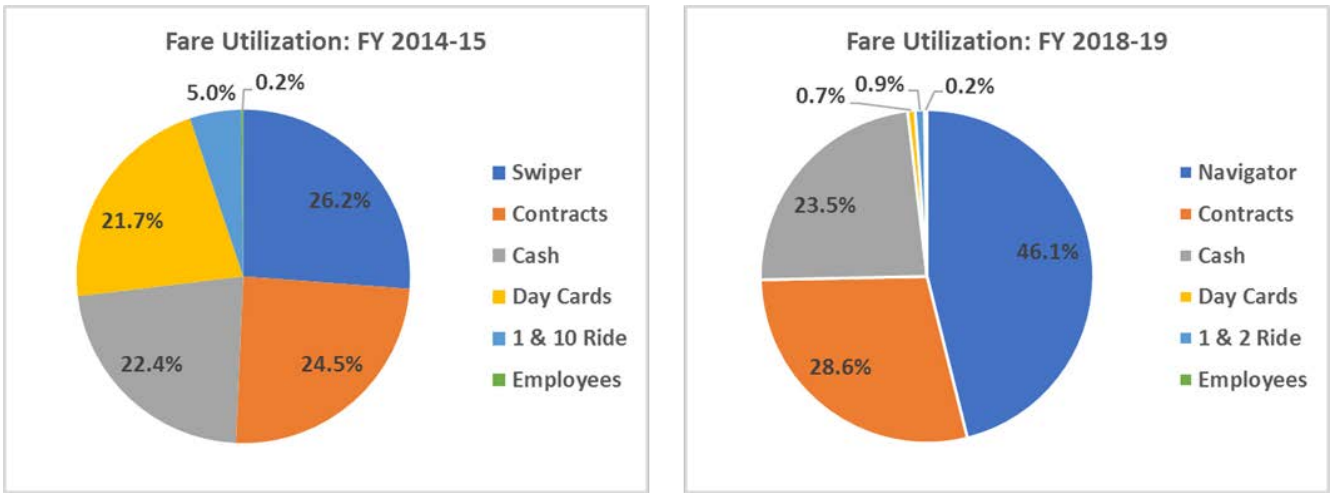


Fares and Other Funding

Since 2017 when CDTA implemented the Navigator fare payment system, access to the CDTA system through pre-paid media has increased to nearly seventy-seven (77%) percent of all CDTA fixed route and Northway Xpress rides (Figure 8). Day cards have been nearly eliminated and were formerly purchased on-board with cash, significantly reducing cash payments in the farebox. Pre-paid fare media is generally preferred, because it reduces dwell time, encourages customer loyalty, and offers built-in discounts that incentivize ridership.

In addition to fares, CDTA collects mortgage recording tax of 0.25% of the mortgage debt or obligation secured in its four county service area (minus $25.00 if the property is a 1 or 2 family dwelling). The tax is paid by the borrower. In 2019, New York State enacted a new 6% rental car surcharge in Upstate New York to support transit operations for Upstate transit systems like CDTA. The new tax took effect in June 2019.

Figure 8: CDTA Fare Utilization by Ride for 2014-2015 and 2018-2019



Transit Planning and Funding Summary

While CDTA has faced increased challenges with reduced ridership, increased expenses due to personnel costs and changes in technology, and changes in customer expectations, CDTA has been successful at planning for and getting access to significant capital project funding. These funds allow CDTA to maintain its fleet, to put high quality service where it is in most demand and to implement street level projects that greatly improve the comfort and convenience of transit customers. The Universal Access Program has greatly benefited CDTA and many customers while also supplementing CDTA's resources needed to operate the transit system efficiently and effectively. Once major capital projects such as the Blue and Purple Lines are constructed and fully operational, CDTC and CDTA expect to see the same, if not a greater level of success than the Red Line.

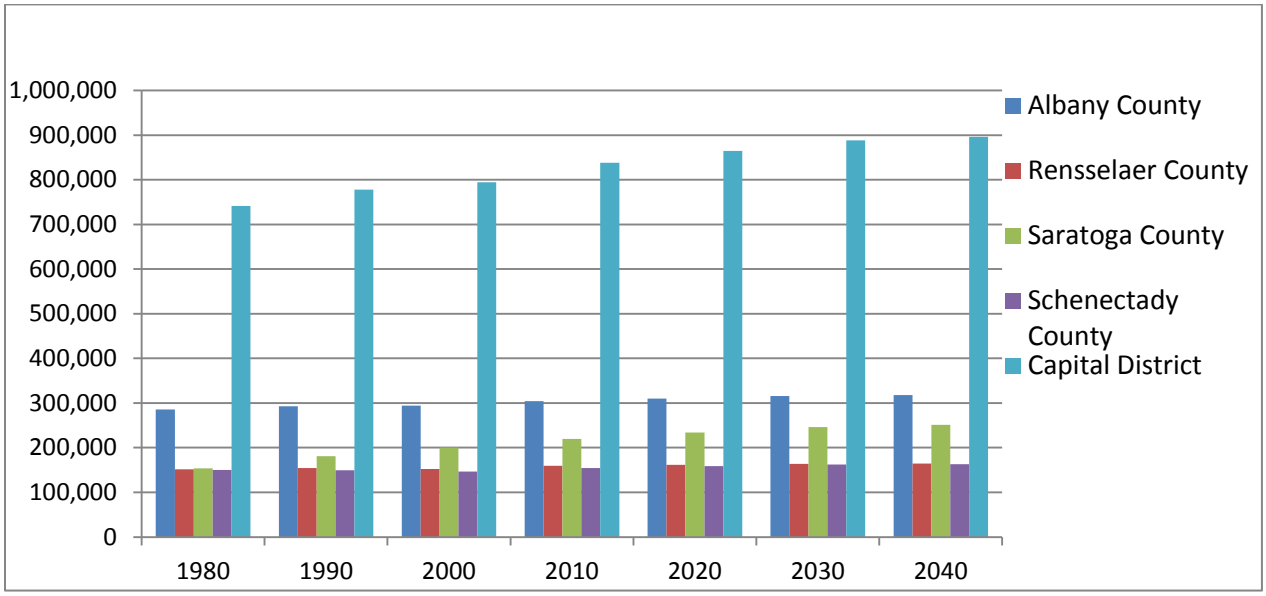
TRENDS AND FORECASTS

Regional Demographics

Population Growth Projections

The Capital Region population is expected to grow modestly over the coming years. While growth may vary significantly within municipalities, the entire region is projected to grow by 3.2% between 2010 and 2020. Saratoga County is projected to have the largest population increase while Albany County will grow but not as quickly. Growth in Rensselaer and Schenectady Counties will remain flat. The region's population is forecast to approach almost 900,000 by the year 2040 (Figure 9).

Figure 9: Historic and Projected Capital Region Population: 1980 to 2040

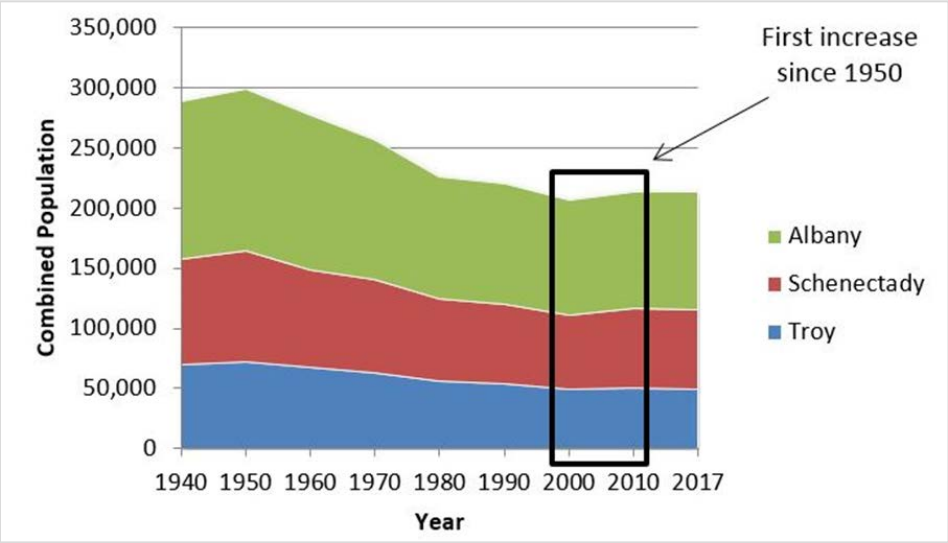


Source: US Census Bureau, 1980, 1990, 2000, 2010 Census; Capital District Regional Planning Commission (CDRPC) projections

City Population Changes

Over the past two decades, a half-century trend of the Capital Region's three central cities declining in population reversed, suggesting that fixed route transit may have an increased role to play as part of the region's future transportation system. In the 2010 U.S. Census, Albany, Schenectady and Troy experienced population increases for the first time since 1950 as shown in Figure 10. While this growth slowed over the following seven years, the net change was still positive.

Figure 10: Combined Population Change, 1940-2017

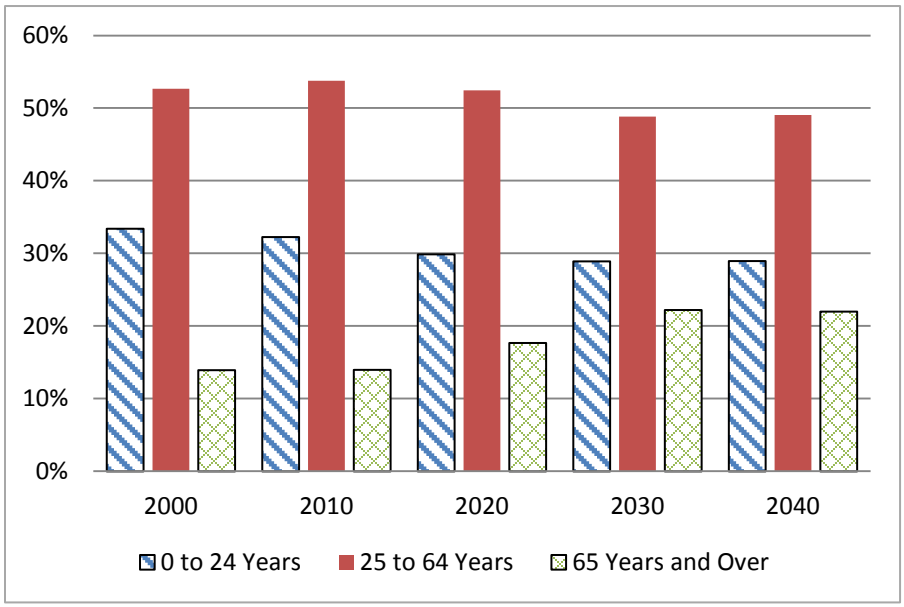


Source: CDTA

Aging Population

Growth projections are also continuing to indicate that the region is aging. Although overall population is expected to grow by 3.2%, the population of residents over 65 is expected to increase by 30% and represent over 22% of the region's population as shown in Figure 11. The aging of the population will likely increase demand for public transit and service costs will increase correspondingly. This impact will be felt the most on CDTA's STAR paratransit and other specialized services.

Figure 5: Percent of Regional Population by Age Group



Source: US Census Bureau, 2000 and 2010 Census; CDRPC

Equity

Achieving equity in the regional transit system is an ongoing goal. Equitable access to reliable and affordable transportation is essential to addressing poverty, unemployment, and a variety of other challenges. As the regional transit system continues to evolve, it is critical that equity be a major consideration, particularly for minorities, people whose income is below the poverty level, and those with limited English proficiency. These population groups tend to be concentrated in cities and older suburbs where fixed route transit exists and where transit investment is prioritized by CDTC and CDTA.

To illustrate that relationship, the maps in Figures 12 and 13 show CDTC's Transit Priority Network and census tracts with high percentages of low income and minority populations. Saratoga County has the smallest share of the Transit Priority Network of the region's four counties but also has the lowest overall concentrations of low income and minority populations. Minority populations are more concentrated in the region's largest cities, especially Albany and Schenectady while low income populations are even more concentrated in Albany, Schenectady and Troy. CDTA's services are more robust in these areas as these populations have a higher likelihood of using fixed route transit on a regular basis.

Every month, CDTA conducts an onboard survey of its passengers, administered by professional interviewers with randomly selected riders across CDTA's regular routes. The number of interviews conducted on each route is proportionate to that route's total ridership relative to all riders on regular routes. Of 3,754 passengers interviewed over 36 months, about 60% are minorities, and 70% have a household income under $25,000.

Additional details on demographics related to seniors, persons with disabilities, veterans and low income individuals, zero-vehicle households and individuals with limited English proficiency are provided in CDTC's Coordinated Public Transit-Human Services Transportation Plan (www.cdtcmpo.org/images/transit_human/CoordinatedPlan2019.pdf)

Figure 6: CDTC Transit Priority Network and Percent Minority

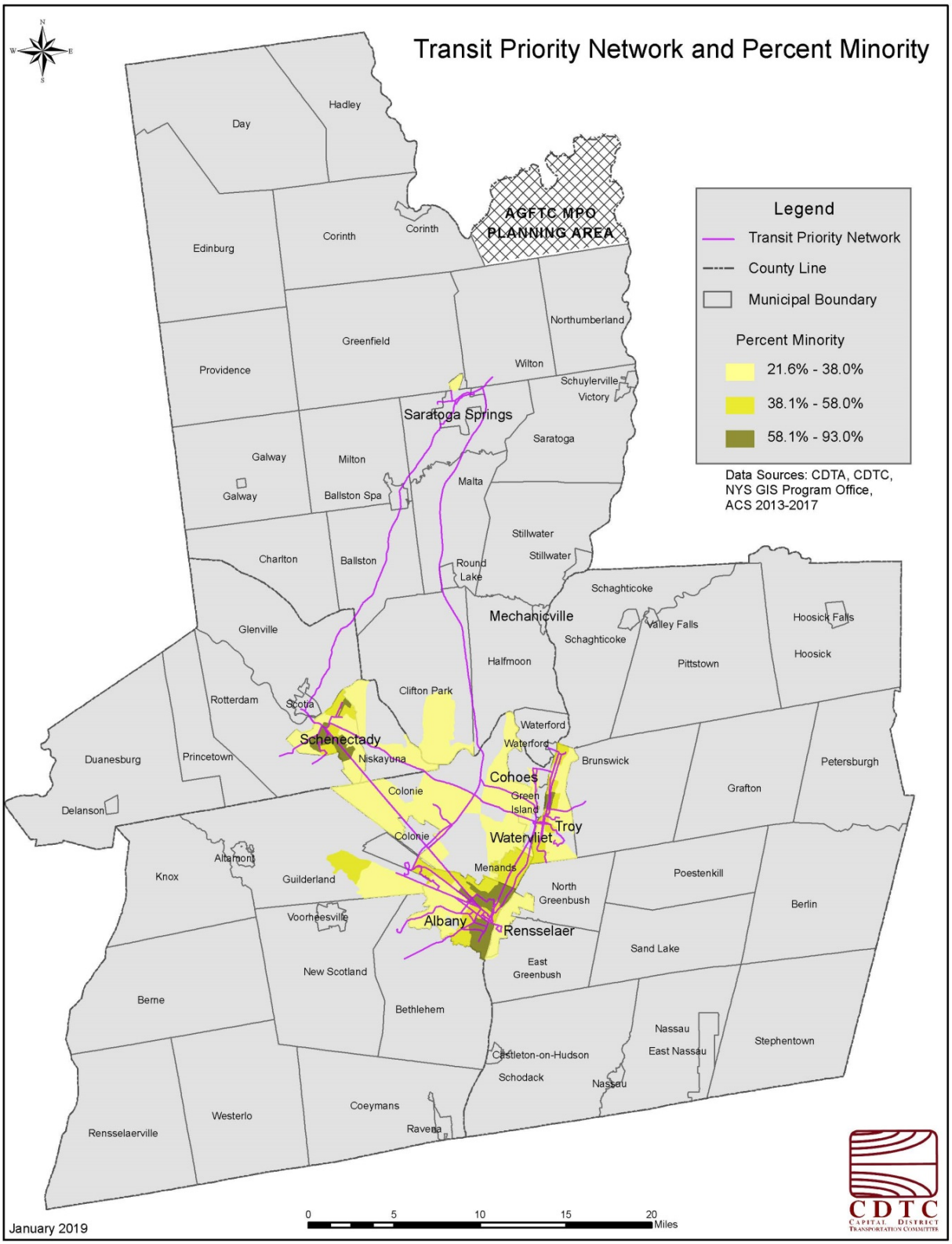
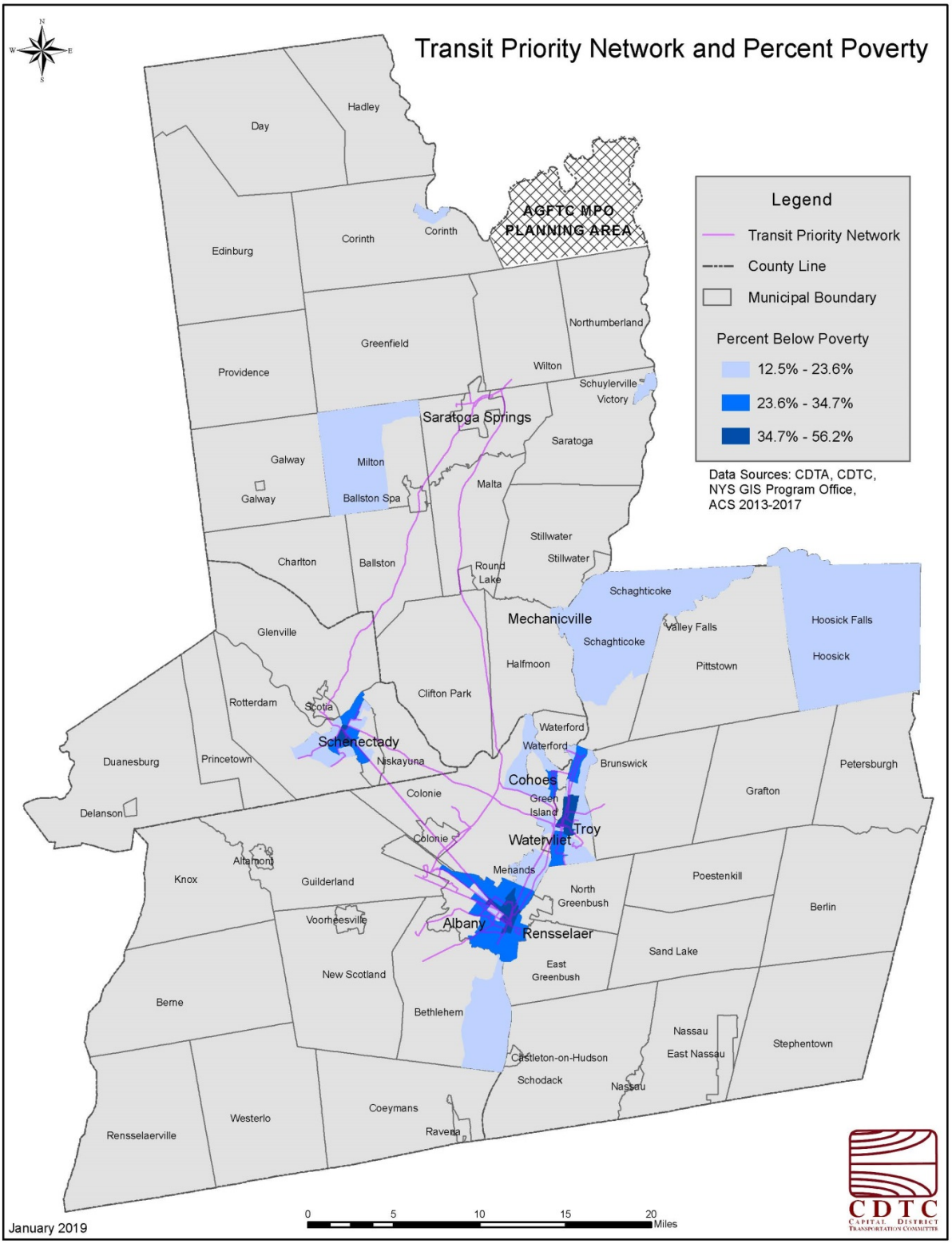


Figure 7: CDTC Transit Priority Network and Percent Poverty



Transit Propensity Index

Most development in CDTA's service area over the last 50-60 years has been designed to benefit and accommodate travel via private automobiles. Investing in new fixed-route transit service in low-density, suburban, and rural areas is generally not financially sustainable, as transit is unlikely to generate enough ridership to meet service performance standards and are therefore considered areas of low transit propensity. Residences and jobs migrated to these areas, characterized as having poor road connectivity, single family residences on large lots, and numerous households with two or more vehicles. However, in recent years some areas have begun to fill in roadway connectivity, added higher density residences with local services and jobs, and grown the percentage of households with one or no vehicles.

The Transit Propensity Index (TPI) takes a comprehensive view of relevant factors to determine where transit is most viable. CDTA first used a TPI with the 2007 Transit Development Plan. This Draft TPI, partially updated in September 2019, includes characteristics summarized in Table 12 and Figures 14 through 16 show where transit investments have the greatest potential to be beneficial based on those characteristics.

The Draft TPI is subject to change as CDTA continues to refine the data inputs as part of its 2020 Transit Development Plan update. Data is shown at the Block Group level, although some characteristics were only attainable at the Census Tract level. In those instances, all Block Groups in the Census Tract were assigned the same value for those characteristics. In addition, employment data was at the Block level and was aggregated to the Block Group level. Attributes at the Tract level are income below poverty, population and age, and households by vehicles. Since these are all demographic attributes, the ridership generators index appears to be more finely grained than the demographic index.

Table 12: Transit Propensity Index Data

DEMOGRAPHICS			
Category	**Maximum Points**	**Reason Included**	**How points assigned**
Percent with income below poverty level (American Community Survey)	10	Lower incomes more likely to use transit	Standard deviation
65+ population density (Census DP-1)	5	Senior use transit in disproportionate numbers	Standard deviation
Density of households with more workers than vehicles (American Community Survey)	10	People without personal vehicle access more likely to use transit	Standard deviation
Population Density (Census DP-1)	15	High density necessary for viable transit	Standard deviation
Density of 4-way intersections (NYS GIS Program Office, US Census)	10	Grid street patterns provide good transit and pedestrian access	Standard deviation
Subtotal	**50**		

TRANSIT RIDERSHIP GENERATORS			
Category	**Maximum Points**	**Reason Included**	**How points assigned**
Mall/Shopping Plaza (Previous TDP; 2012 Book of Lists)	10	Major destination, including of transit to work journeys	Square Feet per Square Mile 1-200,000 = 1; 200,000-300,000 = 2; 300,000-400,000 = 3; 400,000-500,000 = 4; 500,000-600,000 = 5; 600,000-700,000 = 6; 700,000-800,000 = 7; 800,000-900,000 = 8; 900,000-1,000,000 = 9; >1,000,000 = 10
Universities, Colleges (Previous TDP)	10	Students ride transit more; many have unlimited access	Students per Square Mile 1 – 499 = 1; 500 – 1,999 = 2; 2,000 – 4,999 =3; 5,000 – 9,999 = 4; >10,000 = 5
Hospital (Previous TDP)	5	Major generator	Beds per Square Mile - Points 1 - 99 = 1; 100 - 199 = 2; 200 - 299 = 3; 300 - 399 = 4; 400 - 499 = 5; > 500 = 6
Employment Density (LEHDODES*)	20	Work trips are frequent and have high transit use	Standard deviation
Employment Density (jobs less than $1,200/month) (LEHDODES*)	5	Workers at lower-income jobs likely to seek transit	Standard deviation
Subtotal	**50**		

**Longitudinal Employer-Household Dynamics Origin-Destination Employment Statistics)*

Figure 8: Draft Transit Propensity Index - Demographic Index

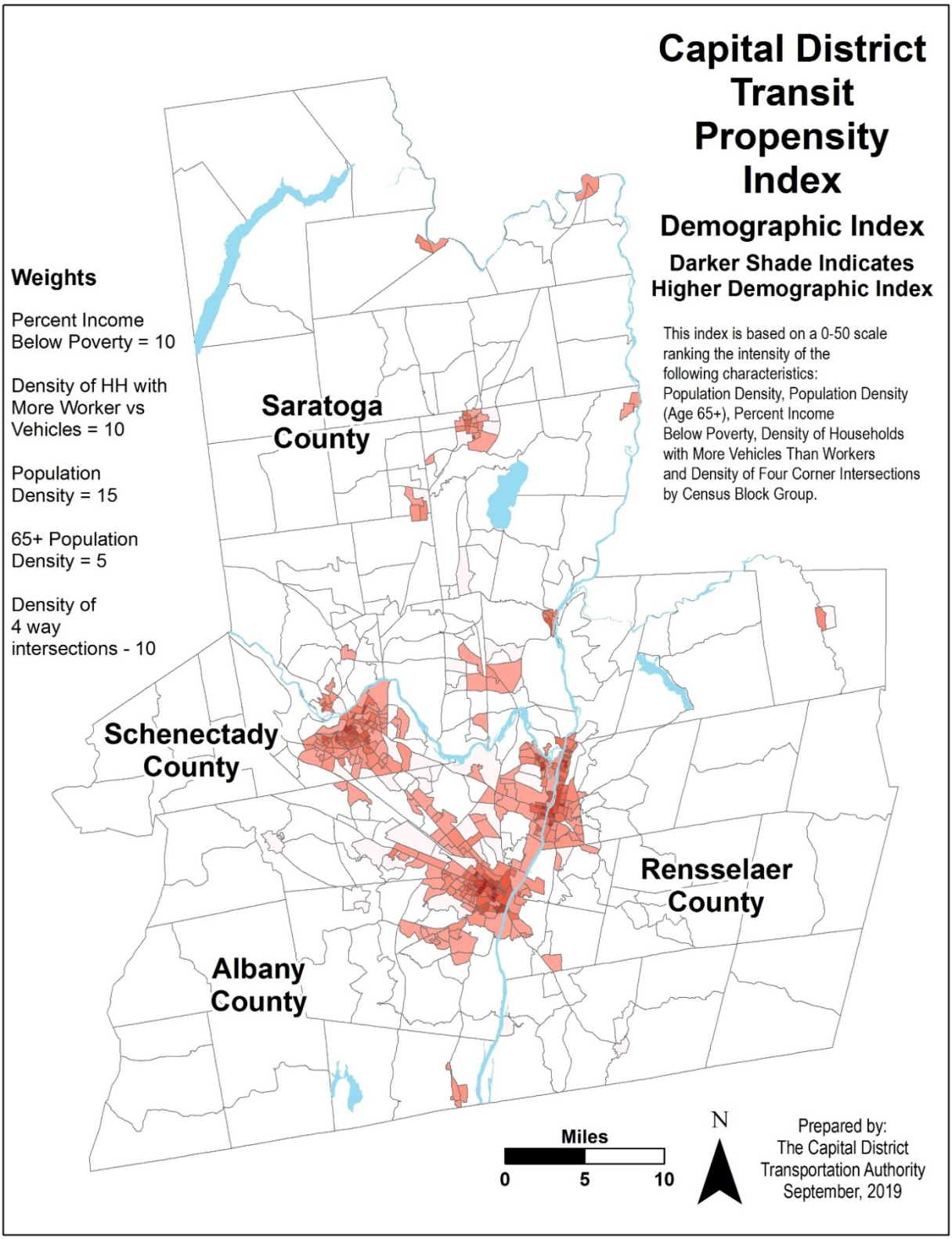


Figure 9: Draft Transit Propensity Index - Ridership Generators

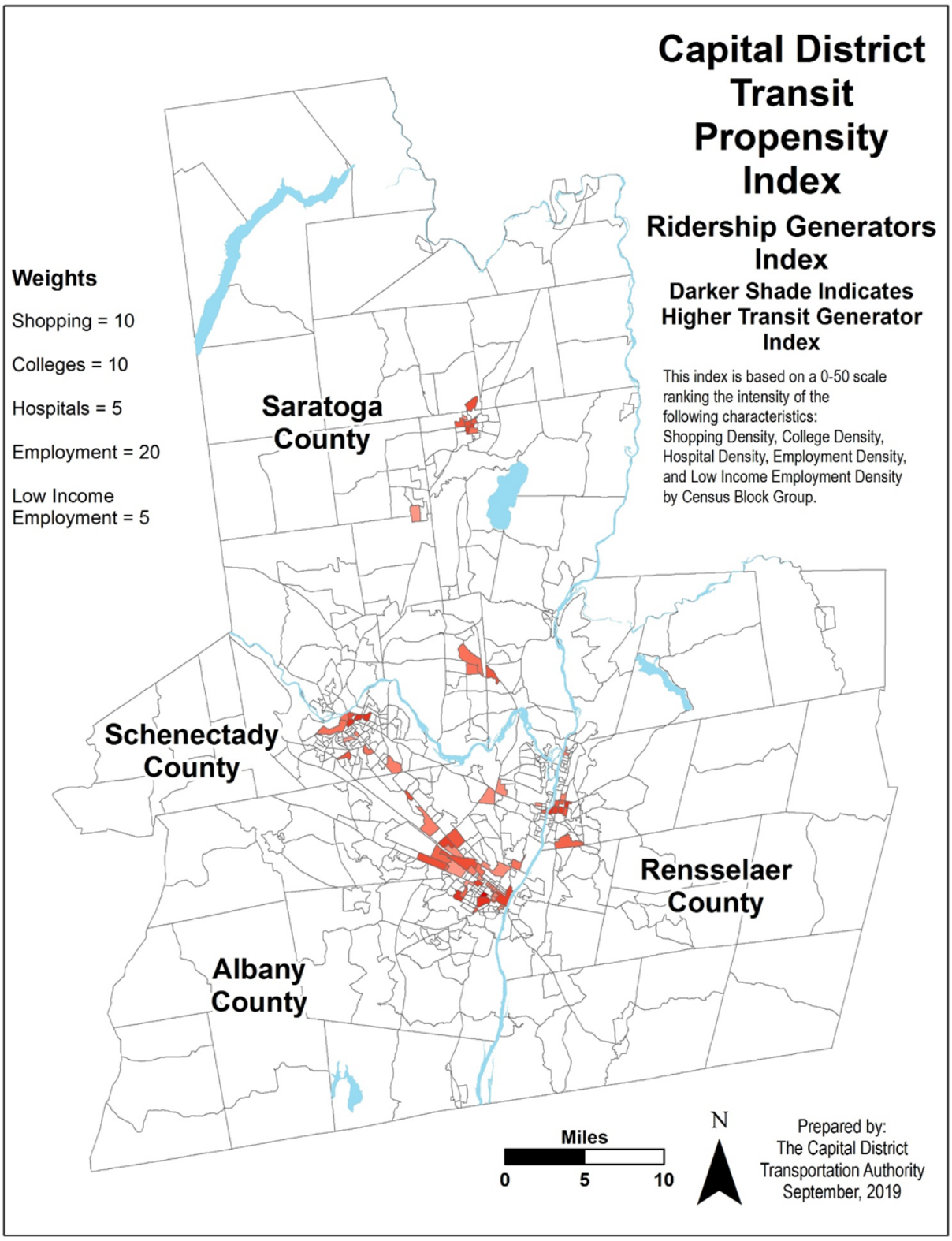
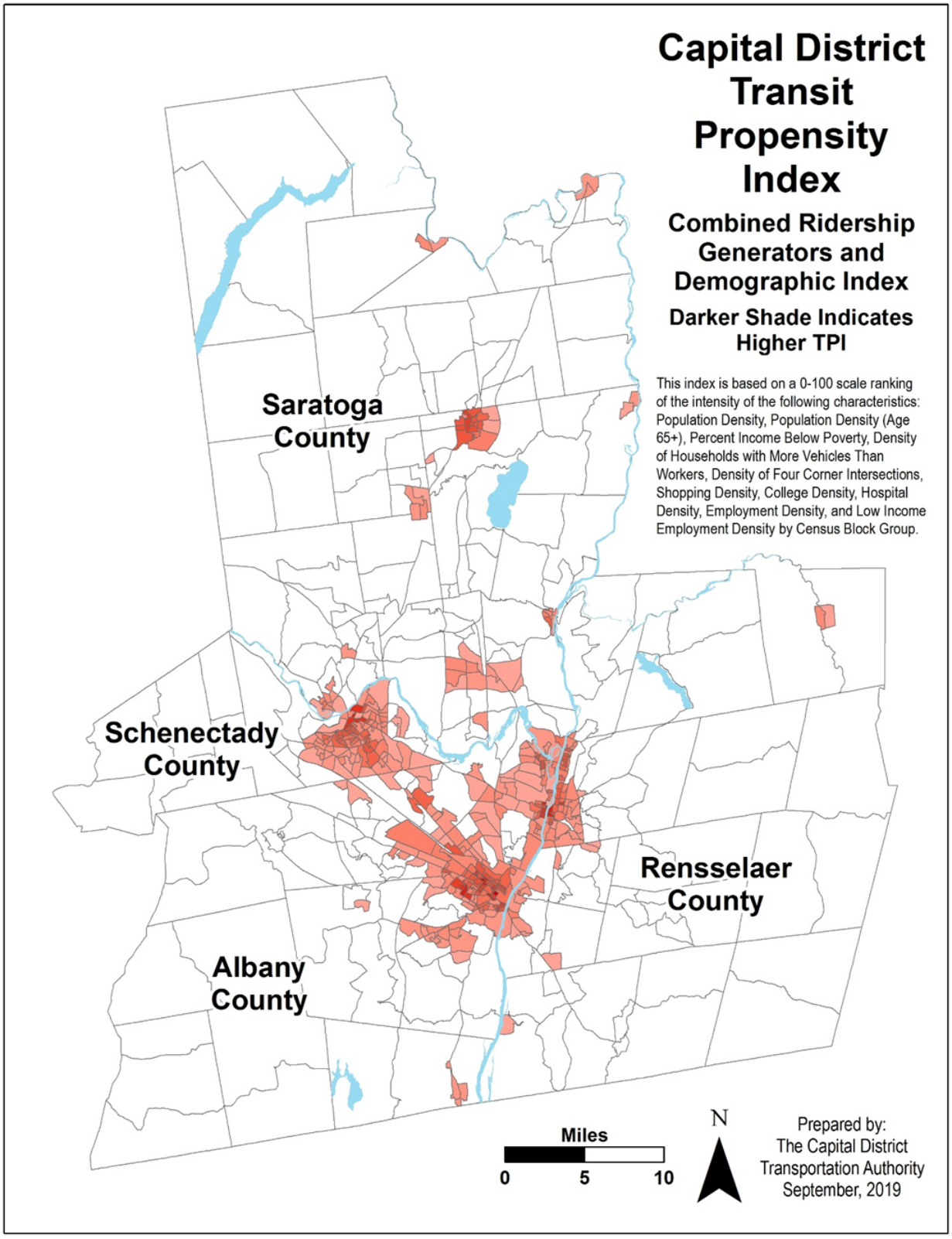


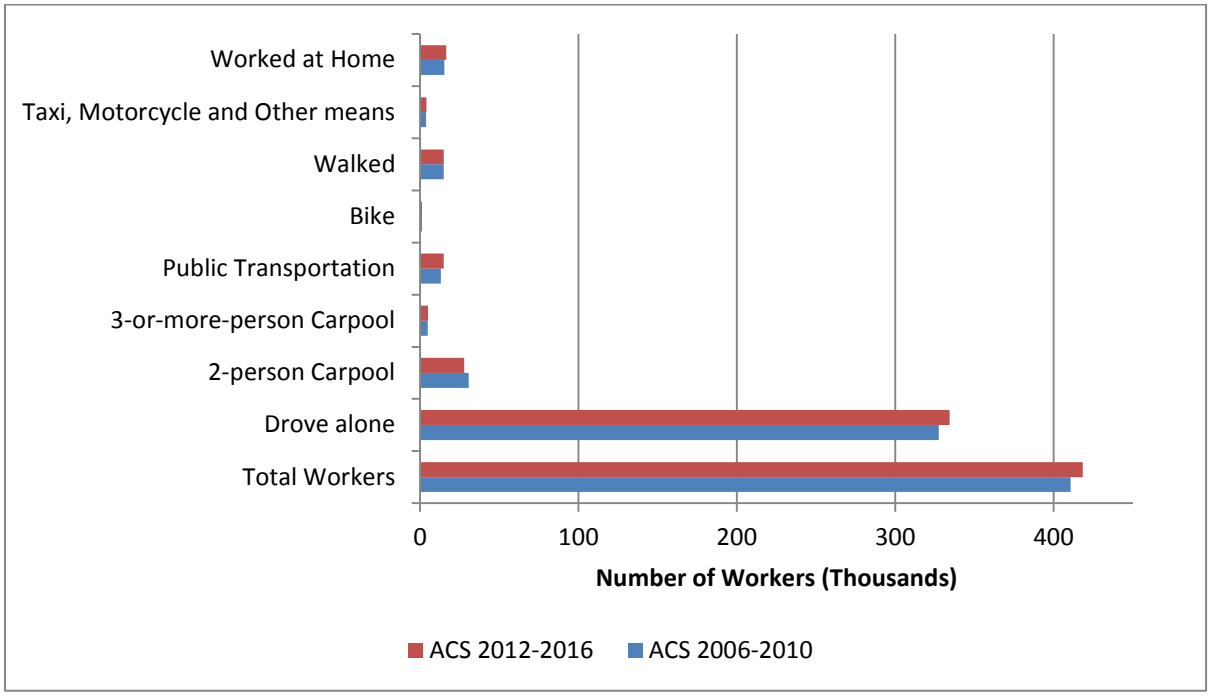
Figure 10: Draft Transit Propensity Index - Combined



Travel Mode to Work

The American Community Survey data shown in Figure 17 for the Regional Mode to Work between 2006-2010 and 2012-2016 indicate that slightly more workers are using public transportation in the region. Public transportation represents 3.6% of the 2012-2016 survey respondents, up from 3.2% in 2006-2010. In 2012-2016, over 14,800 individuals indicated they were using public transit to get to work, many of whom likely travel at peak travel times in the morning and evening. It should be noted that about 13% of both residents of color and residents whose income is below the poverty level use transit for the work commute.

Figure 11: Regional Mode to Work by Number of Workers



Source: 2006-2010 and 2012-2016 American Community Surveys (ACS)

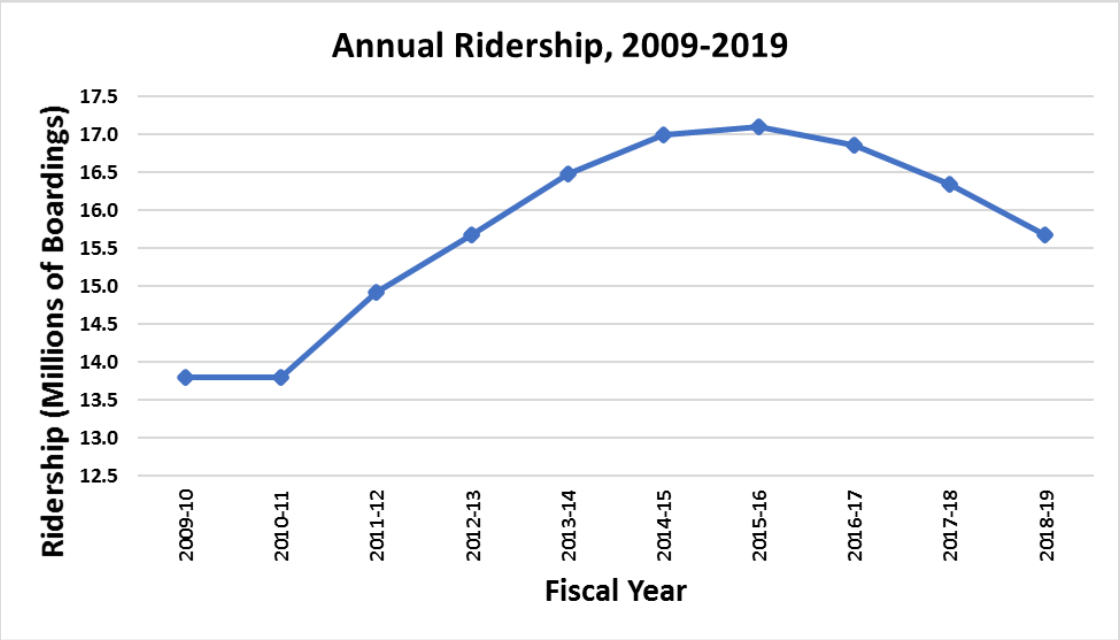
Ridership

Ridership on CDTA over the past ten years has fluctuated with a significant continuous increase in the first half of the decade, followed by a gradual tapering off in recent years. The ridership growth in the first half of the decade was likely spurred in part by:

- High gas prices ($3.40/gallon to $4.10/gallon in Albany between 2011 and 2014)
- 2011 implementation of BusPlus Red Line (NY5 BRT) which increased ridership by more than 25% in the corridor
- Expansion of Universal Access Program
- Completion of service restructuring initiatives in Albany, Rensselaer, and Schenectady Counties in 2010-12
- Service expansions on routes at capacity
- Fare and service restructuring of Northway Xpress

In 2015-16, CDTA's ridership surpassed 17 million for the first time in its 45-year history. Since reaching that peak, ridership has gradually declined through 2018-19 (Figure 18) although it remains at a higher level than in 2009-2010.

Figure 12: CDTA Ridership 2009-2019



Source: CDTA

CDTA has identified the following factors as possibly contributing to the recent downturn in ridership growth:

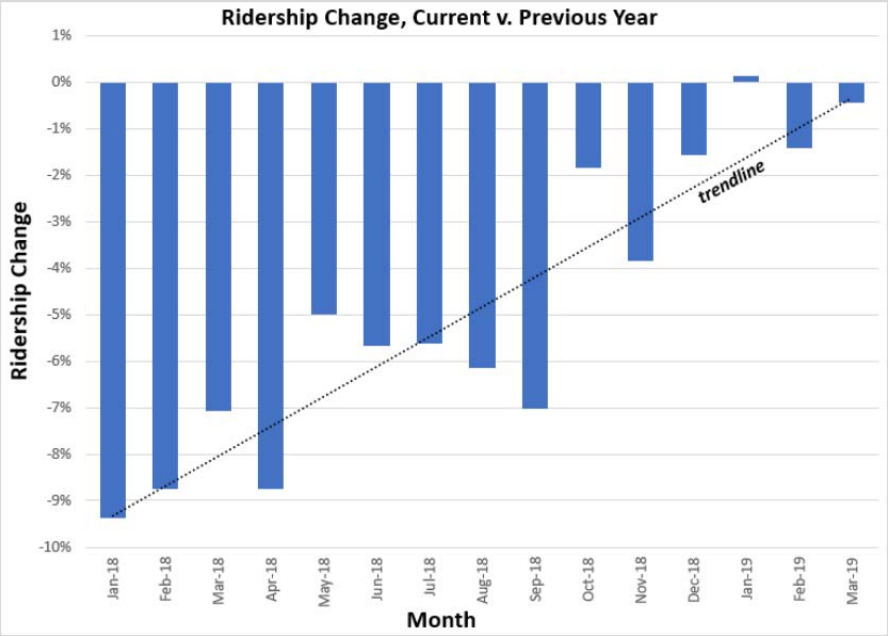
- National trend of declining transit ridership (According to the American Public Transportation Association, bus ridership is at its lowest levels since 1965)
- Lower gas prices (have not exceeded $2.90/gal in Albany market since late 2014)
- Introduction of ridesharing companies (e.g., Uber, Lyft) to Upstate New York in summer 2017. Research from the University of Kentucky indicates bus ridership can fall by 1.7% each year after ridesharing companies enter an urban market[4]. This decline may be higher in large urban areas with carpooling versions of Uber and Lyft (i.e. UberPool).
- Significantly harsher-than-average winter weather in 2017 and 2018
- 2018 to present: Introduction and slow adoption of Navigator fare collection system which may have resulted in undercounting of passengers as drivers may have been waving customers onboard when Navigator was not working or passengers were confused about the new system.

Although ridership has decreased over the last three years, the rate of ridership decline may be slowing based on 2018 and 2019 data (Figure 19). This may indicate that disruptions caused by

[4] Michael Graehler, Jr., Richard Alexander Mucci and Gregory D. Erhardt, "Understanding the Recent Transit Ridership Decline in Major US Cities: Service Cuts or Emerging Modes?," 98th Annual Meeting of the Transportation Research Board, 2018.

poor weather, the arrival of ridesharing to the region and changes as a result of the Navigator deployment may be leveling out.

Figure 13: Ridership Change between 2018 and 2019



Source: CDTA

Land Use

Recent changes in regional development patterns suggest that new construction is beginning to shift in the direction of higher densities that promote walking and other travel options including transit, particularly in areas of concentrated development. This type of development is most important in urban downtown areas where transit is already readily available, increasing the likelihood that residents will use public transportation. Evidence of this shift is indicated by the increase in residents living within a ½ mile distance to a transit stop, currently at 55% of the population. While some of this is background population growth as the region continues to grow, albeit slowly, there are hundreds of residential units in the pipeline yet to be built, particularly in cities, which may result in even more transit customers.

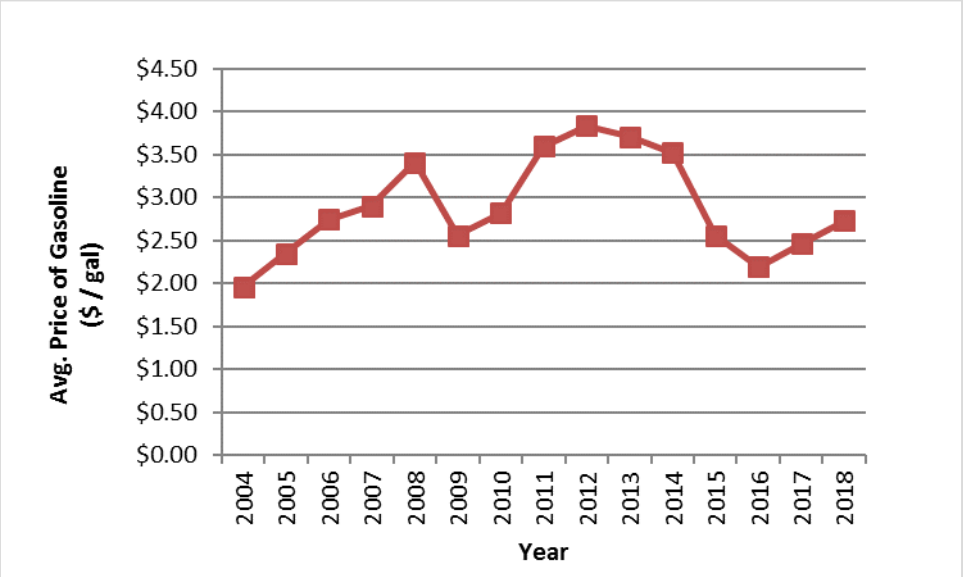
This emerging trend does not reverse the decades old trend of suburban, low density development which continues throughout the region. Of particular concern is large job centers locating in auto oriented suburban areas limiting access to jobs for those that are most in need. These low density areas are not easily served by fixed route transit but demand for transportation options is likely to increase in the future. These growth trends present a challenge for CDTA, as it is likely to experience future ridership gains but must find new ways to respond to increasing demand with services that best meet the needs of transit customers and the geography of the area being served.

Gasoline Prices

The price of gasoline is often closely tied to transit ridership. The automobile has been the preferred mode of travel in the United States for nearly 50 years because gasoline is available at low price points. CDTA saw significant ridership gains in 2008-09 and again from 2010-2016, in large part due to high gas prices that remained for an extended period. Since 2016, the average price of gas has stayed below $3 per gallon (see Figure 20), likely contributing to CDTA's decreasing ridership over the same period.

While CDTA's system is positioned to succeed independently of the volatility of gas prices, higher gas prices in general make people more likely to consider transit as an option. However, CDTA's ridership data for 2017 and 2018 indicate that despite increasing gas prices, corresponding ridership increases are not occurring, supporting the idea that other disruptions such as ridesharing are having a greater impact on transit ridership.

Figure 14: Average Price of Gasoline in Albany, 2004-2018



Source: CDTA

Mobility as a Service (MaaS)

CDTA has expanded its transportation options beyond traditional fixed route transit service including bike share, carshare, microtransit and vanpools. These services along with Transportation Network Companies (i.e. Uber and Lyft) may be part of a national change in the private vehicle ownership model. Subscription or on-demand services may replace owned private vehicles with CDTA expanding the range of services being offered, especially if scooters and electric bicycles are legalized in New York State. Trip subsidies and partnerships with Transportation Network Companies or other private companies offering innovative transportation services may also be explored by CDTA. Mobility as a Service has great potential to alter the future of the transportation system but these services must remain accessible to all, especially people with disabilities. Aside from wheelchair accessible vehicles, vehicles that allow service animals, audible information for those with low or no vision and accommodations for those who use mobility aids other than wheelchairs should all be available.

Technology and Sustainability

Changing technology has radically altered the future of fixed route transit. Customer expectations have dramatically increased as the result of instant information being available on smart phones, impacting the need to improve on-time performance and increase on-demand services such as microtransit, bike share and carshare. Most importantly, there will be a future need to use mobile application technology to integrate access to CDTA's suite of transportation options and to possibly incorporate all transportation modes into the CDTA payment structure. Right now, CDTA does not have a way to use mobile payments on STAR and Navigator cannot be used for the Bike Share or carshare programs.

Future technology is also impacting the transit vehicles themselves. Public demand for a cleaner vehicle fleet that shifts from low-sulfur diesel toward more sustainable fuel options has increased, particularly in neighborhoods with poor air quality from vehicle emissions. Bus companies are working rapidly to meet this growing demand and CDTA purchased four electric buses and installed electric vehicle chargers at its Albany garage in 2019. As New York State continues to incentivize and require public entities to operate a cleaner fleet, expectations for additional investment in electric buses are high.

Looking even further into the future, automated transit vehicles are being tested in Las Vegas and in other parts of the country. Experts believe automated vehicle technology will be available first for freight and transit vehicles with automated transit vehicles first being deployed in areas with bus only lanes. Time will tell how quickly this technology evolves and how transit agencies like CDTA deal with issues such as driver unions, cyber security, safety on the street and customer needs remains to be seen.

Summary

These demographic, ridership and other societal trends along with the overall recent performance of CDTA's transit system indicate a need to rethink some aspects of the system in the next ten years. Detailed proposals will be more thoroughly addressed in CDTA's Transit Development Plan but likely changes may include increasing service on high priority corridors, reducing the overall geographic coverage of fixed route transit and replacing it with new mobility options such as microtransit. In addition, it is likely that BRT will be further expanded, investments will be made in fleet upgrades and facility expansions and the development of mobility hubs and transit centers will continue.

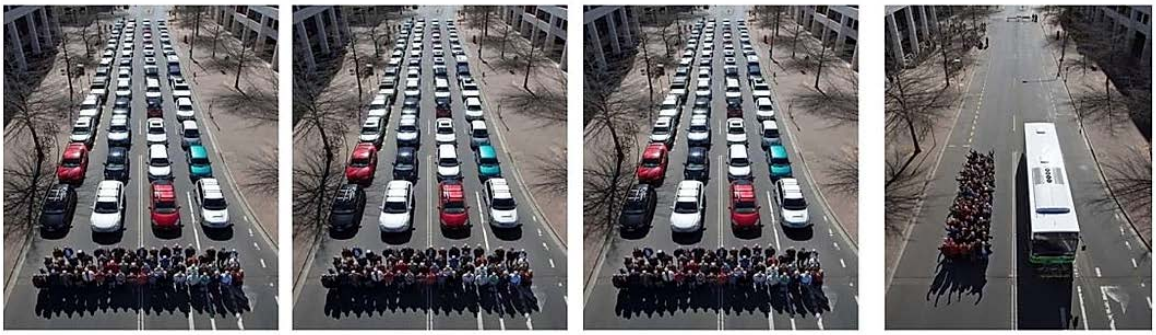
Changes to the transit system will need to carefully consider issues of equity and our aging population which may have increased home health care needs in the future that cannot be met by those residing in their community. Ensuring that there are affordable transportation options for workers to access jobs and for seniors to access medical appointments and other services will increasingly stress and already strained transit system if the region continues to grow as it has in the past. More emphasis on created transit oriented development which provide for population densities that can be more efficiently served by public transit will help.

9. New Visions 2050 Scenarios

As the New Visions plan looks out to 2050, there are many uncertainties that have the potential to disrupt future transit use in ways that cannot be imagined today. CDTC identified four regional growth scenarios and the Transit Task Force reviewed their potential impacts on transit. The following discusses the baseline assumptions for transit in all four growth scenarios and the specific transit impacts of each growth scenario.

- Transit vehicles will primarily use non-carbon fuel sources and will likely be 100% electric
- 40 miles of enhanced Bus Rapid Transit (BRT) will be fully implemented (Red, Purple and Blue Lines)
- Autonomous personal Vehicles (AV) will be extensively deployed
- Autonomous transit vehicles may eliminate the need for a human driver significantly reducing the cost of operations
- CDTA fare media will include all CDTA services (transit buses, bike share, future options)
- Fixed route transit stations or stops will be routinely connected to sidewalks, trails and other walking and bicycling infrastructure
- "Lifeline" transit that connects all members of the community with employment, health, educational, and other important opportunities and services will remain necessary
- The overall transportation system will be safer
- Transit vehicles will remain the most efficient way to move the most people using the least amount of space

Space Required to Move 60 People:



Cars Rideshare Autonomous Vehicles Bus

Source: Transportation Gazette
https://www.thetransportationgazette.com/post/technology-will-not-save-us

Scenario 1: Base-Year 2050 Trend

This scenario uses the population, employment, and land-use forecasts that are incorporated in CDTC's travel demand model, which was used in the New Visions 2050 plan update. In this scenario, the gradual adoption of connected/automated vehicles (CAV's) would not change

trend land use and development patterns. Mobility as a Service (MaaS) would increase without dramatically changing travel behavior.

Transit Impact – Fixed Route Transit is Strained

Recent ridership declines may stabilize as the disruption caused by ridesharing in 2017 levels out. Over time, trend development patterns will slightly increase population in cities, but higher growth will continue in Saratoga County and faster growing suburbs. Fixed route transit will be strained, forcing the system to contract at a time when regional demographic data indicates potential increased demand for transit. CDTA would focus on keeping core fixed routes strong and restructure, identify alternatives or eliminate unproductive fixed route services. In the long term, deployment of automated vehicles for personal use and for transit could lead to additional disruptions in transit ridership and service that are extremely uncertain today.

Scenario 2: Sprawl Development

This scenario assumes that adoption of CAV technologies will encourage development further from areas of concentrated development. Some commentators suggest this will be the case, as people traveling in CAVs will view commuting travel time as potentially productive. Private ownership of vehicles would remain similar to current ownership rates, and MaaS would be limited to areas of concentrated development, especially cities. The result would be increased sprawl development patterns beyond trend. This land-use pattern would run counter to the New Visions Plan goals. Provision of fixed route transit service would become more challenging.

Transit Impact – Fixed Route Transit Not Viable

Ridership declines will accelerate, threatening the viability of core fixed route transit services as population in denser cities declines. CDTA's role could be limited to providing just a few core urban routes with very limited on-demand lifeline transportation services in suburban or rural areas. In the long term, widespread adoption of automated personal vehicles, particularly if affordable and available to all individuals with disabilities, could eliminate the need for public transit entirely.

Scenario 3: Concentrated Development

This scenario assumes that living in areas with concentrated development will be made more attractive through new transportation options like MaaS and CAV technologies. In addition, this scenario assumes a high level of reinvestment and transit investments that encourage construction of transit-oriented development in the region's urbanized areas. New paradigms would increase the importance and success of transit. Success of MaaS and CAV technologies could lead to reduced private ownership of vehicles. This land-use pattern furthers the New Visions Plan development goals.

Transit Impact – Fixed Route Transit Beneficial

Fixed route transit thrives in higher density areas and a future development pattern that supports areas of concentrated development would be beneficial. CDTA could maintain a more traditional route hierarchy with the potential for additional higher end fixed route services as density and demand increase. Fixed route transit would be extremely limited in suburban and

rural areas without nodes of density. Fixed route transit vehicles would need to be given priority on surface streets, likely with bus only lanes, queue jumpers and transit signal priority. Driverless transit vehicles could allow for the reallocation of resources to provide additional transit services. Transit will remain critical in a fully deployed automated vehicle future in order to maintain the efficient movement of people using the least amount of space.

Scenario 4: Concentrated Development with Financial Incentives

This scenario uses the land-use assumptions from the Concentrated Development Scenario to explore the impacts of increasing household transportation costs. This could result from instituting several pricing options, including a carbon tax, a VMT tax or fee structures to encourage ridesharing in MaaS. Many commentators predict that without the support of fee structures to encourage ridesharing with MaaS, congestion could increase because of increased vehicle miles of travel.

Transit Impact – Fixed Route Transit Vital

A future development pattern that supports urban areas in combination with increased transportation costs for personal vehicle use would make fixed use transit vital. CDTA could grow the fixed route transit system as demand would be high, adding many more BRT routes or other higher end transit services such as light rail. Demand would also increase in suburban and rural areas as personal transportation costs increase. Transit would need to receive high priority on surface streets, likely with a vast network of bus lanes.

Table 13: Fixed Route Transit Impacts of Development Scenarios

Major Considerations in Scenarios	Base Year 2050 Trend	Sprawl Development	Concentrated Development	Concentrated Development with Financial Incentives
Overall Assessment	Transit Strained	Transit Not Viable	Transit Beneficial	Transit Vital
Fixed-route transit efficiency	Declines	Significant Decline	Challenged to keep up with demand	Extremely challenged to keep up with demand
Farebox revenue	Declines	Significant Decline	Increases somewhat	Increases
Number of CDTA fixed-route transit routes	Decreases	Significant Decrease	Increases	Increases significantly
New BRT or fixed-route transit services	Limited	Not Possible	Likely	Necessary
Fixed-route transit services outside concentrated development areas	Limited	Eliminated	Limited	Needed
“Lifeline” fixed-route transit services	Reduced	Eliminated	Increase	Needed
Operations Funding	Limited to current system	Significantly reduced	More needed	Great need
Public MaaS coverage	Limited to inner suburban areas	Limited	Likely everywhere	Needed everywhere
Public MaaS Profitability	Not profitable	Not profitable	Break even	Some profit
People with Disabilities/Equity	Transportation options reduced	Transportation options significantly reduced	Transportation options increase	Transportation options significantly increase

10. Principle, Strategies and Actions

Transit Principle

The desired land use scenario for transit is one that includes concentrated development patterns. Improving transit service, making transit more accessible and keeping it affordable are all basic principles that the region should adopt as part of New Visions 2050. Therefore, CDTC's Transit Task Force recommends that the transit planning principle be updated as follows:

Innovative and viable transportation services support concentrated development by providing equitable access to reliable and affordable transportation.

The future transit system will:

- Be an essential element of the region's social, economic, and cultural fabric
- Provide high quality fixed route transit in core areas of the region
- Reduce congestion, improve air quality, and save energy
- Form the backbone for managing travel demand
- Provide essential mobility for those who do not operate a private vehicle

Strategies and Actions

CDTA Initiatives

1. **Update and Implement the Transit Development Plan** – CDTA will be updating its Transit Development Plan (TDP) in 2020. The TDP will include a five to ten year project list, an updated Transit Priority Corridor map, updated system performance and transit propensity index data, and updated service change criteria. Once completed, CDTA will use the plan as a guide for its planning and capital programs. CDTC will coordinate with CDTA to ensure consistency between the TDP and New Visions 2050.

2. **Complete and Upgrade 40 Miles of Bus Rapid Transit** – CDTA will prioritize the completion of the Washington/Western and River Corridor BRT projects creating 40 miles of BRT. As these projects are implemented, CDTA should plan to upgrade what is now basic BRT to enhanced BRT that incorporates off-board fare collection, additional articulated buses, additional queue-jumpers, stations with level boarding, increased service frequency and bus only lanes. Enhanced BRT corridors should also incorporate the latest in transportation technologies, making them "Smart Corridors".

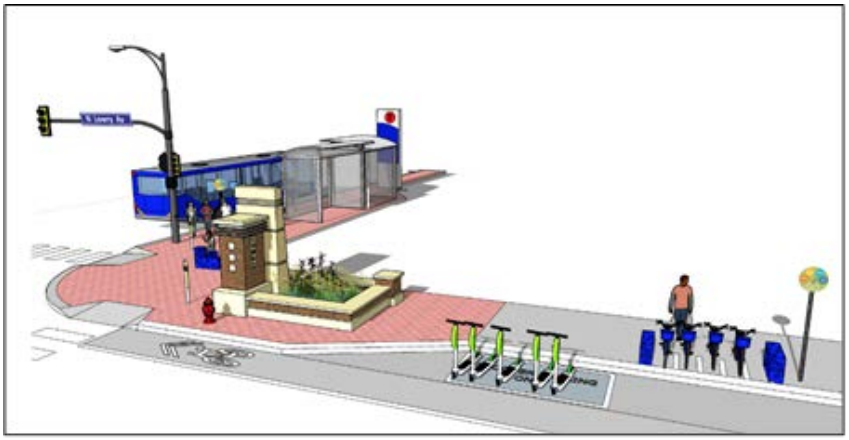
3. **Study the Feasibility of Bus Lanes and Future BRT Lines** – CDTA will partner with CDTC to undertake a bus lane feasibility study. Bus only lanes are going to be implemented as part of the Washington/Western Corridor BRT project and are increasingly seen as the primary tool to improve the efficiency of public bus transportation. The feasibility study should consider bus only lanes, shared bus/parking lanes and shared bus/bike lanes in BRT corridors and other high ridership transit corridors. In addition, CDTA should work with CDTC to evaluate the feasibility of future BRT lines in the region.

State Street Bus-Only Lanes Proposal from 2008 NY5 BRT Plan

4. **Communicate Land Use Impacts on Transit** – Communicate with state agencies and local governments about the impacts of their decisions on the provision of transit service. State agency funding programs and local government land use decisions can inadvertently encourage people to move to locations without transportation services. Land use decisions can enable facilities with high transit propensity to locate in priority transit corridors.

5. **Support State Worker and Large Employer Transportation Options** - CDTA plans to submit a proposal to the state to operate transit service for state employees through a universal access program, allowing state employees to ride on any CDTA bus for free. If approved, this service could have far reaching impacts on transportation demand management, traffic congestion reduction, improved commuter services and could resolve some parking challenges in downtown Albany. Expansion of the Universal Access Program to include large employers, residential and commercial developers as well as access to more transportation options such as bike share and carshare is desired.

6. **Develop and Monitor Transit Related Pilot Programs** – CDTA should pursue pilot projects that support transit such as bus lanes, mobility hubs at transit stops, shared transportation services, scooters (if legalized in New York State), automated transit vehicles and other options not yet imagined. Pilot projects offer the benefit of testing an idea in real time with a focused public process. CDTA and CDTC should monitor the performance of pilot programs such as microtransit and if successful, document opportunities to restructure the fixed route system to be more cost effective and efficient. A pilot commuter program with Amtrak and inter-city transit providers could also be explored.



Conceptual Rendering of a Mobility Hub in Minneapolis, MN

7. **Plan for an Albany Intermodal Center and Additional Transit Centers** – CDTA will participate on a New York State Intermodal Task Force to plan for a new Intermodal Station in downtown Albany. This project would be part of a larger initiative to redevelop a section of Albany focused on Liberty Park. CDTA is also planning for additional transit centers like the one at Crossgates Mall and should explore mobility hubs.

8. **Invest in a Safe and Sustainable Transit Fleet** – CDTA should ensure the transit fleet is maintained in a state of good repair. Fleet modernization should include a shift toward 100% non-carbon based fuels, starting with the introduction of electric vehicles. Electric buses in revenue operation should be distributed equitably throughout the system to ensure Environmental Justice communities do not bear a disproportionate share of air pollution from transit vehicles. Adequate funding will be needed to meet CDTA's transit asset management targets and CDTA should communicate to state and local government roadway owners about the importance of maintaining pavements in priority transit corridors. CDTA's Agency Safety Plan and safety performance targets will be shared with CDTC.

9. **Plan for Montgomery County Transit Service** – Conceptual planning for Montgomery County Transit service provided by CDTA is underway. If CDTA secures funding and receives county approval to implement this service, integration into CDTA's current system and any impacts will need to be monitored to ensure existing service is not harmed. CDTA should coordinate with CDTC on the planning for transit centers to support connections to Montgomery County routes in Albany and Schenectady.

10. **Explore the Need for a Consolidated CDTA Facility** – CDTA's garage facilities in Albany, Schenectady and Troy will be expanded over the next four years. However, future expansions at current sites may not be possible and with more articulated and electric buses entering CDTA's fleet, more garage space may be needed. A study should be undertaken to explore the potential for a consolidated facility at a central location in the region.

11. **Develop an App for Public Transportation Services** – The technology exists to book trips for transportation services via a smart phone application. CDTA or another entity should develop an app that combines all transportation service bookings (i.e. STAR, bike share, Medicaid trips, microtransit, etc.). CDTA call center and/or IT support would be required to maintain the App and provide customer service. This effort will simplify and improve transfers between transit and alternative travel options.

12. **Explore Conversion of Enhanced BRT to Light Rail** – If BRT Lines are fully upgraded to become Enhanced BRT, community land use policies lead to the construction of transit oriented development, and ridership as significantly increased, conversion to light rail could be considered.

CDTC Initiatives

1. **Adopt Consolidated Performance Measures for Transit** – CDTC's New Visions 2040 regional transit performance measures should be consolidated based on the update of CDTA's Transit Development Plan. Measures such as system ridership, productivity and access will likely be included. The data needed to evaluate CDTC's transit performance measures should be collected.

2. **Revise Transit Priority Network and Merit Scoring Process** – In two or three years, CDTC will update its Transportation Improvement Program (TIP). By that time, CDTA's Transit Development Plan and related Transit Priority Corridor Map will be completed. Prior to the update of the next TIP, CDTC will update its Transit Priority Network Map, TIP Merit Score methodology and will entertain updated or amended Transit Set-Asides.

3. **Develop a Transit Access Toolkit** – Develop a toolkit that includes location efficient land use (compact, mixed used), site design and transit stop design best practices and policies for use by local government. The toolkit should identify thresholds that would trigger CDTA's involvement in site plan review and should provide guidance to local governments. Best practices on incorporating transit infrastructure into capital projects, transit level of service methodologies, transit oriented and transit supportive land development as well as the needs of the region's aging population, people with disabilities, individuals without access to a private vehicle and low income individuals should also be incorporated.

4. **Develop a Regional Parking Policy Guide** – Through CDTC's Mobility Management Program, develop a guide for local governments on parking that provides best practice policies and parking management tools. This initiative would be supported by the recommendations of the Mobility Management White Paper which include conducting a parking inventory of the region's densest city and village areas and convening a Transportation Demand Management and Parking Symposium.

5. **Support Replacement of the Livingston Avenue Bridge** – Continue to support replacement of the Livingston Avenue Bridge to maintain safe and efficient movement of Amtrak passenger and freight rail. Incorporating a pedestrian connection between Albany and Rensselaer remains a high priority.

6. **Support High Speed Rail and Electrification** – Support high speed rail and electrification initiatives in the Capital Region, between Albany and New York City, and throughout New York State.

- Page intentionally left blank-

Appendix

Appendix A:
New Visions 2040 Performance Measures

Access to Transit

Viable transit requires easy access to the system for a significant portion of the population. The following measures (Table 1) track the percent of the region's population living within a 5-minute (1/4 mile) and 10-minute (1/2 mile) walk to a transit stop. Between 2015 and 2019, the percentage increased for those living within ¼ mile of transit but the percentage remained flat for those living with ½ mile of transit.

Table 1: Percent of Population Within ½ Mile and ¼ Mile of a CDTA Transit Stop

Year	Regional Population	Population within … of transit stops		% Pop within … of transit stops	
		1/4 mi	1/2 mi	1/4 mi	1/2 mi
2015	845,933	348,011	466,483	41.1%	55.1%
2016	847,624	350,670	467,154	41.4%	55.1%
2017	850,251	350,656	468,470	41.2%	55.1%
2018	850,251	351,164	468,013	41.3%	55.0%
2019	850,251	354,641	468,682	41.7%	55.1%

Source: CDTA

Transit Use

Transit use is measured in terms of system ridership changes over time. Between the 2015-2016 and 2018-2019 fiscal years, total boardings have decreased (Table 2).

Table 2: CDTA Boardings by Year

Fiscal Year	Total Boardings	Change (#) vs. Previous FY	Change (%) vs. Previous FY
2015-16	17,106,322	105,529	1%
2016-17	16,870,207	-236,115	-1%
2017-18	16,343,448	-526,759	-3%
2018-19	15,687,239	-656,209	-4%

Source: CDTA

Transit Cost Effectiveness

Transit cost effectiveness is measured as the boardings per revenue hour of service, often referred to as productivity. CDTA reports its average productivity using national classifications of service types to the FTA National Transit Database (NTD). Per FTA's definitions, CDTA's service types include commuter buses (contracted transportation provided by Upstate Transit for the Northway Express Service), demand response through STAR (paratransit service provided directly by CDTA), demand response through Capitaland taxi (contracted service at the Rensselaer Rail Station) and A+ Meditrans (contracted medical trips), directly operated

CDTA buses for fixed route service and the regional vanpool program (subsidized by CDTA and operated by Commute Enterprise). According to the NTD data (Table 3) available for 2014 and 2017 (the most recent year available), overall CDTA productivity is declining.

Table 3: Average Boardings per Revenue Hour of CDTA Service (Productivity) by FTA Mode

Mode Type	2014 Average Productivity	2017 Average Productivity	Percent Change by Mode Type 2014-2017
Commuter Bus (operated by Upstate Transit)	22.4	17.5	-21.9%
Demand Response (STAR operated by CDTA)	1.9	2.0	5.3%
Demand Response (Capitaland, A+ Meditrans)	3.7	1.6	-56.8%
Bus (Directly Operated)	25.9	23.9	-7.7%
Vanpool (Commute Enterprise formerly VPSI)	5.5	6.0	9.1%
Total	22.3	19.4	-13.0%

Source: National Transit Database

CDTA's productivity is also tracked using its own transit route classification system. CDTA has five classifications based on a minimum number of boardings as shown in Table 8. A productivity target was established for each class (Table 4) with trunk routes and the one BusPlus route combined. In 2018-2019, CDTA met its ridership targets for BusPlus, Trunk and Neighborhood routes but did not meet the targets for Express and Commuter routes. Over time, overall productivity has declined.

Table 4: Average Boardings per Revenue Hour of CDTA Service by Year and Route Class

Fiscal Year	Trunk/BusPlus (250,000+ boardings)		Neighborhood (100,000+ boardings)		Express (30,000+ boardings)		Commuter (16,000+ boardings)	
	Rides/Revenue Hour	Target	Rides/Revenue Hour	Target	Rides/Revenue Hour	Target	Rides/Revenue Hour	Target
2015-16	30.5	25	19.5	15	19.1	20	16.5	12
2016-17	29.7		18.5		16.8		13.7	
2017-18	28.7		17.0		18.3		12.5	
2018-19	25.7		15.5		16.7		9.8	

Source: CDTA

Transit Quality of Service

Transit Quality of Service is determined by measuring headways, service span, passenger loads, Bus Rapid Transit (BRT), on-time performance, bus stop spacing and street amenities.

Headways

Headway measures the interval of time between vehicles moving in the same direction on the same route. CDTA's headway thresholds are provided in Table 5. Weekday peaks are

evaluated using the morning peak (6:00 a.m. to 9:00 a.m.) and/or the afternoon peak (3:00 p.m. to 6:00 p.m.), whichever headway is more frequent, expressed in minutes. For routes that do not have consistent peak period headways, an average of the headways rounded to the nearest 5 minutes was used. Express and Commuter Routes are not evaluated based on headways. Using these assumptions, only two CDTA routes in 2019 (Table 6) are not meeting the weekday peak headway threshold. In addition, weekday peak headway increased between 2015 and 2019 on only one CDTA route (Route 286) from 30 minutes to 60 minutes. All other routes stayed the same or decreased.

Table 5: Threshold Headway Range by CDTA Service Classification

CDTA Service Classification	Weekday				Weekend	
	Peak	Midday	Evening	Late Night	Day	Early AM / Evening
BusPlus	10-15	10-15	15-20	20-30	15-20	20-30
Trunk	10-20	15-30	20-30	30	15-30	30
Neighborhood	30-60	30-60	60	60	60	60

Source: CDTA

Table 6: CDTA Routes Not Meeting Weekday Peak Thresholds in 2019

Routes Exceeding Threshold	Classification	Peak Weekday Headway				
		2019	2018	2017	2016	2015
7	Trunk	25	25	25	25	25
11	Trunk	24	24	24	24	24

Source: CDTA

Span

Span refers to the hours over which transit service is operated. Although ridership is lower at night, service must be maintained for jobs access, night classes, and socializing. Start of service is defined as the departure time at the first stop on the first trip of the day. End of service is the arrival time at the last stop on the last trip of the day. Thresholds are set for BusPlus, Trunk and Neighborhood routes but not for Express and Commuter routes (see Table 7).

Table 7: CDTA Span Thresholds

CDTA Service Classification	Weekday			Saturday			Sunday		
	Start	End	Total Hours	Start	End	Total Hours	Start	End	Total Hours
BusPlus	4:00 AM	2:00 AM	22:00	5:00 AM	2:00 AM	22:00	6:00 AM	1:00 AM	18:00
Trunk	5:00 AM	12:30 AM	19:30	6:00 AM	12:30 AM	18.30	7:00 AM	11:30 AM	16:30
Neighborhood	6:00 AM	9:00 PM	15:00	7:00 AM	7:30 PM	12:30	-	-	-
Express	Primarily Peak Periods			-	-	-	-	-	-
Commuter	Primarily Peak Periods			-	-	-	-	-	-

Source: CDTA

All trunk routes start service no later than 6:00 a.m. but end as early as 11:26 p.m. on weekdays except Route 11 which starts two hours later in the morning and ends two hours later into the night. Several Trunk routes operate later into the night than the threshold start and end times with Route 1 operating over an hour past the weekday threshold. Many Neighborhood routes also run later into the night than the 9:00 p.m. weekday and 7:30 p.m. Saturday thresholds.

To simplify the evaluation, the total span was calculated for each route on weekdays, Saturdays and Sundays and averaged by route classification as shown in Table 8. The BusPlus route nearly meets the span threshold in Table 7 on Weekdays and Sunday but is lower than the threshold on Saturdays. On average, trunk routes nearly meet the thresholds on Weekdays and Saturdays but fall short on Sundays. Neighborhood routes exceed the thresholds on Weekdays, Saturdays and Sundays.

Table 8: 2019 Average Span of Service

CDTA Service Classification	Weekday		Saturday		Sunday	
	Hours	Threshold	Hours	Threshold	Hours	Threshold
BusPlus	21:13	22:00	18:37	22:00	17:04	18:00
Trunk	19:05	19:30	17:47	18:30	14:01	16:30
Neighborhood	17:20	15:00	15:33	12:30	11:38	N/A
Express	N/A	N/A	N/A	N/A	N/A	N/A
Commuter	N/A	N/A	N/A	N/A	N/A	N/A

Source: CDTA

The average span by route classification was also calculated for Weekdays, Saturdays and Sundays for 2015 and 2019 (see Table 9) showing a slight average system wide decrease in span. The most significant decrease was on Sundays as Neighborhood Route 286 was cut and some, but not all, of its service time was distributed to other routes. Overall, service span was more commonly reduced on neighborhood routes than on Trunk or BusPlus routes on the weekends with all service classes gaining on weekdays.

Individual Trunk and BusPlus routes that increased service span by more than 10 minute include Route 905 (weekdays only), Route 85 (weekdays and Sundays), Route 87 (weekdays only) and Route 100 (Sundays only). Route 80 was the only route to have its service span decreased by more than 10 minutes on Saturdays only. Service span was steady on the remaining trunk routes.

Using an overall service span change of more than 20 minutes, four Neighborhood routes increased service span on weekdays (114, 117, 286 and 370) while four routes decreased (233, 252, 450 (formerly 50) and 451 (formerly 472)). On Saturdays, four Neighborhood routes increased service span (117, 351, 353 and 354) while one route was eliminated (352) and four routes were reduced (125, 286, 450 (formerly 50), and 451 (formerly 472)). On Sundays Route 125 added new service and three routes increased service span (353, 370 and 450 (formerly 50)) while two routes were eliminated (155 and 286) and three routes 353, 370 and 450 (formerly 50) decreased service span.

Table 9: 2015 to 2019 Service Span Change by CDTC Service Classification

CDTA Service Classification	Weekday			Saturday			Sunday		
	2015	2019	Average Change	2015	2019	Average Change	2015	2019	Average Change
BusPlus	20:47	21:13	+ 26 minutes	18:45	18:37	- 8 minutes	17:12	17:04	- 8 minutes
Trunk	19:01	19:05	+ 4 minutes	17:54	17:47	- 7 minutes	13:45	14:01	+ 16 minutes
Neighborhood	17:20	17:20	No change	15:22	15:33	+ 11 minutes	12:45	11:38	- 1 hour 7 minutes*
Express	12:25	12:25	No change	-	-	-	-	-	-
Commuter	12:50	12:54	+ 4 minutes	-	-	-	-	-	-

**Neighborhood Routes 155 and 286 were eliminated on Sundays. Route 155 was replaced by Route 125 and remaining service time was distributed to other routes resulting in an average loss of service.*

Passenger Loads

The average passenger load factor measures the utilization of the bus or how crowded a bus is. It is calculated as the average number of customers on a vehicle at all stops divided by the maximum bus seating capacity. A higher factor (closer to the maximum) indicates that the bus is more crowded during travel. Because this data represents an average by route classification, individual routes may experience higher load factors than others. In the most recent two years of available data, average passenger loads have decreased (see Table 10).

Table 10: Average Load Factors

CDTA Service Classification	Maximum		FY2018 Actual		FY2019 Actual	
	Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
BusPlus	125%	100%	72.1%	55.6%	63.6%	50.2%
Trunk	125%	100%	50.1%	40.4%	47.8%	38.4%
Neighborhood	125%	100%	31.9%	24.8%	31.4%	24.3%
Express	100%		50.0%		46.9%	
Commuter	125%		32.6%		27.4%	

Source: CDTA

Bus Rapid Transit (BusPlus)

Prospective bus rapid transit (BRT) corridors must attract a minimum of 2 million annual riders on existing services. This is measured as an aggregate of all routes and segments in the primary travel corridor for the prospective BRT route (see Table 11). The planned BRT routes in the River Corridor and the Washington/Western Corridor meet or are close to 2 million annual riders and the existing NY 5 BRT corridor exceeds the BRT threshold. However, the ridership within all three BRT corridors has decreased between fiscal years 2015-2016 and 2018-2019.

Table 11: Ridership within Bus Rapid Transit Corridors

BRT Line (BusPlus)	Routes in Primary BusPlus Corridor	2015-2016 Ridership	2018-2019 Ridership	% Change in Ridership
Red Line (operational)	905	1,906,208	1,726,413	-9.4%
	1	1,282,612	1,097,792	-14.4%
	355	570,362	476,587	-16.4%
	Total	3,759,182	3,300,413	-12.2%
Blue Line (under construction)	22	1,163,362	1,011,227	-13.1%
	85	614,602	576,733	-6.2%
	80	311,850	263,822	-15.4%
	522	52,290	51,430	-1.6%
	Total	2,142,104	1,903,212	-11.2%
Purple Line (in design)	10	835,890	737,031	-11.8%
	11	361,704	344,060	-4.9%
	12	1,659,262	1,604,487	-3.3%
	Total	2,856,856	2,685,578	-6.0%

Source: CDTA

To justify a BRT station, an existing pair of bus stops must attract a minimum of 100 passenger boardings per weekday after a new service is implemented. This is calculated by applying a 20% BRT ridership increase to the existing number of boardings. The NY 5 Corridor (Red Line) has been in place since 2011 and is very productive for CDTA. Using the 100 boardings threshold, only one station (Broadway) does not meet the minimum number of boardings (Table 12). With redevelopment planned in the vicinity of the Broadway station, ridership is expected to increase in the future. With overall decreased ridership in the BRT corridors, corresponding decreases in BRT station boardings are assumed though not quantifiable at this time.

Table 12: 2018-2019 Red Line (NY 5 Corridor)
Bus Rapid Transit Station Boardings (all days)

NY 5 Corridor (Red Line) Stations	Eastbound		Westbound		Total Boardings	
	Annual Boardings	Daily Boardings	Annual Boardings	Daily Boardings	Annual	Daily
Gateway Plaza	95,820	263	0	0	95,820	263
Downtown/Train Station	70,357	193	5,153	14	75,510	207
Veeder / Nott Terrace	127,515	349	9,732	27	137,247	376
Steuben	61,637	169	17,228	47	78,865	216
Division	100,137	274	46,067	126	146,204	400
Woodlawn	26,937	74	16,776	46	43,713	120
Niskayuna	20,926	57	28,176	77	49,102	134
New Karner	47,072	129	21,860	60	68,932	189
Village Center	28,585	78	11,687	32	40,272	110
Colonie	90,142	247	89,131	244	179,273	491
West Mall	61,238	168	33,734	92	94,972	260
North Allen	39,731	109	42,957	118	82,688	227
North Manning	25,887	71	31,490	86	57,377	157
Quail-WAMC	42,150	115	121,821	334	163,971	449
Lark / Library	18,184	50	142,524	390	160,708	440
Capitol/Hawk	3,286	9	37,181	102	40,467	111
South Pearl	10,554	29	144,940	397	155,494	426
Broadway	1,137	3	7,048	19	8,185	22
Albany Bus Terminal	0	0	55,608	152	55,608	152
ALL STATIONS	871,295	2,387	863,113	2,363	1,734,408	4,750

Source: CDTA

On-Time Performance

On-time performance is measured as the percent of trips arriving between 1 minute earlier or 5 minutes later than the scheduled arrival time. CDTA's threshold is 85% of trips or more should arrive on time. Data though 2019 in Table 13 show that on-time performance has steadily increased for BusPlus, Trunk and Neighborhood routes while Express and Commuter routes have varied with the most recent year showing a decline.

Table 13: Percent of CDTA Trips by Service Classification Operating On-Time*

CDTA Service Classification	Fiscal Year		
	2019	2018	2017
BusPlus	79%	77%	73%
Trunk	75%	75%	72%
Neighborhood	75%	75%	74%
Express	71%	74%	76%
Commuter	70%	72%	69%

*Data not available prior to 2017. *Source: CDTA*

Bus Stop Spacing

Bus stop spacing is measured as the average distance between stops per route and service classification. Data on stop spacing by community context (urban/suburban/rural) is not available to account for different land use contexts. If available, established thresholds indicate a maximum stop spacing standard of 1,000 feet in central core areas (downtowns), 1,500 feet in urban areas and 2,000 feet in suburban & rural areas. On average, trunk routes, most of which operate in downtowns and urban areas, are meeting the threshold. Neighborhood routes which serve urban and suburban areas are also meeting the threshold. This measure is not applicable to BusPlus, Express and Commuter routes, as they are intentionally limited stop and operate for longer distances. Average stop spacing is shown Table 14 for information only.

Table 14: Average 2019 Stop Spacing by Route Classification

CDTA Service Classification	Average Stop Spacing
BusPlus	4,558
Trunk	1,007
Neighborhood	1,653
Express	13,634
Commuter	1,485

Source: CDTA

Street Amenities

The amenities available at transit stops or stations are important for customer comfort and convenience. What might be installed at a given stop is guided by the number of passenger boardings per weekday. The more boardings, the more amenities a stop may have. Data is collected for shelters and benches based on the number and percentage of stops for which these amenities are present. Trash receptacle data is not collected by CDTA. Although the number of stops varies each year, Table 15 shows that between 2017 and 2019, the overall number of benches and shelters at stops has decreased.

Table 15: Number and Percentage of Benches and Shelters per Stop

Year	Average Weekday Boardings	Total Stops	Bench			Shelter		
			Warranted (Yes or No)	Stops w/ Bench	% Stops w/ Bench	Warranted (Yes or No)	Stops w/ Shelter	% Stops w/ Shelter
2019	< 15	2,100	No	48	2.3%	No	88	4.2%
	15 - 35	291	Yes	45	15.5%	Yes	72	24.7%
	> 35	258	Yes	97	37.6%	Yes	155	60.1%
2018	< 15	2,303	No	59	2.6%	No	100	4.3%
	15 - 35	280	Yes	44	15.7%	Yes	68	24.3%
	> 35	284	Yes	95	33.5%	Yes	163	57.4%
2017	< 15	2,136	No	43	2.0%	No	83	3.9%
	15 - 35	361	Yes	51	14.1%	Yes	74	20.5%
	> 35	330	Yes	109	33.0%	Yes	176	53.3%

Source: CDTA

Appendix B
Midsize Capital Projects in Development or Completed Since 2015

Project Name	Lead Agency	Location		Project Description	Components	Expected Completion	Status as of 9/18/19
		Town/City	Intersection				
Allen Street Stop Consolidation *Stop Eliminations/ Relocations with Ped Improvements and New Shelters*	CDTA	Albany	Allen Street btw Central Ave. and New Scotland Ave.	Stop relocations to allow for improved stop spacing through the corridor. Pedestrian infrastructure components at select intersections to improve service on #114 and #138.	Bump outs, bus pad, bus shelter, new crosswalks	Summer 2020	Beginning initial stop spacing assessment and ridership analysis for corridor. Feasibility and initial design concepts underway.
Woodlawn Park & Ride *Lease Renegotiation*	CDTA	Schenectady	Woodlawn Plaza at 1594 State St.	Lease agreement between Golden Gate Associates and CDTA for use of 70 spaces of surface lot for park and ride.	Park and Ride Lease agreement and shared use park and ride lot	Fall 2019	Initial contact made with Golden Gate Associates on 9/18 to begin lease negotiations.
Route 4 and Williams Road *Intersection Reconstruction and Pedestrian Improvements*	Town of North Greenbush	North Greenbush	NY-4 btw HVCC and Winter Street Extension	Current intersection of Rt 4 at Williams Rd to be reconstructed into round-a-bout. Project includes installation of sidewalk on west side of Rt 4 between HVCC and Winter Street Extension. Stop locations to be adjusted due to new sidewalks and round-a-bout.	Round-a-bout and sidewalks	Spring 2020	Received initial design from project engineers. Comments given by CDTA on design to include spacing for buses to pick up and drop off passengers along Rt 4. Awaiting advanced design and feedback from project engineers.
Niskayuna Co-op Crossing *Pedestrian Improvements*	Schenectady County	Niskayuna	Nott Street btw Balltown Rd and Clifton Park Rd	Pedestrian upgrades in front of Niskayuna Co-op due to safety concerns and high number of mid-block crossings	Sidewalk, curb cuts, crosswalk, ped-only traffic signal	Summer 2019	MJ Engineering (consultant) currently working with County and DOT. CDTA recommended transit and pedestrian upgrades to MJE to be incorporated into plan. No further action required by CDTA at this time. MJE will provide 90% advanced design plans when complete for CDTA comment and review. 60% design (via 3 design options) has been received from MJE. Requested CDTA infrastructure added to each alternative.
Lark Drive *New Shelters with Pedestrian Improvements*	CDTA	Albany	Lark Drive btw Dudley Park and Manning Blvd (Arbor Hill)	New bus shelters located adjacent to low-income housing complexes	Crosswalk, curb cuts, loading pads, shelter pads, shelters (4) *+land agreement with Albany and private owner*	Summer 2019	Shelters adjacent to Capitol Woods apartments installed; Remaining shelters to be at intersection of Lark St and Colonie St. Obtained MOU update from AHA to move forward with project; CME advancing site plan in preparation for submittals to City of Albany for permit. License Agreement has been forwarded for internal review. Advancing plan for construction is held up with City Corporate Council.
East Street Green Infrastructure *Repaving and Infrastructure Upgrade*	City of Rensselaer	Rensselaer	East Street btw Adams St and Partition St	Multiphase sewer and roadway project that includes sidewalk replacement, bus shelter across from train station for #114, and loading pads at all stops where needed.	Sidewalk extensions, loading pads, shelter pad and shelter	Fall 2019	Final design package received in last 2018; Construction set to begin in Spring 2019. Pre-construction meeting occurred week of 6/10. Construction of work underway. Additional CDTA infrastructure work constructed at Herrick and East St. New sidewalks, bus pads, and connector sidewalks installed week of 8/12.
Route 50 & Geyser Rd *Intersection Reconstruction*	City of Saratoga Springs	Saratoga Springs	NY Route 50 & Geyser Road / Ave of the Pines (SPAC & Spa Park)	Reconstruction of intersection to allow buses to safely stop and riders to safely cross intersection at entrance of Spa State Park and SPAC. Part of larger Geyser Road Multi-Use Trail project	New sidewalks, crosswalks, ped signal, push buttons, curb cuts, shelter pad, shelters (2)	Fall 2020	City of Saratoga obtained all property needed to construct the trail project in March; Finalized MOU sent to Saratoga Springs; Out to bid this spring with an anticipated completion date in the fall of 2020.

Project Name	Lead Agency	Location		Project Description	Components	Expected Completion	Status as of 9/18/19
		Town/City	Intersection				
New Exit 4 Airport Connector *New Shelter with Ped Improvements*	NYSDOT	Albany	Albany-Shaker Rd east of I-87 Northway (future Exit 4)	New bus shelter and pedestrian infrastructure for stops serving nearby hotels and future retail; Part of larger project to build new interstate exit to improve access to Albany Intl Airport	Sidewalk extension, curb cuts, pedestrian lighting, shelter pad, shelter	Winter 2020	Construction currently underway. NYSDOT incorporated transit infrastructure request into design and construction documents; Working with DOT/ Town of Colonie on lighting at westbound bus stop; Bus shelter confirmed to be added as part of construction. Albany – Shaker Rd construction underway week of 8/19. Sidewalk and bus pad expected to be constructed mid – late October.
Swan Street Reconstruction *Roadway / Bridge Reconstruction*	OGS	Albany	Swan Street btw Hamilton St and Chestnut St	Closure of Swan St. due to OGS deck work. Project is in conjunction with implementation of bus routes into ESP concourse	Increased bus service to ESP concourse	2021	OGS deferred project until 2021.CDTA buses routes #214 and #233 moved into ESP Concourse with start of April pick. Exact routing of NX and #22 needs to be finalized as #22 cannot operate into ESP tunnels and current no room for NX in concourse
Route 4 & Bloomingrove *Intersection Reconstruction*	NYSDOT	North Greenbush	US Route 4 & Bloomingrove Drive (Defreestville)	Exclusive left turn lane and intersection reconfiguration to improve access to Van Rensselaer Shopping Center and reduce travel time on #224	New traffic signal head, exclusive left turn lane, "T"ed intersection	Spring 2020	Received current design from CME; Turn radius from Route 4 onto Bloomingrove Dr is confirmed to accommodate CDTA buses; Right turn into Shop Rite plaza confirmed to accommodate CDTA bus; CDTA confirmed adjustment to stops on Route 4; Final design docs being advanced by consultant.
Valley View Apartments *Bus shelters with Ped Improvements*	CDTA	Town of Colonie	Johnston Rd & Valley View Rd	New bus shelters located adjacent to region's largest housing complex; Requires rerouting of #182 off segment of Columbia Ave Ext and on to Johnston Road	Crosswalk, sidewalk, curb-cuts, shelter pads, shelters (2) *+agreement w/ adjacent owners)*	Design in 2019 Build in 2020	Shelters project adjacent to Valley View apartments. Beginning initial feasibility assessment and design. Road is in jurisdiction of Town. Forwarded site plan to Town for initial feedback and comment on 9/3. Awaiting feedback from Town. Revised plan to reflect far side stop for Troy bound service
Route 9/20 Pedestrian Project @ Route 4 *Sidewalks, bus shelter and ped improvements*	NYSDOT	East Greenbush	US Route 9/20 & Route 4 (East Greenbush)	"Fill in the gaps" pedestrian project along Columbia Turnpike between Rt 4 and Hays Rd. New bus shelter to be added at intersection of Rt 4 and Rt 9/20 for WB #233 riders	Sidewalks, ADA ramps, crosswalks, shelter pad, shelter (1)	Spring 2020	Spoke with Town of East Greenbush and NYSDOT about project scope and schedule. Town and NYSDOT in favor of shelter and addition sidewalks proposed. Use and Occupancy application filed with NYSDOT 8/15. Received feedback and comments from NYSDOT 10/8 concerning use and operations of shelter and stops. Currently addressing NYSDOT comments.
Route 9/20 Pedestrian Project @ Discovery Drive *New Shelter with Pedestrian Improvements*	Town of East Greenbush	East Greenbush	US Route 9/20 & Discovery Lane	Sidewalk connector project along Columbia Turnpike between Town line and Discovery Drive. New bus shelter to be added at Discovery Drive intersection.	Sidewalk, new curb, bus pad and shelter	Spring 2020	Held phone meeting with Town, NYSDOT and Town's consultant on 7/23 to discuss project scope. Forwarded CDTA bus shelter proposal to all parties on 7/30. Proposal added to meeting minutes for further discussion among NYSDOT Traffic Operations. Item will be discussed at East Greenbush Comp. Plan meeting 9/17. CHA incorporated far side concept in plan for stakeholder comment and circulation.
OGS STATE EMPLOYEE TRANSIT SUBPROJECTS							
Green Street at OGS Liberty Lots *New Shelter with Pedestrian Improvements*	CDTA	City of Albany	Green St. and Madison Ave.	New bus shelters and pedestrian infrastructure project serving OGS Liberty parking lots in downtown Albany	Bus pads (2), bus shelters (2), curb cuts, mid-block crossing, and supporting pedestrian signage	Fall 2020	Concept design of proposed infrastructure submitted to OGS and City for review and feedback.

Project Name	Lead Agency	Location		Project Description	Components	Expected Completion	Status as of 9/18/19
		Town/City	Intersection				
100 Broadway *Traffic Signal*	CDTA	City of Albany	Broadway and Simmons Lane	New traffic signal at intersection to allow access and entry to new bus station to serve 100 Broadway OGS parking lot and future River Corridor BRT services.	New traffic signal and bus station, bus pad, BRT bus shelter	Fall 2020	Early concepts created to address feasibility, design and site access. Concept design of proposed infrastructure submitted to OGS and City for review and feedback.
BRT SUBPROJECTS							
4th & Congress *BRT Station with Ped Improvements and Queue jumper*	CDTA	Troy	Congress Street & 4th Street	Intersection reconfiguration and construction of northbound Congress Street Station and queue jumper; Design in conjunction with mixed-use redevelopment (100 Congress) of former Key Bank site by Rosenblum Co	Queue jumper, curb extension (bulb-outs), travel lane reconfiguration, bus shelter pad, and shelter	Spring 2020	Progressed design with City, Rosenblum, and local business owners - currently reevaluating parking and loading zone impacts from proposed curb extensions; Rosenblum will commence construction 4/22/19. CDTA bus stop moved to corner of State and 4th for duration of site work through May 2020. BRT station work to begin spring 2020 after substantial completion of 100 Congress completed.
Riverview Center *Roadway Reconstruction with BRT Station and Queue jumper*	NYSDOT	Menands	Broadway (NY 32) & ramps to Exit 6 of I-787 (between Wards Lane and northern entrance to Riverview Center)	NYSDOT project for bike/ped connection from Menands to Hudson River using excess lanes of Exit 6 ramps; Project will now incorporate major component of River BRT and constructed Riverview Center Station and associated queue jumper, road diet, and ped infrastructure improvements	Queue jumper, crosswalks, reduction in vehicular travel lanes, shelter pads, and relocation of existing shelters	Fall 2020	NYSDOT expected to begin project in Fall 2019. CME has provided NYSDOT with traffic analysis impacts under road diet condition. Meet on 6/26 with Village/NYSDOT to discuss final designs and traffic impact determinations. NYSDOT incorporating BRT station design into plans but will not fund BRT station construction. Station planned for construction as part of Phase 2 River BRT construction set for April 2020.
2nd & 19th in Watervliet *Road Diet with BRT Station*	CDTA	Watervliet	2nd Avenue btw 16th St and 19th St	Road diet on 2nd Avenue which will allow for site work and pedestrian infrastructure for Watervliet 19th Station; part of larger plan for road diet between 13th Street and 25th Street	Sidewalk adjustments, bus cut-out, reduction in vehicular lanes, shelter pad, new shelters (2)	Fall 2019	CDTA and City of Watervliet with traffic analysis from CME agreed to road diet with single through lanes with center turn lane. Construction of NB and SB station currently underway as part of Phase 2 River BRT.
South End Trail Connector & Mt Hope Branch *Bicycle Pathway and BRT Stations*	CDTA & City of Albany	Albany	S Pearl Street btw Albany County Rail Trail and I-787 on-ramp	Two-part project in coordination with Albany. Project bypasses two River BRT stations Phase 1 (by Albany) – Northbound Mt. Hope BRT station constructed as part of SETC project Phase 2 (by CDTA) – Construction of Old South Pearl BRT Station and trail connection to SETC	Sidewalk extensions, curb cuts, crosswalks, bus shelter pad and shelter +MOU with City of Albany	Fall 2019 (Phase 1) Summer 2020 (Phase 2)	Design incorporates northbound Mt Hope Station and Old South Pearl Station plus bus turnaround/ layover. Mt. Hope Station to be constructed as part of Phase 2 of River BRT. MOU between City and CDTA signed and filed for records. Anticipated start of SETC/ Mt Hope Station construction on 9/16. Stop closures and phasing coordination complete between CDTA/ City/ Contractor.
Broadway Streetscape Improvements *BRT Station and Ped Improvements*	CDTA & City of Albany	Albany	Broadway btw Livingston Ave and Clinton Ave	Phase 1 (by CDTA) – Construction of southbound Livingston Station in conjunction with new apartment building at 760 Broadway Phase 2 (by Albany) – City of Albany obtained funding to design additional streetscape and ped improvements on Broadway to Clinton Ave	Curb extensions, crosswalks, bus shelter pad and shelter, ADA upgrades	Fall 2019 (Phase 1) Fall 2020 (Phase 2)	Phase 1 - Livingston Station design completed, and construction will begin in summer 2019; Phase 2 - City is currently writing RFP* to select design and engineering firm. Selected firm will incorporate any required transit infrastructure into design. *City has halted further development of RFP until coordination between current developers and infrastructure needs along Broadway are sorted out

Project Name	Lead Agency	Location		Project Description	Components	Expected Completion	Status as of 9/18/19
		Town/City	Intersection				
Capital Roots *Roadway Reconstruction with BRT Station*	CDTA & Capital Roots	Troy	River Street btw Jay St & Rensselaer St	Joint effort by CDTA, City of Troy, and Capital Roots to traffic calm River Street; Project will include site work and ped improvements of Jay Street Station; Design in conjunction with expansion of Capital Roots headquarters	New traffic signal at Jay St, ADA upgrades, curb extensions (bulb-outs), crosswalks, 2 shelter pads and 2 shelters	2020	Held meeting with City/ Capital Roots/ CDTA on 8/19. Agreement reached that a cost assessment will be conducted for full BRT build out at Capital Roots. Next steps: CME to advance full scope to 100% design, CDTA to confirm reimbursements, City to reach out to National Grid on grant options.
COMPLETED PROJECTS							
Remsen Street Phase 2 *Roadway Reconstruction*	City of Cohoes	Cohoes	Remsen Street btw Ontario St and Columbia St	Second phase of full reconstruction of Remsen Street to include ADA upgrades, ped improvements and traffic management to allow easier bus turns	Bench's, curb cuts, parking management, pedestrian signals	July 2019	Roadway and streetscape improvements complete 8/5/19. Bus stop signs installed week of 8/12/19.
Mosaic Village *New Shelter*	CDTA	Cohoes	Ontario Street east of Congress St (Downtown Cohoes)	New bus shelter near new mixed-use development with housing units for adults with special needs	Shelter pad, shelter plus land agreement with City of Cohoes	Summer 2019	Pad and shelter installed 6/21
Henry Johnson Slip Lane *ADA Upgrades*	CDTA	Albany	Henry Johnson Boulevard & Washington Avenue	ADA improvements in closed travel lane which is now location of existing shelter heavily used by blind community (NABA); Final phase of Lark & Washington project	Sidewalk extension, curb cuts, flexible delineators	Spring 2019	Remaining ADA components installed at site. Work completed on 4/29
ESP / Madison Ave Pedestrian Crossing *Expanded Crosswalk & New Traffic Signal*	OGS	Albany	Madison Avenue at entrance to Empire State Plaza	Upgrades to high volume intersection for pedestrians and motorists. Project in conjunction with phased implementation of bus routes into the Plaza concourse and off Madison Avenue	Widened crosswalk, curb cuts and ADA ramps, pedestrian signal heads, traffic signal heads	Mid-March 2019	Final project meeting held on 4/2/19 with OGS and City of Albany. Construction of new crossing and installation of crosswalk, traffic signal and pedestrian signal heads complete. New bus stop signage installed week of 4/01/19.
Columbia Street Extension *New Shelter*	CDTA	Colonie	Old Loudon Road & Columbia Street Ext	New bus shelter for stop serving surrounding hotel, retail, and shopping center	Sidewalk adjustment, shelter pad, shelter	Summer 2019	Pad and shelter installed 4/4/19.
Rotterdam Industrial Park *New Shelter*	CDTA	Rotterdam	NY Route 7 at entrance to Rotterdam Ind Park	Shelter and related infrastructure to employees at Rotterdam Industrial Park to wait for bus in safe location (instead of shoulder of high-speed roadway)	Connecting sidewalk, shelter pad and shelter	Fall 2018	Sidewalks and shelter pad constructed; shelter installed
NABA *Signage and Parking Plan*	CDTA	Albany	Washington Avenue & Sprague Pl	Signage package for NABA to reduce parking violations in loading area and ensure area for STAR drop-off and pick-ups	Handicap and no parking signage	Fall 2018	Agreed upon signage plan installed
Electric Vehicle Charging Stations	CDTA	North Greenbush/ Rensselaer	Defreestville Park & Ride and RRS parking deck	Installation of electric vehicle charging stations as a pilot program to determine benefits vs. capital/operating costs	Electric vehicle charging station, bollards	Summer 2018	Station and signage installation complete. Charging station is operational and in use.

Project Name	Lead Agency	Location		Project Description	Components	Expected Completion	Status as of 9/18/19
		Town/City	Intersection				
Remsen Street - Phase 1 *Streetscape Improvements*	City of Cohoes	Cohoes	Remsen St. btw Ontario St. & Cayuga St.	Phase 1: Full reconstruction to include ADA upgrades, ped improvements and introduction of a one-way street. Project includes site work and ped infrastructure for Downtown Cohoes Station.	Benches, curb cuts, parking management, layover area, pedestrian signals, custom bus shelter	Summer 2018	Project completed, Downtown Cohoes Station infrastructure constructed, custom shelter installed, bus layover area constructed
Northern Blvd & Shaker Road *Stop Relocation and New Shelter*	CDTA	Albany	Northern Blvd & Shaker Road	Move existing shelter and bus stop from Loudon Plaza (in front of Risottos) to corner of Northern Blvd and Shaker Road which is signalized intersection with a crosswalk and ped push buttons and timers	Shelter pad and shelter	Summer 2018	Shelter installed and existing stop at Risotto's removed
Exit 9 Park & Ride *Lease Contract*	CDTA	Clifton Park / Halfmoon	I-87 Northway Exit 9 Park and Ride (at The Crossings)	5-year lease agreement between CDTA, NYSDOT, and owner of The Crossings for use of 200 spaces of surface lot for park & ride	N/A	Spring 2018	Received signed lease from Nigro Companies (owner of The Crossings) for occupancy through July 2023; In additional received agreement for NYSDOT annual contribution of $25,000 towards lease cost

Source: CDTA