



CDTC NEW VISIONS TRANSIT TASK FORCE

White Paper

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Capital District Transportation Committee
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INTRODUCTION

In 2014, the Transit Task Force was reactivated to assist in the update of the regional transportation plan, New Visions 2035. The Task Force was asked to examine issues relating to transit, and to make recommendations for policies and actions for New Visions 2040. The following topics were considered:

- Transit Development Plan-Transit Priority Network
- Transit funding needs
- Tax base sharing
- Parking requirements
- Site plan review guidelines
- 40 miles Bus Rapid Transit short term
- 100 miles Bus Rapid Transit “Big Ticket”
- Public input to transit policy ideas
- Fixed guideway
- Performance measure: percentage of trips with transit access

Many of these topics are already integrated and supported in the New Visions 2035 Plan. As a first step, the task force reviewed the progress made on transit in the Capital Region since the New Visions plan was adopted in 1995. Next, the task force considered transit needs in the short term (the next five years) and the longer term (five to 20 years) as a way to update and strengthen the transit principles, strategies and actions. Innovative technology, street design and funding were particular considerations. Especially relevant is the Capital District Transportation Authority’s (CDTA) Transit Development Plan which was updated and adopted in January 2014, outlining the direction of CDTA’s transit planning efforts in the next five or so years. Finally, the paper offers some subjects for further investigation and identifies some questions for the general public’s consideration.

The Task Force is not a policy decision making committee, but rather has been asked to make recommendations to CDTC’s Planning Committee and Policy Board. The Task Force members include:

- Ross Farrell, CDTA
- Brad Glass, City of Albany
- Bill Hollister, Amtrak
- Nadine Lemmon, Tri-State Transportation Campaign
- Mike Lyons, Town of Colonie
- Amanda Mansfield, CDTA
- Kate Maynard, City of Saratoga Springs
- Errol Millington, University at Albany
- Charles Moore, City of Rensselaer
- Cliff Perez, Independent Living Center
- Jennifer Thorne, Amtrak
- Tom Vaughn, NYSDOT Main Office Transit Bureau
- Michael Franchini, CDTC Executive Director
- Sandy Misiewicz, CDTC Staff
- Carrie Ward, CDTC Staff
- Robert Wetmore, CDTC Staff

NEW VISIONS TRANSIT PRINCIPLE

The Transit Task Force proposes the following planning and investment principle for New Visions:

Transit – Our transit services will provide modern, innovative, and viable travel options.

Because transit facilities and services are an essential element of the social, economic, and cultural fabric, sufficient operating and capital funding and supportive policies must be in place. Innovative services and transit supportive investment are critical to developing a high quality transit system. The future transit system will:

- Promote transit supportive land use patterns and infrastructure;
- Contribute to congestion management, air quality, and energy savings;
- Form the backbone for managing travel demand;
- Provide essential mobility for those who do not operate a private vehicle;
- Capitalize on market trends and attract choice riders.

WHAT DOES NEW VISIONS 2035 SAY ABOUT TRANSIT?

The New Visions Plan laid the groundwork for creating a more user friendly, attractive, efficient and reliable transit system for the Capital Region. As a starting point in 1993, CDTC's original Transit Task Force conducted an in-depth review of the regional transit system and developed a detailed white paper to support the development of a planning and investment principle for the New Visions plan. The key findings of the 1993 transit task force were that:

- Site design and pedestrian improvements are critical to supporting transit use
- Enhancing existing services can offer large benefits
- One of several fixed guideway options is achievable in 20 years
- Broad regional support is necessary for financing transit

Considered groundbreaking and forward thinking for MPO's at the time, the underlying principle, strategies and actions for transit remained largely unchanged until the 2035 plan when CDTA developed its first Transit Development Plan (TDP) in 2007. The TDP is a strategic plan for CDTA which guides service development, describes methods to coordinate enhancements to the transit system with regional growth patterns and economic development initiatives, outlines a system approach to route evaluation and describes a process to regularly assess service opportunities. In developing the TDP, CDTA conducted an environmental scan, demographic analysis and extensive market research to understand what customers want from transit services and to show how the region has changed over time, particularly with respect to new development and redevelopment. The TDP outlines several key objectives which were incorporated into the New Visions 2035 Plan:

- Increase transit ridership and revenue by improving the quality of CDTA services
- Align transit services with demand
- Improve existing and develop new partnerships with public and private stakeholders
- Re-emphasize the need for transit supportive built environments which can be achieved through design guideline development
- Continue performance monitoring to guide service development

In addition to CDTA's short term transit strategies, New Visions 2035 articulates two "Big Ticket" transit initiatives that could be pursued if funding is identified and other factors such as strong regional support for Transit Oriented Development made them realistic to pursue. "Big Ticket" initiatives are bold, long term project concepts that are not currently committed to by CDTC but support CDTC's members in being visionary, even during periods of fiscal constraint. However, the "Big Ticket" initiatives are currently unfunded. The transit "Big Ticket" initiatives are:

Bus Service Expansion, BRT Program with Transit Oriented Development

This initiative emphasizes the use of transit as a key transportation mode complemented by transit oriented development. Bus Rapid Transit (BRT) is a high performance transit service that functions more like light rail than a local bus. BRT systems typically incorporate elements such as limited stops, priority treatment at traffic signals, bus lanes to bypass traffic at key congested locations, an identifiable brand name and color scheme and station amenities such as real time arrival/departure information, attractive shelters, park-and-ride lots, benches and in some cases restrooms and other services. BRT systems are complemented by local buses, sometimes referred to as feeders, to bring passengers to the high performance BRT routes. CDTA has implemented BRT in mixed traffic on NYS Route 5 from downtown Albany to downtown Schenectady, known as BusPlus.

To further encourage transit use, Transit Oriented Development (TOD) is encouraged at BRT or other transit service stations. Transit Oriented Development is generally defined as mixed-use development (development that mixes residential, retail, office, open space, and public uses) within walking distance of a transit stop that encourages travel on foot or by public transportation instead of by car.

Guideway Transit System with Transit Oriented Development

Guideway Transit is a general term used to describe innovative mass transportation technologies that operate on an exclusive right of way (exclusive travel lanes or tracks depending on the technology). Dedicated lanes for buses differentiates this from the BRT "Big Ticket" initiative. These systems, in combination with Transit Oriented Development, create communities that on a regional scale preserve open space and reduce the need for travel by car. The "permanent" nature of guideways contributes to greater development along a corridor than that stimulated by bus service in mixed traffic. Transit Oriented Development is generally defined as mixed-use development (mixing residential, retail, office, open space, and public uses) within walking distance of a transit stop that encourages travel on foot or by public transportation instead of by car. Examples of guideway transit systems include:

Bus Rapid Transit (BRT) on Dedicated Lanes: A high performance rubber wheeled transit service that functions like rail but is flexible and can operate on the regular street network. BRT works best when the vehicles have exclusive travel lanes.

Automated Guideway Transit (AGT): A transportation system with unmanned vehicles that operate on their own tracks. This technology is commonly found at airports and occasionally as downtown circulators. CDTC identified potential applications for the Capital Region in its work in the mid-1990's, but cautioned that unit costs need to drop before extensive application is feasible.

Light Rail Transit (LRT): A rail transportation system typically powered by electricity that can operate on an exclusive right of way or on streets in mixed traffic.

The combination of CDTC's transit planning principle, CDTA's initiatives in the Transit Development Plan and the "Big Ticket" initiatives encompass the key transit topics described in the New Visions 2035 plan.

PLANNING STUDIES BEYOND NEW VISIONS RELATED TO TRANSIT

A number of other studies have been undertaken by CDTC and CDTA, often in direct partnership, to further explore transit investments in the Capital Region.

Fixed Guideway Feasibility Study (1995)

A peer city comparison was initially undertaken revealing that the overall size of the potential fixed guideway market, as measured by total population and employment, is smaller in Albany than in other peer cities. Moreover, region wide population and employment densities are considerably below that in other areas. This is an important finding, which suggests a limitation on the Capital Region's capacity for supporting an extensive network of fixed guideway facilities.

However, the peer city comparison also revealed that centralization of population and employment within the three central cities of Albany, Schenectady, and Troy – where traditional transit markets are located – is consistent with and in some cases greater than elsewhere. In addition, the Capital Region is comprised of three major urban hubs and an interior suburban area, which means that “dual hub” corridors may be constructed with major concentrations of trip making at both ends of the corridor.

An examination was then undertaken of several full fixed guideway system configurations showing that that when combined with highway and parking pricing strategies, the systems show significant performance benefits in areas of access (percentage of trips with a time-competitive transit option), congestion relief and land use configuration that is transit supportive. Unfortunately, extensive fixed guideway systems do not return monetary benefits comparable to the level of investment required even through the year 2015. The main conclusion of the study was that the region is not dense enough and does not have enough transit supportive land use policies in place to support an extensive fixed guideway investment.

NY 5 Land Use and Transportation Plan (2001)

This plan was undertaken by CDTC and NYSDOT in partnership with the Cities of Albany and Schenectady, the Towns of Niskayuna and Colonie and the Village of Colonie along New York State Route 5 (Central Avenue/State Street). The goal of the plan was to make recommendations which:

- maximize the effectiveness of public investment in the transportation system;
- seek to stabilize and invigorate the economy of the five Corridor Communities;
- are pedestrian and transit-friendly;
- satisfy the needs of the real estate market, automobile and service access; and,
- provide a benefit to adjacent mixed-use and residential neighborhoods, and mixed-use and employment districts.

The plan ultimately identified a preferred future for the 17.5 mile NY 5 Corridor that intensifies land uses and encourages the region to pursue Bus Rapid Transit in the corridor.

NY 5 Bus Rapid Transit Conceptual Design Study (2005)

Building upon the Land Use and Transportation Plan, CDTA and CDTC collaborated on this study to further explore the potential for Bus Rapid Transit in the NY 5 Corridor. The study provided the initial information needed on route options and station locations to secure funding for the next steps including station design and operations planning, environmental clearance and incremental implementation of what is now the Route 5 BRT (BusPlus) which opened in 2011.

Understanding the Travel Market (2005)

This initiative looked at land use and census data to identify transit corridors with a higher likelihood of transit use in the Capital Region. The report concluded that urban centers offer the greatest opportunities for high end transit investments, including bus rapid transit, a finding that is consistent with the 1995 Fixed Guideway Transit Feasibility Study.

North/South Corridors Study (2009)

CDTA and the New York State Senate Task Force on High Speed Rail initiated a study of transit opportunities to promote urban reinvestment and high quality suburban planning in the north/south corridor in Albany, Rensselaer and Saratoga Counties. The study objectives were to identify potential short-range and long-term improvements to existing Northway Express bus service in the I-87 Corridor, review the role of existing rail corridors and identify what role they might play in maintaining the quality of transportation service in the region, explore transit options such as bus rapid transit, light rail transit and commuter rail, and identify other long-range, potential transportation capital investments and assess the engineering, environmental and market challenges to their implementation. The study recommendations included a set of near-term, mid-term and long-term actions:

Near-Term Actions (2009–2014)

- Increase and restructure NX (Northway Express) service.
- Further analyze and refine the Hudson River Corridor options, including transit-oriented development (TOD) plans, to develop consensus on the modal option (BRT vs. LRT) and corridor, complete project development, and begin construction.
- Promote extension of Amtrak's Albany–New York City service to Saratoga Springs, and state-sponsored rail infrastructure projects to set the stage for commuter rail.

Mid-Term Actions (2015–2020)

- Upgrade NX Service with priority treatments such as queue jumps, signal priority at I-87 Northway ramps, and expanded frequencies and span.
- Develop Saratoga local shuttles to emerging employment centers, ex. Luther Forest.
- Complete construction of River Corridor service and begin service operations.
- Construct new intermediate commuter rail station (in the vicinity of the Town of Ballston/Village of Ballston Spa) and provide shuttle service to the University at Albany and the Albany International Airport.

Long-Term Actions (2021–2030)

- Construct managed lanes in the I-87 Northway Corridor for use by the NX Service.
- Enhance River Corridor service to respond to demand.
- Expand commuter rail service by procuring rail equipment.

WHAT HAS BEEN ACCOMPLISHED?

Since the New Visions plan was first adopted and following the numerous studies that were undertaken thereafter, a great deal has been accomplished in improving the regional transit system.

Route 5 BRT

The region's first arterial based bus rapid transit system was officially opened in April 2011 following several years of study and incremental implementation. Operating in mixed traffic, the Route 5 BRT (the first CDTA branded BusPlus route) runs from downtown Albany to downtown Schenectady. In its first year of operation, ridership increased 25%, on time performance was greatly improved, and the look and feel of transit in the Capital Region vastly changed. In order to improve the attractiveness and reliability of the system, CDTA worked with a number of regional partners to install limited stop service, unique branding to differentiate BusPlus from the rest of CDTA's system, large stations with shelters and other customer information and conveniences, queue jumps at certain signals which allow the BusPlus vehicle a few seconds to move ahead of the rest of traffic, and transit signal priority which allows the buses to communicate with traffic signals, providing them priority when traveling through these intersections.



*CDTA's Liberty Park BusPlus station in Schenectady.
Route 5 BusPlus is also known as Route 905 or the Red Line.*

Washington/Western BRT

CDTA completed a conceptual design study and detailed Alternatives Analysis of a second BRT line in the Capital Region (the BusPlus purple line), proposed to operate from downtown Albany through the Harriman and University at Albany campuses ending at a transit center at Crossgates Mall. Completing the Alternatives Analysis allowed the project to be submitted to the Federal Transit Administration for funding through their Small Starts program. The project was accepted and has entered the Project Development phase. Funds for additional project development work including environmental clearance documentation and additional engineering work have been awarded by CDTC through its Transportation Improvement Program. CDTA is anticipating the purple line to be in service in 2017.

River Corridor BRT

The third BRT line (the BusPlus blue line) is proposed to run along the River Corridor from downtown Albany along Broadway (NYS Route 32) over to Troy with branches to Cohoes and Waterford. The

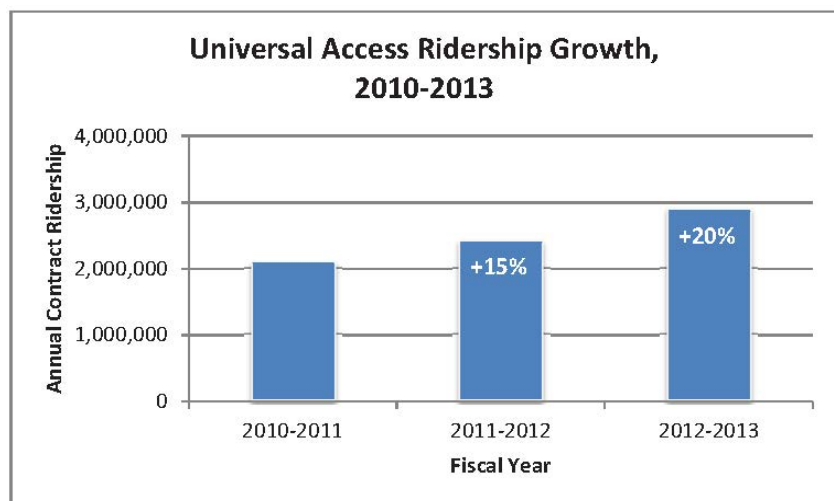
Conceptual Design/Modified Alternatives Analysis for the River Corridor BRT has been completed and CDTA has been awarded funding through CDTC to undertake additional engineering work in the corridor. CDTA was also awarded a TIGER (Transportation Investment Generating Economic Recovery) grant from USDOT to implement pedestrian and other street improvements in the River Corridor in Albany, Troy and Cohoes. This project will be submitted to the FTA in early 2015 for funding consideration through the Small Starts program. CDTA is anticipating the blue line to be in service in 2017.

CDTA Route Restructuring

Following criteria that were largely established in CDTA's 2007 Transit Development Plan, CDTA worked in all four Capital Region counties to restructure the route system which had not been comprehensively evaluated for many years. The restructuring of the routes considered many factors including the need for cross town routes, methods to reduce the number of transfers, additional night service (given a growing 24 hour a day economy), and more service to major transit trip generators (i.e. universities, hospitals, regional shopping centers, etc.). It took CDTA five years to complete but they were able to create a more efficient transit system with routes that made more sense while keeping the impact on the Authorities' budget to operate the new services to a minimum. A direct impact of the route restructure was an increase in transit riders system wide.

Universal Access Program

The partnerships developed through universal access agreements with numerous universities, private businesses and others in the Capital Region has been an enormous success with ridership increasing each year with each new partner added. CDTA intends to further expand the Universal Access program. These partnerships allow employees/students free transit access using their institutions' ID card or other means.



Source: CDTA Transit Development Plan (2014)

Bikeable Buses

CDTA's entire bus fleet is now equipped with easy-to-use bike racks on the front, offering riders more options to get around in an environmentally sound and healthy way. They also help to expand the reach of transit. Each rack can hold two bikes and will accommodate both adult and children's bikes (excluding tricycles and tandem bikes). Availability is on a first-come-first-served basis.

Regional Transit Model

The CDTC STEP Model provides a valuable tool for planning and supports operations and project development. The Model is used to forecast future travel demand and traffic volumes in the Capital Region. With consultant assistance, CDTC staff is developing a transit model using the VISUM software platform. The transit model includes a mode choice model which will be used to estimate transit demand, and a transit network that will include all CDTC service schedules, stops and stations. The

transit network will be integrated with the highway network. The transit model will be used to support transit planning and BRT planning in the region. The model will also be used at the regional level for development of transportation performance measures and regional scenario planning.

Smart Card Payment Options

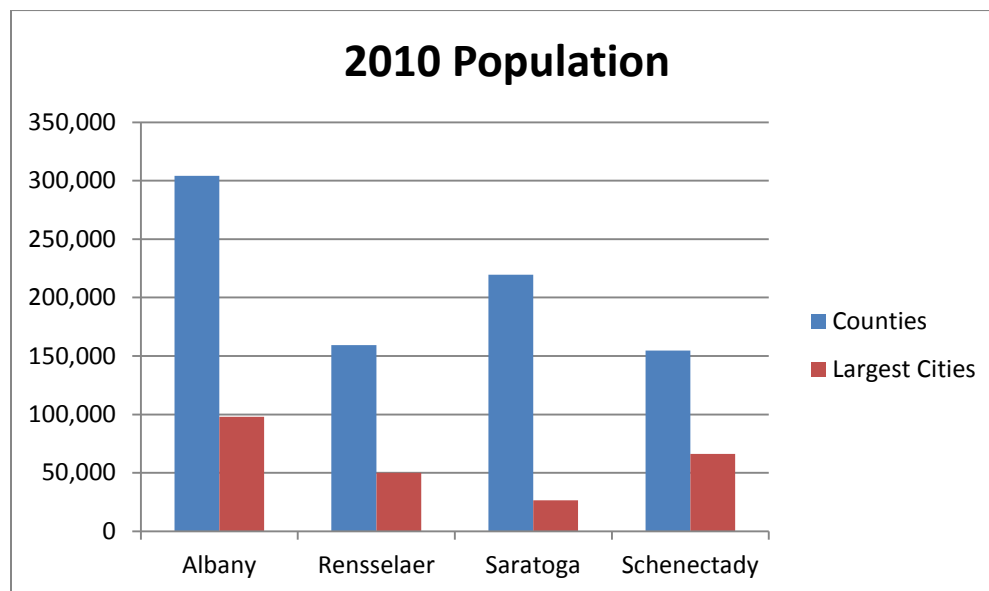
CDTA is upgrading its fare system to offer a choice-based, multifunctional system that is more flexible for customers and meets the needs of CDTA for the foreseeable future. The new fare boxes were installed in summer of 2014. Smart card and barcode readers will position CDTA for rollout of a new smart card and mobile ticketing application in late 2015.

DEMOGRAPHIC OVERVIEW

Over one-third of the region's population resides in Albany County. The population in Rensselaer and Schenectady counties each comprise about one-fifth of the region's total, while Saratoga County's population makes up about a quarter. The region's population is forecast to approach almost 900,000 people by the year 2040, according to the Capital District Regional Planning Commission's (CDRPC) projections.

The review of various demographic data shows that population groups most likely to use transit are generally concentrated in the three large central cities (Albany, Schenectady and Troy). This conclusion remains similar to those identified in previous regional planning work related to transit. Ensuring that these population groups have access to jobs that in recent years have located in suburban communities remains a critical issue for the region.

The region's four largest cities grew in population according to the 2010 Census, representing the reversal of a 50 year trend, and potentially strengthening transit. The chart below shows the 2010 Census population totals for each of the four counties' largest cities.



Source: 2010 US Census

The statistics that follow describe groups of the population that tend to use transit at a higher rate than the general population.

CDRPC's data shows that the population aged 65 and over is expected to increase to 22% of the overall regional population by 2040, while the age groups of 0 to 24 years and 25 to 64 years will decrease to 29% and 49%, respectively. According to the 2008-2012 American Community Survey, approximately 11% of the Capital Region population reports a disability, and approximately 11% of the region's population has an income below the poverty level. Between 15% and 20% of children and 10% and 12% of adults age 18-64 in Albany, Rensselaer, and Schenectady Counties have incomes below the poverty level.

Overall, there are approximately 33,000 households in the Capital Region that do not have a vehicle available, according to the 2008-2012 American Community Survey. This represents 9.9% of the total number of households within the region. Albany County has the highest percentage at 12.3% and Saratoga County has the lowest percentage at 5%. Albany, Schenectady, and Rensselaer Counties each have more than 10% of their households falling in the zero vehicle household category.

According to the 2008-2012 American Community Survey, English is the predominant language spoken by residents of the Capital Region. About 722,000 of the 793,000 people in the area speak only English. Albany County has the highest number of residents who speak another language. Over 11,000 people in Albany County speak English less than very well, over 3,000 people in Rensselaer and Saratoga, and over 4,000 in Schenectady County speak English less than very well.

CAPITAL DISTRICT TRANSPORTATION AUTHORITY

The Capital District Transportation Authority (CDTA) is a public benefit corporation that provides transportation and other services within Albany, Rensselaer, Saratoga and Schenectady Counties. CDTA has approximately 270 buses operating on 50 transit routes. The vast majority of CDTA's trips are for work (over 70%) and the rest are for medical, educational or recreation purposes. Along with fixed route services, CDTA provides commuter express services and paratransit services for people with disabilities.

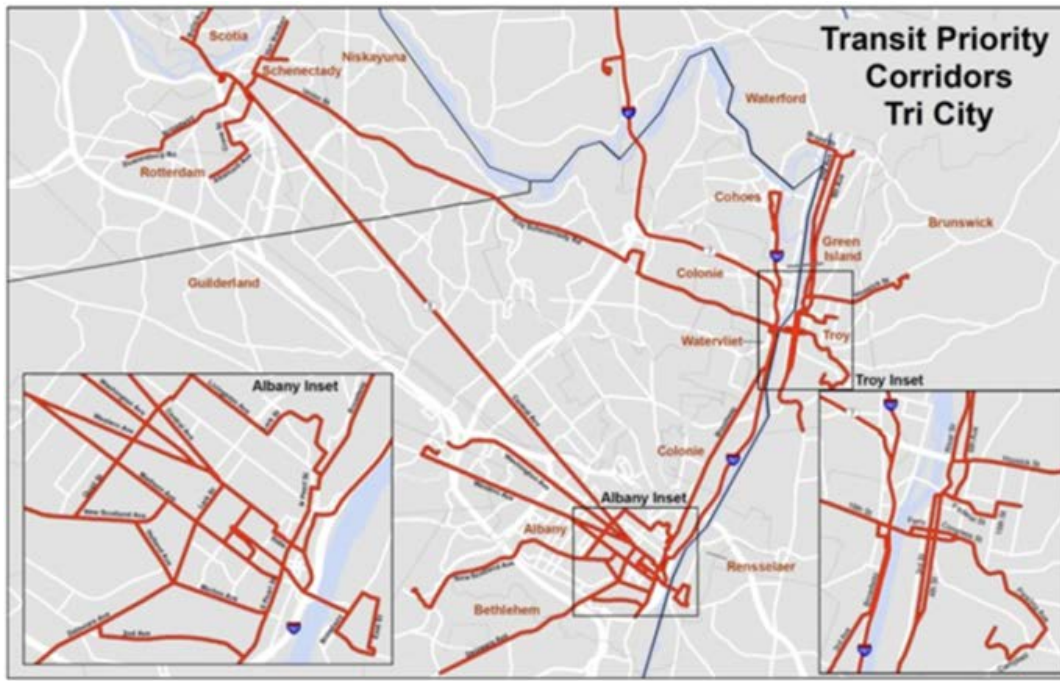
Ridership Trends

Ridership has increased on CDTA services for four consecutive fiscal years, and is on pace to increase for a fifth. In fiscal year 2013-14, CDTA set a 30-year record for ridership with nearly 16.5 million annual boardings. A key contributor has been the implementation of twelve universal access agreements with local colleges, universities, and employers. In the past five years, CDTA has also implemented several route restructuring initiatives, with ridership on the restructured routes increasing by 15% or more. The Route 5 BRT project increased ridership on the corridor by more than 20%.

Transit Development Plan (2014)

At the beginning of the New Visions plan update to 2040, CDTA completed an update to its Transit Development Plan (TDP) in January 2014. The TDP is a five-year plan that documents CDTA's services and outlines the most effective use of resources to increase ridership through the development of improved services, better facilities and innovative customer features. The updated TDP includes detailed service standards and a Transit Propensity Index displaying geographic data on community characteristics and transit generators. These are reflected in CDTA's Transit Priority Corridor Network

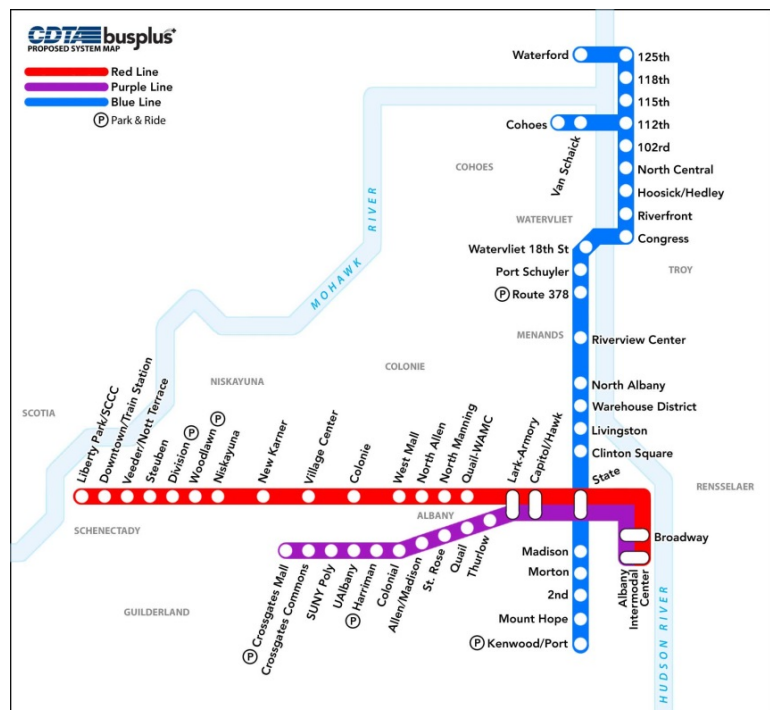
(below), which clearly communicates where CDTA will focus service and infrastructure improvements. The New Visions Transit Task Force used CDTA's network as a base for building a long term CDTC transit priority network for the New Visions plan. CDTA's 2014 TDP includes a number of recommendations for service improvements outlined below which will be folded into the short term recommendations for transit in the New Visions plan.



CDTA's Transit Priority Corridors for a portion of the Capital Region from the 2014 Transit Development Plan

40 Miles of Bus Rapid Transit (BusPlus)

Improvements will include longer spans of service and improved frequency on the existing Red Line connecting Albany and Schenectady along NY Route 5. Two new BRT lines will create a network of 40 Miles of BRT. The Purple Line will travel on the Washington and Western Avenue corridor between downtown Albany and Crossgates Mall through the University at Albany and the Harriman Campus. The Blue Line will operate along the Hudson River from downtown Albany through downtown Troy and Lansingburgh, with branches to Cohoes and Waterford. CDTA is anticipating both the purple and blue lines to be in service in 2017.



Service Improvements and Expansion

CDTA will increase service based on productivity and growth areas, taking into account social and geographic equity. This will include increased frequency and span of service on high volume trunk routes, additional service to express routes, and improvements to services on neighborhood routes. The route performance review and reporting system will continue to provide regular updates on productivity and efficiency, guiding service recommendations for alterations and improvements.

Transit Hubs

Transit hubs and centers will offer enhanced waiting areas and the opportunity to purchase fare media, with the possibility for retail and commercial space with parking facilities. This would provide additional revenue opportunities and stimulate intermodal development. The facilities will be located in high ridership locations like downtown Albany, downtown Troy, and Crossgates Mall.

Park & Ride Expansion and Improvement

Guided by the Regional Park & Ride/Express Bus study, CDTA will establish new cost effective shared-use lots and review the purchase or long-term lease of property with the highest projected use. The growth of the regional park-&-ride network will support express services and feature lots with shelters, landscaping and paving. Wayfinding signs along major routes and branded entrance signs will also be installed.

Increased Shelter and Maintenance

At least 50 new shelters will be added. Plans to remove trash, graffiti, snow, and ice from shelters and other street amenities will be fortified, and landscaping will be added.

Improved Technology

CDTA will upgrade the fare collection system for smart cards and mobile phone ticketing, replace the Computer-Aided Dispatch and Automated Vehicle Location systems, and expand Transit Signal Priority and real-time arrival information from BusPlus to local services.

Premium Vehicles for Premium Service

CDTA will explore the purchase of high capacity articulated buses for trunk route corridors and commuter style buses with cushioned, forward facing seats with added leg room and complimentary Wi-Fi for use on express routes.

Improved Relationship with Development Community

CDTA will expand its relationship with the development community to demonstrate the benefits of easily accessible, transit-oriented development. Developers will consider transit a primary component of the necessary infrastructure, along with roads, water and power.

NON-CDTA TRANSIT OPTIONS IN THE CAPITAL REGION

While CDTA is a significant partner in providing regional transit options as the designated recipient of federal transit funding, there are a number of other bus and rail operators that provide inter-city connections that should not be ignored in the regional transportation planning process.

Passenger Rail

Amtrak operates the following routes through the region:

- Adirondack, including New York, Albany, Schenectady, Saratoga Springs, and Montreal
- Empire Corridor, including New York, Albany, Schenectady, Niagara Falls
- Ethan Allen Express, including New York, Albany, Schenectady, Saratoga Springs, and Rutland
- Lake Shore Limited, including Boston, Albany, Schenectady, and Chicago
- Maple Leaf, including New York, Albany, Schenectady, and Toronto

In addition, the Saratoga and North Creek Railway operates between North Creek and Saratoga Springs, connecting passengers to the national passenger rail system (Amtrak) and other services in Saratoga Springs.



Passenger Rail Lines in the Capital Region

The Empire Corridor has been designated as one of 11 high speed rail corridors nationwide. The 463-mile Empire Corridor runs north and south between Albany and New York City, and east and west between Albany and Niagara Falls. New York State's Vision for High Speed Rail is to enhance the passenger and freight rail operations by diverting traffic from less energy efficient modes and improving connectivity among the State's cities and regions. The goal is to increase train ridership by improving on-time-performance to make travel more reliable, reducing the trip time to allow train travel to be more competitive with automobiles and airplanes, increasing the train frequency to give citizens more options, and revitalizing stations to improve comfort and access.

New York State and the Federal Rail Administration are reviewing five options to achieve this goal:

- Base Alternative – Improvements to the existing right-of-way, new and redeveloped train stations, high-level boarding platforms, and 20 miles of new track, signals, and track improvements, such as grade crossings, to enhance safety, security, and convenience.
- Alternative 90A – New train sets, locomotives and coaches as well as 20 capacity and station improvement projects in the existing right-of-way.
- Alternative 90B – All Alternative 90A features plus station improvements and construction of more than 300 miles of track dedicated to passenger rail.
- Alternative 110 – All Alternative 90A features and 325 miles of new dedicated passenger rail track.
- Alternative 125 – Entirely new 247-mile corridor connecting Albany and Buffalo, requiring construction of a separate right-of-way for passenger rail service and sections of elevated track to bring passengers to stations or freight to customers and freight yards. New service would stop in Albany, Syracuse, Rochester, and Buffalo, where travelers could change to local trains.

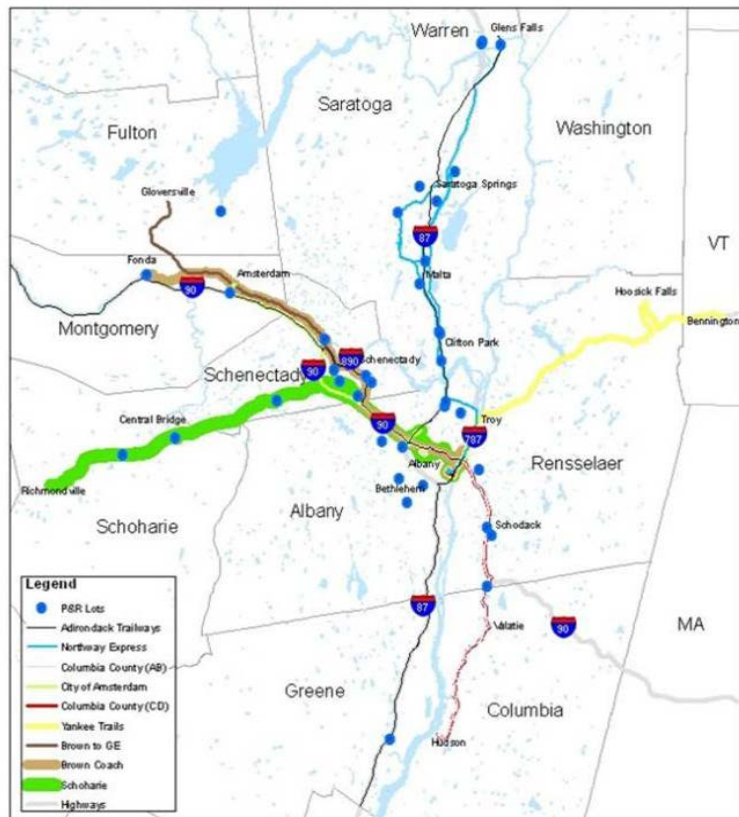
Regardless of the high speed rail option, Amtrak is constructing a double track between Albany and Schenectady, where previously there was one track. In addition, the Schenectady station will be rebuilt and a fourth track will be constructed at the Albany-Rensselaer station.

Regional and Express Bus Services

The map at left shows the extent of a number of longer distance commuter routes with service generally into the region in the morning and out in the evening. These routes are provided by:

- Greyhound
- Yankee Trails
- Columbia County Transit
- Adirondack Trailways
- Brown Coach
- City of Amsterdam
- Schoharie County Transit
- CDTA's Northway Express

In addition, the University at Albany operates Shuttles between its main campus, downtown Albany campus, and East Campus in Rensselaer. Megabus operates between the Rensselaer Rail Station and New York City as well as Ridgewood New Jersey, and between Burlington, Vermont, Saratoga Springs, and New York City. A number of other carriers provide service between locations in Albany or Schenectady and New York City. The New York State Office of General Services provides shuttles on workdays between its facilities in downtown Albany and satellite parking lots.



Regional/Express Commuter Bus Services

INTERMODAL FACILITIES

The Capital Region is home to a number of naturally occurring locations with multiple modes available – the Albany International Airport and the three Amtrak served passenger rail stations, in particular. All of these locations have local CDTA bus services and taxi services at or next to the terminal/station:

- Albany International Airport: the Airport provides national and international air services and connects passengers to a variety of transportation options in addition to CDTA including regional bus services.
- Schenectady: the Greyhound Station sits within walking distance of the Schenectady Amtrak Station and downtown and is served by a BusPlus stop as well as local CDTA services.

- Rensselaer: the Albany-Rensselaer Amtrak Station is in downtown Rensselaer and also serves as the Megabus stop.
- Saratoga Springs: Amtrak and the Saratoga and North Creek Railway provide passenger rail services at the Saratoga Springs Train Station. The station also includes a park-and-ride.
- Albany: the Albany Bus Terminal is in downtown Albany and is also served by a BusPlus stop and local CDTA services.

For Amtrak and CDTA, as regional inter-city bus services as well as CDTA services become more convenient for passengers, continued improvements to existing intermodal facilities and the potential for constructing new facilities, such as transit centers, are both short and longer term considerations.

COORDINATION WITH HUMAN SERVICE AGENCIES

CDTC is required to maintain a Coordinated Public Transit – Human Services Transportation Plan. The purpose of the Coordinated Plan is to identify gaps and overlaps in transportation services for disadvantaged populations and to provide prioritized recommendations for service improvements. The Capital Region is home to over 90,000 people with reported disabilities, many of which affect how they are able to travel and use the variety of transportation choices most people take for granted.

In addition, according to the 2010 US Census, 14% of the Capital Region’s population (or 117,000 residents) was 65 years or older. The number of seniors in the region is expected to continue to increase to 22% of the overall population by 2040, a projected increase of over 80,000 residents. For many people, sensory and mobility loss are associated with aging, impacting their ability to drive and making it more difficult to access and use transit. Approximately 11% of the region’s population has an income below the poverty level, up from 9% as reported in the last Coordinated Plan. With a majority of low income residents, many without access to a private vehicle, living in the region’s cities or more rural areas, transportation options for access to jobs and other travel needs can be limited.

As a region, it will become increasingly important to address these growing mobility service needs. Over 350 different agencies provide transportation to people with disabilities, seniors, and/or people with low income. Some of these agencies only provide transportation to people who receive other services of that agency and some only provide transportation for certain trip purposes. Many agencies use federal and/or state funding to provide the transportation.

TRAVEL DEMAND MANAGEMENT

Travel demand management (TDM) refers to efforts to reduce single occupant auto travel and congestion by improving transit access, bicycle and pedestrian access, providing opportunities for ridesharing and telecommuting, and other strategies. Vehicle miles of travel is highly correlated with greenhouse gas emissions, and projects that reduce vehicle miles of travel are generally more effective in reducing greenhouse gas emissions. TDM reduces congestion, reduces the costs of driving, and is an important way to reduce greenhouse gas emissions. CDTC strongly supports TDM by investing in transit, bicycle and pedestrian facilities, ridesharing and land use planning. Transit related projects and investments that support TDM include:

- Federal funding for transit service in the Capital Region is a major part of the CDTC TIP.
- CDTA sponsors a number of transit pass subsidy programs including homeowner incentive programs and the Refugees and Immigrants program.
- CDTC maintains a travel options website for the Capital Region known as Capital Moves www.capitalmoves.org.
- CDTC sponsors Capital CarShare in Albany. Future expansion could include Troy, Schenectady and Saratoga Springs.
- CDTC sponsored four demonstration/trial weeks of Bike Share during the summer (2014) in Albany, Schenectady, Troy and Saratoga Springs.
- CDTA and NYSDOT provide Park and Ride lots for transit and carpool use.
- CDTA provides a taxi Guaranteed Ride Home for a bus rider or carpooler in the event of an unplanned emergency.
- CDTA partners with vRide to provide options for vanpools.

Emerging technology enabled (often smart phone) ride hailing services could have future roles in reducing the need for owning/using a personal vehicle for certain trips. These options have the potential to compete with transit as well as support it by offering an additional way to connect to transit, a service that is currently only provided by taxis in the Capital Region.

TRANSIT ORIENTED DEVELOPMENT (TOD)

New Visions supports sustainable development patterns and site design, urban reinvestment, and community-based land use planning. Under any growth scenario, the benefits of concentrated development patterns are significant for the transportation system and for regional quality of life. Transit Oriented Development not only supports urban centers with concentrated development patterns but can further aid in reinvestment by supporting mixes of land uses at a walkable scale.

In support of urban reinvestment and regional equity, CDTC has programmed significant funding for transportation projects in the cities. One important way that CDTC has supported land use planning is by sponsoring the Community and Transportation Linkage Planning Program (known as the Linkage Program). The Linkage Program provides funding for cities, towns, and villages to prepare and implement community-based transportation and land use plans consistent with New Visions principles. Through this program as well as CDTC's Corridor Management Initiative, TOD studies have been completed in the City of Albany and the City of Schenectady.

The need for additional support for nodal development that supports walking and transit continues to increase. CDTC continues to support communities undertaking zoning code updates that create areas for transit oriented development.

AUTOMATED VEHICLES

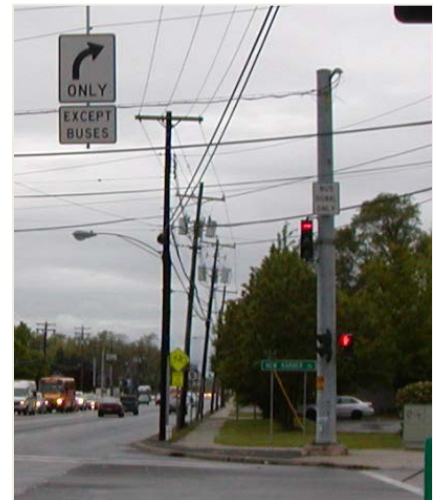
The New Visions Environment and Technology Task Force had a lengthy discussion about the potential for automated vehicles (self-driving cars) to become reality well within the New Visions 2040 timeframe. Such technology may have significant impacts on transit down the road. As that group discussed, it is possible that in some markets, totally automated vehicles could make transit less competitive, but it is

also possible that in some markets, transit could become more competitive and attractive. For example, automated shuttles could bring people to main line transit stops. In addition, totally automated transit vehicles could increase transit viability.

TRAFFIC SIGNAL TECHNOLOGY

The Regional Operations and Safety Advisory Committee for New Visions discussed traffic signal technology at length, noting that one area where technological advancements continue to improve opportunities for improving mobility is traffic signal technology. CDTC supports improvements to traffic signals that improve travel efficiency and traffic flow while reducing delay. Examples of traffic signal technology that also offers transit benefits, especially to riders, are listed below.

- **Signal Coordination** provides the opportunity for buses to move along an arterial with only infrequent stops at traffic signals, and significantly reduces delay.
- **Transit Signal Priority (TSP)** is an innovation which allows buses to activate signals for extended green time as they approach a signal if they are behind schedule. The extended green time is usually ten seconds, which allows transit vehicles to provide higher quality service. It should be noted that autos in the same traffic stream with the bus will benefit as well. Because the green phase is typically extended only two or three times per hour, the impact on side streets is minimal. CDTC supports TSP as an important tool for improving transit service. TSP has been implemented in the Route 5 BRT (BusPlus) corridor and is being developed for other corridors.
- **Queue Jump** signal phases also have the potential to improve transit on time performance by allowing buses to advance on green ahead of other vehicles, without disrupting traffic flow. Several queue jumps, such as at the intersection of Central Avenue with Wolf Road, have been implemented in the Route 5 BRT (BusPlus) corridor and are being developed for other corridors. Queue jumps often have bus only lanes associated with them to allow the bus to jump ahead of traffic.
- **Pedestrian Signal** technology has advanced far beyond walk/don't walk signals. Innovations in pedestrian signals include:
 - Pedestrian activation of advanced walk phases allow pedestrians to begin crossing before vehicles enter the intersection.
 - Exclusive pedestrian phasing stop all vehicles, including right-turn-on red movements, while the pedestrian crosses.
 - Countdown timers give pedestrians information about how much crossing time remains to finish crossing the intersection.
 - Midblock pedestrian crossing signal technology, called a HAWK beacon, requires vehicles to stop only when a pedestrian needs to cross.



Transit Queue Jump Signal at Central Ave/Wolf Rd in Colonie

TRANSIT PRIORITY NETWORK

CDTC's current Transit Priority Network constantly evolves to match the current CDTA route system. CDTC uses the network to assign points to projects proposed for federal funding and considered by CDTC for programming. Any project located on the transit priority network receives points, increasing its competitiveness for funding. One noted difficulty with this method is that a project implementing no transit components, or even worsening the environment for transit, may receive points. In addition, the networks have a small effect on the overall TIP scoring process, which is weighted in favor of fast-moving automobiles.

The Transit Task Force recommends changing the Transit Priority Network to base it off of CDTA's Transit Priority Corridors, with deviations off of the main line removed, connections to the Albany International Airport and Saratoga Springs train station added, and I-87 between Route 7 and I-90 added (See Draft Transit Priority Network Map, page 20). The following changes to the TIP evaluation scoring process are also recommended¹:

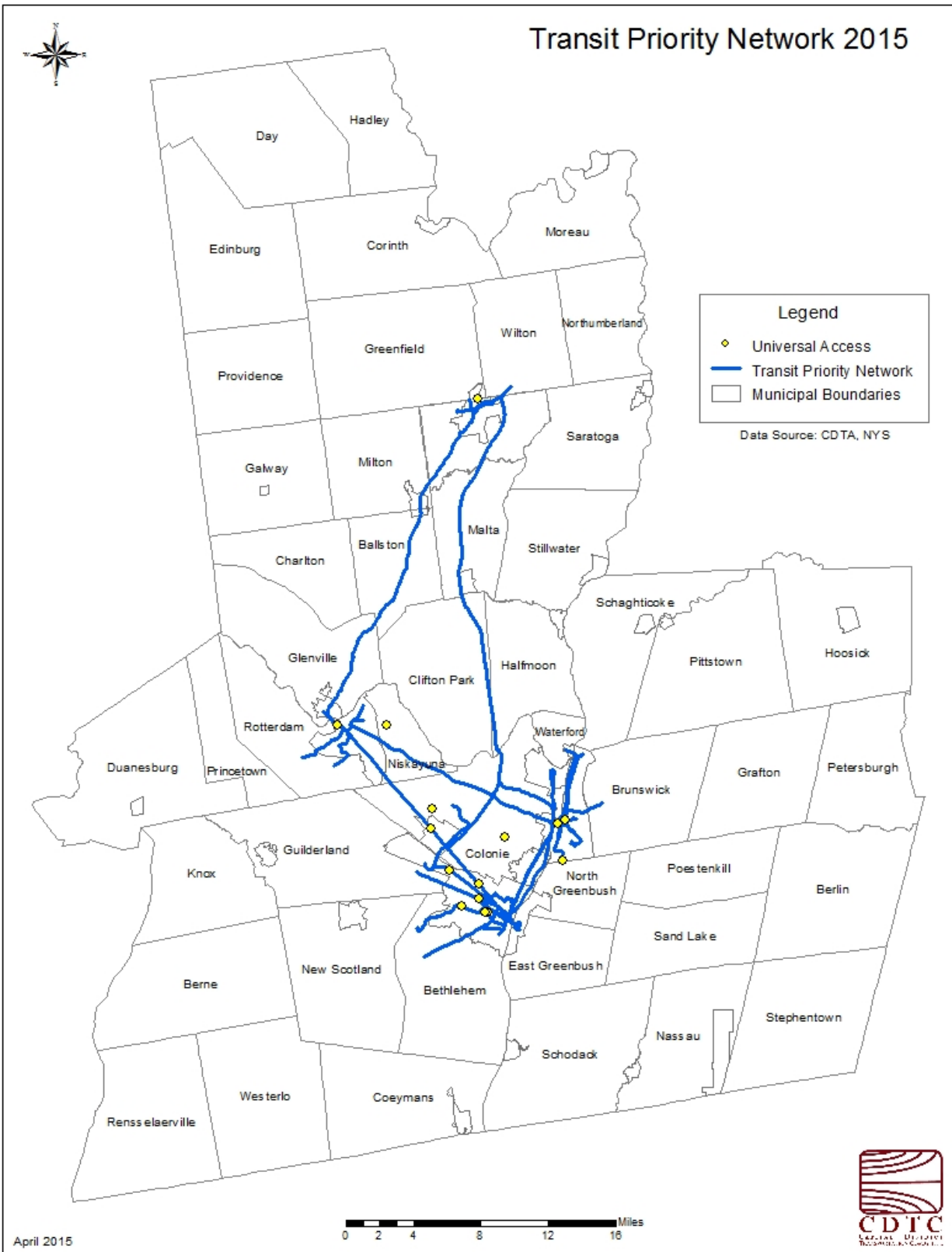
Assign points in the following manner:

+3 points	project is on the network, or physically connects to the network, and has at least one transit component. To receive points, that component must be included in the description of the project on the TIP. If transit components are removed, they are replaced with other transit components, and the value of the new transit components is greater than the dollar value for existing components, if they were new.
+1 point	project is not on the network but a transit route is present. The project adds transit components.
+/-0 points	project is on/off the network and includes no components with a greater benefit to transit than to other modes. The project also does not remove any transit components.
-1 point	project is not on the network but a transit route is present. The project removes transit components without replacing them.
-3 points	project is on the network, or physically connects to the network, and removes one or more transit components without replacement. If replaced, the value of the new transit components is less than the dollar value for existing components, if they were new.

Transit Components

- Bus-only travel lane
- Transit shelters, including concrete pad and access to board transit
- Concrete transit pull-offs (bus bays) adjacent to the roadway
- Curb extension at bus stops
- Sidewalks
- Transit signal priority Queue jumps
- Park and Ride lots of at least 25 spaces
- Innovative pedestrian crossings
- Accessibility above ADA guidelines
- Pedestrian signage throughout project area
- Land set aside for future transit components

¹The Transit Priority Network was adopted in the New Visions 2040 Plan. However, the point system recommended here was not adopted and is subject to further discussion and action by the CDTC Planning Committee.



PERFORMANCE MEASURES

New transit performance measures under MAP-21 are expected, but not yet available. In the meantime, the following measures will be used. They are based on CDTA's current performance measures with the addition of regional planning measures of access. CDTC will continue developing transit performance measures under MAP-21, including transit systems performance measures. Of particular interest is a measure relating to access to Park-and-Ride lot based transit service.

Increase Access to Transit

Measure: Percent of the population residing within ¼ mile of a transit stop/station

Measure: Percent of the population residing within ½ mile of a transit stop/station

Increase Transit Use

Measure: Total boardings

Increase Transit Cost Effectiveness

Measure: Ridership productivity. This refers to boardings per revenue hour of service. CDTA's routes are designed to perform above the productivity thresholds of their service classification, shown below.

Service Type	Productivity Thresholds				
	Annual Average	Weekday Peak	Weekday Off-Peak	Weekends	Late Night / Early AM
Trunk/BusPlus	25	30	25	20	15
Neighborhood	15	18	15	12	10
Express	25	25	N/A	-	-
Commuter	12	12	8	-	-

Increase Transit Quality of Service

Measures: As follows

Headways - Headways refer to the interval of time between vehicles moving in the same direction on the same route. CDTA's headway standards are shown in the table below, which categorizes routes according to their frequency and hours of operation, shown below.

Service type	Headway Ranges					
	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
Express	3+ trips	0-3 trips	-	-	-	-
Commuter	3+ trips	0-4 trips	-	-	-	-

Span - Although ridership levels are lower at night, it is necessary to maintain service to increase the viability of transit as a travel option and to incentivize trips earlier in the evening. Span refers to the hours over which the service is operated, shown below.

Service type	Span		
	Weekday	Saturday	Sunday
BusPlus	4:00 AM – 2:00 AM	5:00 AM – 2:00 AM	6:00 AM – 1:00 AM
Trunk	5:00 AM – 12:30 AM	6:00 AM – 12:30 AM	7:00 AM – 11:30AM
Neighborhood	6:00 AM – 9:00 PM	7:00 AM – 7:30pm	-
Express	Primarily Peak Periods	-	-
Commuter	Primarily Peak Periods	-	-

Passenger Loads - Average load factor is the mean of the number of customers on a vehicle at all stops divided by the maximum seating capacity of the bus. It indicates passenger comfort and convenience during travel, and reflects express routes operating on the highway.

Service type	Max Avg Load Factor	
	Peak	Off-Peak
BusPlus	125%	100%
Trunk	125%	100%
Neighborhood	125%	100%
Express	100%	
Commuter	125%	

Bus Rapid Transit (BusPlus) - Each prospective bus rapid transit corridor must attract a minimum of 2 million annual riders on existing services. This is measured through an aggregate of all routes and segments for which the prospective BRT corridor serves as the primary area of travel. To justify a BRT station, an existing pair of bus stops must attract a minimum of 100 boardings per weekday after the institution of new service. This is calculated by applying a 20% BRT ridership increase to the existing number of boardings.

On-Time Performance - To bring CDTA on-time performance in line with industry standards, at least 85% of trips should arrive on time, defined as arriving between 1 minute earlier or 5 minutes later than the scheduled arrival time.

Street Amenities – provision of shelters, benches, and trash receptacles, shown below.

Boardings / weekday	Shelter	Bench	Trash / Recycling
< 15	No	No	No
15-35	No	Yes	Case-by-case
35+	Yes	Yes	Yes

Bus Stop Spacing - The following standards apply in most applications (except BusPlus stations), shown below.

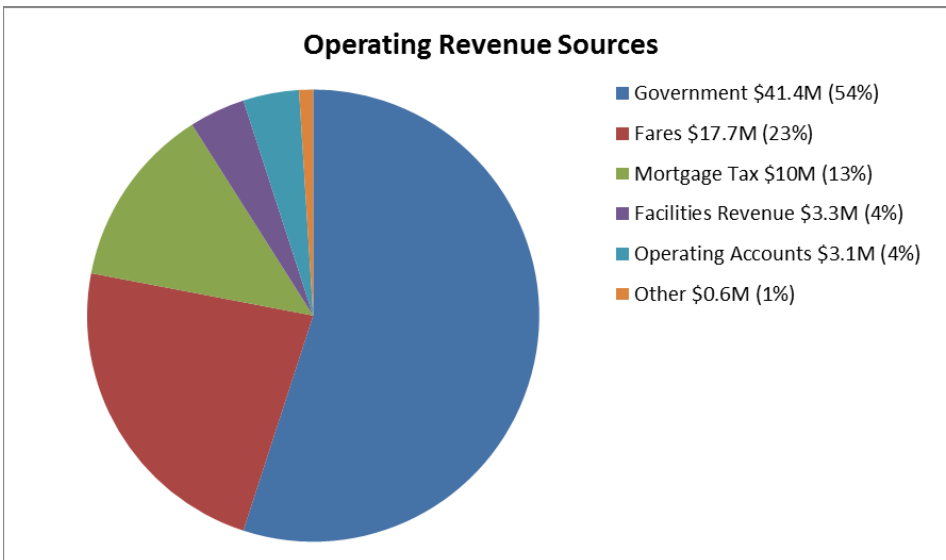
Environment	Local Stop Spacing	
	Typical	Maximum
Central Core	750 ft	1,000 ft
Urban Areas	1,000 ft	1,500 ft
Suburban & Rural Areas	1,250 ft	2,000 ft

FUNDING

Many forecasts suggest level or potentially declining funding from existing identified financial revenue sources. In our region, fare box revenue amounts to approximately one-quarter of cost recovery, aligning with the national average. The transit financial model therefore necessitates significant and continuing subsidy.

Current Financial Picture

Understanding transit funding in our region involves focusing on the Capital District Transportation Authority (CDTA). CDTA's operating budget totals approximately \$76M annually as of 2014.



Source: CDTA Transit Development Plan (2014)

As can be seen above, the revenue source picture is complex and varied. The largest source of revenue is government subsidy of \$41.4M, which includes State assistance of \$31.6M (42% of total operating budget), Federal assistance of \$7.9M (10%), and County assistance of \$1.9M (2.5%). A local mortgage recording tax mechanism also provides a local subsidy of \$10M (13% of budget). The next largest share of operating revenue following governmental subsidies is that portion derived from customer fares

which total \$17.7M, or 23% of the operating budget. The remainder of the annual budgeting picture is varied and includes such sources as revenue from facilities, advertising, and transfers from operating accounts.

Funding in Comparable Systems and Environments

Amongst New York peers, the Syracuse and Rochester systems are roughly similar to Albany's while the Buffalo system is considerably larger, in terms of operating dollars. Syracuse shares a similar percentage – roughly 25% - of operating expenses recovered by farebox proceeds. Rochester and Buffalo experience a lower rate of under 15%. Both the Syracuse and Rochester peers rely upon the mechanism of the mortgage recording tax, at recent levels of 9-10% or \$6-7M. The Albany/Capital Region real estate market may be slightly stronger, accounting for CDTA's slightly higher MRT recovery of 13% or \$10M. Each system in New York also sources small amounts of revenue from advertising and other sources. These systems utilize relatively few novel or unexplored mechanisms to incorporate into CDTA.

Several lessons are apparent from examining the systems of Austin, Texas, Kansas City, Missouri and Madison, Wisconsin, which are succeeding as first rate systems in spite of declining Federal and State subsidies and average farebox recovery rates. Notably, Austin's Capital Metro operating budget includes \$182M or 64% from service area sales tax. Similarly, Kansas City's operating budget receives 59% from a dedicated sales tax that has received strong public support. While Madison does not share this dedicated local sales tax, its operating budget includes a significant local share from the city budget as well as local contracting partners.

Prior New Visions and Recent Progress

The Transit Futures Report prepared by the CDTC Transit Futures Task Force in 1995 outlined a "broad strategy of actions for the coming years" including an item of particular note with regard to the financial challenges faced then and now by transit: "Change the economic 'equation' to ensure effective user and non-user support of transit." Included within the discussion of this item were the following categories:

1. Include demand management and transit support expenses as elements of developer financed traffic mitigation programs.
2. Increase employer participation in transit promotion and financing.
3. Implement cash out parking subsidies. This would require cash out legislation wherein an employer that purchases commercial parking spaces for employees is required to offer the cash value of a parking space directly to an employee as an incentive to reduce driving.
4. Engage New York State as a full partner in parking management and transit promotion.
5. Consider highway pricing (particularly congestion pricing), parking pricing, and broad parking policies.
6. Adopt more effective fare policies.
7. Ensure TIP funding decisions recognize the multiple public objectives of transit service.
8. Secure new reliable public funding.

CDTA has made significant strides in several areas including employer participation by means of universal access agreements. Another fruitful area, developer financed traffic mitigation, exist in local

instances although not in a regionally consistent manner and not specifically harnessed by transit. CDTC actively works to consider multi-modalism and transportation alternatives in TIP evaluation and is increasing attention on transit benefits.

Transit-supportive changes to parking policies and highway pricing (including congestion pricing) have been more challenging. Congestion pricing and other highway pricing mechanisms may not be well-suited to the context of the Capital Region. Parking policy and pricing options are still of interest. Reliable funding is at the crux of the future success of transit in our region.

Alternative Funding Discussion

CDTA has recently implemented cost efficiency measures. Therefore, attention should be directed primarily toward funding. The general types of funding can be thought of in the conceptual categories of *riders*, *business*, and *government subsidy*.

The ridership category of funding involves examination of current fare policy. While no current plans call for fare increases, fare policy changes could include both modest increases to standard bus fares and to BRT fares. There may be more flexibility in negotiating and pricing universal access agreements with major regional employers. Possible mechanisms might include base costs plus cost per rider, with the latter being variable and relating to direct costs of provision of services.

The business category can be summarized as special assessment districts, tax increment financing or other value capture strategies, developer contributions such as mitigation or impact fees, innovative partnering, alternative ownership and project delivery mechanisms such as joint development and transit oriented development (TOD), and land and facilities leasing or sales.

The government subsidy category involves additional and more stable subsidies. As of this writing, Federal legislation extending or replacing MAP-21 is unknown. Potential sources could include fuel tax increases (potentially indexed for inflation), vehicle registration or license plate fees, vehicle ad valorem taxes (e.g. taxes based on motor vehicle value), millage increases (e.g. tax rates on motor vehicle values), vehicle miles travelled taxes, innovative financing repaid from a variety of standard and non-standard tolling strategies (including congestion pricing), parking fees, regional or local sales taxes, state income taxes, and value added taxes. More sustainable subsidies might include an incremental sales tax increase and/or a share of a fuel tax increase.

The success of a dedicated tax is predicated on the reputation of the transit agency, the specific benefits provided by the tax, and strong champions. Challenges include currently high tax rates that may be approaching a maximum tolerable level. There are also challenges to impose such a tax in a regional manner with no regional form of government – agreement and coordination across municipalities would be necessary.

Most tenable in the Capital Region may be a novel funding source which directly connects an incremental tax increase to a clear benefit that transit is uniquely capable of providing. A notable example of this is the use in Allegheny County (Pittsburgh, Pennsylvania) of a pouring fee on alcoholic beverages that directs the funds to public transit. Research indicates this tax generates \$43M annually. In the Capital Region, the growing craft beverage movement could suggest a new funding source. By steering the tax proceeds of such a potential fee to transit, and portion to safe rides programs, evening

and nighttime transit service could be increased in order to reduce the potential for driving under the influence (DUI) dangers.

PUBLIC INPUT

The Transit Task Force recommends asking the public about relative priority among modes related to both use of the physical roadways and funding. For instance, roadways can include space for street parking, travel lanes, bus lanes, sidewalks, trees, and bus stops. Another idea was to show street typologies that accommodate different levels of transit. The group would like to gather input from mayors or supervisors on street space scenarios, and restricting building construction with public funds to those that are accessible to transit. Finally, the group would like the public to be able to provide input online.

RECOMMENDATIONS

Short term (1-5 years)

1. Continue to support CDTA in implementing its 2014 Transit Development Plan
 - a. Expand BusPlus to include the Washington/Western and River corridors and continue to enhance the Route 5 corridor to improve reliability and efficiency.
 - b. Strengthen the system beginning with trunk routes, express routes, and commuter/neighborhood routes.
 - c. Implement fare changes on express and BusPlus routes
 - d. Improve the fleet by reintroducing articulated buses on BusPlus and trunk routes, providing commuter coaches on all express routes, and installed Intelligent Transportation System components on all vehicles.
 - e. Plan for and begin to construct transit centers.
 - f. Improve transit infrastructure by implementing BusPlus infrastructure throughout the CDTA system, bus only lanes, transit signal priority, pedestrian access, more shelters and improved snow clearing, additional park and ride lots, a new Computer Aided Dispatch and Automatic Vehicle Location systems, and a new fare collection system.
 - g. Better integrate pedestrian, transit, and bicycle infrastructure.
2. Investigate new funding mechanisms to support CDTA transit operations
 - a. Novel sales tax concepts such as an alcoholic beverage pouring fee.
 - b. Appropriate level of fare increase for base fare on fixed route services to increase the share of revenue provided by transit customers.
 - c. New and expanded transit access agreements for employees in the technology, casino, and non-profit sectors.
3. Revise the Transportation Improvement Program project evaluation process to ensure that transit is being considered in the benefit/cost ratio developed for all projects. Support the Environment and Technology Task Force's recommendation to further evaluate greenhouse gas emission impacts during project selection. Research inclusion of maintenance agreements in the TIP evaluation or programming process.
4. Explore the potential for bus/transit only travel lanes, beyond those planned for the Washington/Western BRT Corridor, in various locations throughout the region. Particular attention should be paid to roadways included in the 40 miles of Bus Rapid Transit.
5. Use established national criteria to identify transit corridors that may have the potential to support streetcar or light rail transit.
6. Coordinate with municipalities, the counties and the state in the development of Complete Street design guidelines, standards and/or ordinances that incorporate the needs of the regional transit system (including articulated buses). Encourage inclusion of transit access for pedestrians in state and municipal ADA conformance plans (universal design elements such as sidewalks in good condition, curb ramps, etc.).

7. Ensure that ADA (Americans with Disabilities Act) requirements are being met adjacent to all transit routes, on regular route vehicles and on paratransit vehicles through the implementation of universal design techniques (those that accommodate the widest range of users). Explore further use of audio and video based technologies on buses.
8. Continue to work with and promote integrated land use and transportation planning that supports transit oriented development and land use projects that encourage transit use (especially for seniors and lower income housing). Improve local understanding of development finance in real estate markets for transit oriented development.
9. Encourage improved intermodal connections among transit providers including Amtrak, inter-city bus carriers, and the Albany International Airport as well as walking, bicycling, and driving. Work with CDTA and regional transit carriers, including Amtrak, on the development of shared intermodal stations.
10. Continue to engage major public and private stakeholders in transportation demand management initiatives and monitor significant new development in order to structure future transit service, transit access agreements (employer/institution financial partnerships with CDTA), and opportunities to influence development in transit supportive ways.
11. Develop marketing or education materials targeted to elected officials, developers, financiers, etc. about the benefits of transit and the cost to provide transit service.
12. Continue to encourage open communication between NYSDOT and transit providers.

Longer term (5-20 years)

1. Explore new funding mechanisms for both capital and operations funding
 - a. Explore best options and mechanisms for developer contributions, mitigation fees, transit oriented development (TOD) and a variety of value capture mechanisms.
 - b. Continue to explore parking pricing options.
2. Explore new technologies which may be deployed to improve the reliability and efficiency of transit (such as light rail styled vehicles, off board fare collection or proof of payment system for every transit vehicle, traffic signal coordination, etc.). Consider a working group which coordinates management of transit signal priority/coordination across jurisdictions.
3. Explore the potential impacts that automated vehicles may have on transit as well as the potential for automated transit vehicles.
4. Continue to work with New York State on the development of a high speed rail program.
5. Implement additional BRT corridors in the Capital Region.
6. Further explore opportunities to upgrade BRT corridors to fixed guideway.