CDTC
CAPITAL DISTRICT
TRANSPORTATION COMMITTEE

Long Range Transportation Plan
New Visions 2050

Draft Bicycle & Pedestrian Action Plan

January 2020

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Transportation Network Company	
Capital Region	
CDTC-area	
Transportation Network Companies	
Shared mobility	
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Vehicle Miles Traveled	
Center-lane miles	
GIS	
GPS	
Long range transportation plan	
Unified Planning Work Program	
Transportation Improvement Program	
Investment	
Climate Crisis	
Smart Growth	
Transit-Oriented Development	
Complete Streets	
Bicyclist	
Stakeholder	

Glossary of Abbreviations

CDTC	Capital District Transportation Committee
MPO	Metropolitan Planning Organization
NYS	New York State
CDTA	Capital District Transportation Authority
CDRPC	Capital District Regional Planning Commission
NYSDOT	New York State Department of Transportation
NYSDEC	New York State Department of Environmental Conservation
VMT	Vehicle Miles Traveled
MaaS	Mobility as a Service
TNC	Transportation Network Company
LRTP	Long Range Transportation Plan
TIP	Transportation Improvement Program
STIP	State Transportation Improvement Program
UPWP	Unified Planning Work Program
CMAQ	Congestion Mitigation Air Quality
BPAC	Bicycle and Pedestrian Advisory Committee
GPS	Global Positioning System
GIS	Geographic Information Systems
NACTO	National Association of City Transportation Officials
APBP	Association of Pedestrian and Bicycle Processionals
NYPTA	New York Public Transportation Association

Acknowledgments

The Capital District Transportation Committee (CDTC) established the Bicycle and Pedestrian Advisory Committee (BPAC) after the first New Visions was adopted in 1997. The BPAC has met almost every month, nearly 300 times, to prioritize, discuss, strategize, and mobilize to accomplish CDTC's New Visions goals. It has conducted a comprehensive review of concerns related to bicycle and walking in the Capital Region, identified key obstacles to shifting more trips to walking and bicycling, and considered many possible regional strategies for enhancing the region's transportation system to be more accommodating of bicyclists and pedestrians.

This document summarizes CDTC's accomplishments in improving walking and cycling in the Capital Region through education, outreach, policy, planning, and programming. While there is still plenty of work to be done, walking and cycling facilities have risen in priority due to an increase in public demand, public health concerns, and successful planning. While all interest and public comments received are greatly appreciated, this effort particularly benefits from the sustained participation and enthusiasm of the BPAC, whose members are listed below.

All errors or omission are the responsibility of the principle author, Jennifer Ceponis. All mapping was provided by Teresa LaSalle. Research, data collection, and general assistance were provided by Teresa LaSalle, Jacob Beeman, Jordan Solano-Reed, and Andrew Tracey of the CDTC staff. The content and philosophy of this document is in large part a result of the contributions for the BPAC.

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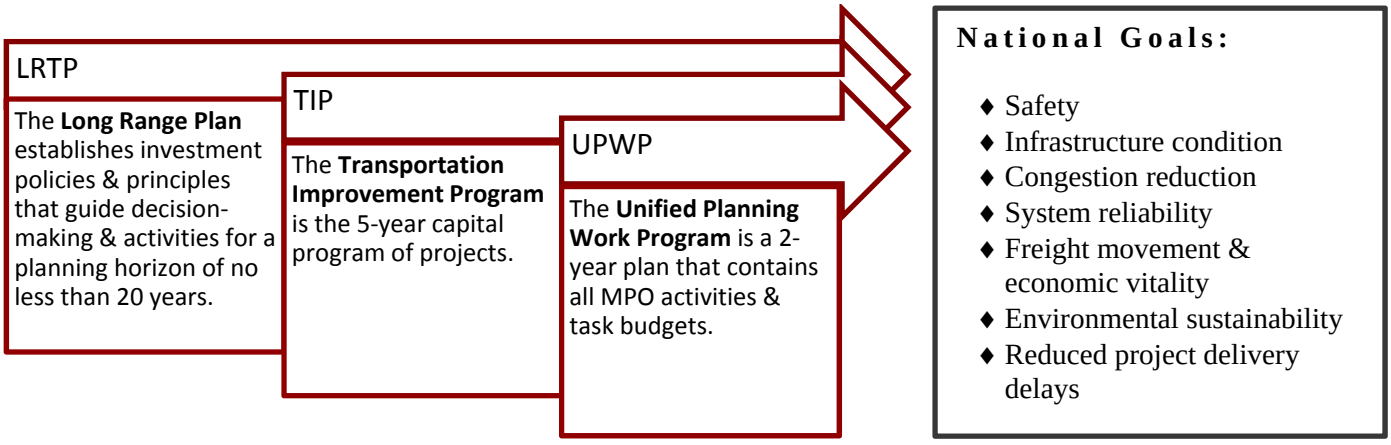
Introduction

The CDTC is the designated Metropolitan Planning Organization (MPO) of the Albany-Schenectady-Troy and Saratoga Springs metropolitan areas. In accordance with federal transportation legislation, CDTC is required to provide a forum for cooperative transportation decision-making in a continuing, cooperative, and comprehensive manner. One of the main responsibilities of CDTC is the development and maintenance of a Long-Range Transportation Plan (LRTP) that meets the social, environmental, economic, and travel needs of the area. CDTC refers to its LRTP as *New Visions*. New Visions establishes investment policies and principles that guide decision-making and activities for a planning horizon of no less than 20 years. These policies and principles are woven through CDTC's evaluation and prioritization process of capital projects, a 5-year program called the Transportation Improvement Program (TIP). Furthermore, CDTC is required to develop and maintain a 2-year plan that contains all MPO activities and task budgets. This is referred to as the Unified Planning Work Program (UPWP). All of the activities and tasks included in the UPWP help achieve the goals of New Visions.

Figure 1. MPO Responsibilities



This white paper will provide an overview of CDTC's accomplishments and progress in achieving the goals and performance measures recommended in *New Visions 2040*. It connects specific UPWP tasks as well as initiatives by CDTC partners and stakeholders to the progress made. A snapshot of existing bicycle and pedestrian infrastructure, such as miles of sidewalk, trails, and various bike facilities and how this has changed over time is also discussed. Part of the long range planning process is proposing future scenarios. There is a section that describes the four scenarios plus two "overlay" scenarios CDTC has developed and is considering in the development of New Visions 2050. The last half of the white paper outlines goals for the bicycle and pedestrian network in the Capital Region and proposes specific strategies and actions for achieving them. There are estimates of how these goals will be impacted by the proposed scenarios. Lastly, there is an implementation plan that includes partnerships and a financial strategy.

The ultimate goal of transportation is to move people and goods efficiently, sustainably, and safely to services, activities, and opportunities. CDTC's approach to the metropolitan planning process is to develop programs and plans that build a safe, equitable, multi-modal transportation system for all residents of the Capital Region. Creating an environment that supports walking and cycling increases travel choices and overall quality of life. Safe walking and cycling infrastructure is essential for basic mobility, the freedom of movement to travel from place to place, to access work and services to live full, dignified, independent lives. CDTC prioritizes pedestrian and bicycle safety through all of its planning and programming.

Many people rely on walking and bicycling as feasible transportation options every day. A connected, safe, and reliable network is crucial for an accessible transit, necessary for children, the elderly, people with disabilities, and other residents who cannot or choose not to own a private a vehicle. Non-motorized travel contributes to economic growth and can support tourism and quality development. Streets and neighborhoods that prioritize pedestrians improve the commercial and cultural vibrancy of their community. Increased pedestrian traffic puts more eyes on the street, creating safer and more enjoyable environments to live, work, and visit. A multimodal transportation system provides more opportunities for people to engage in aerobic exercise, including walking and cycling, improve public health.

New Visions 2040

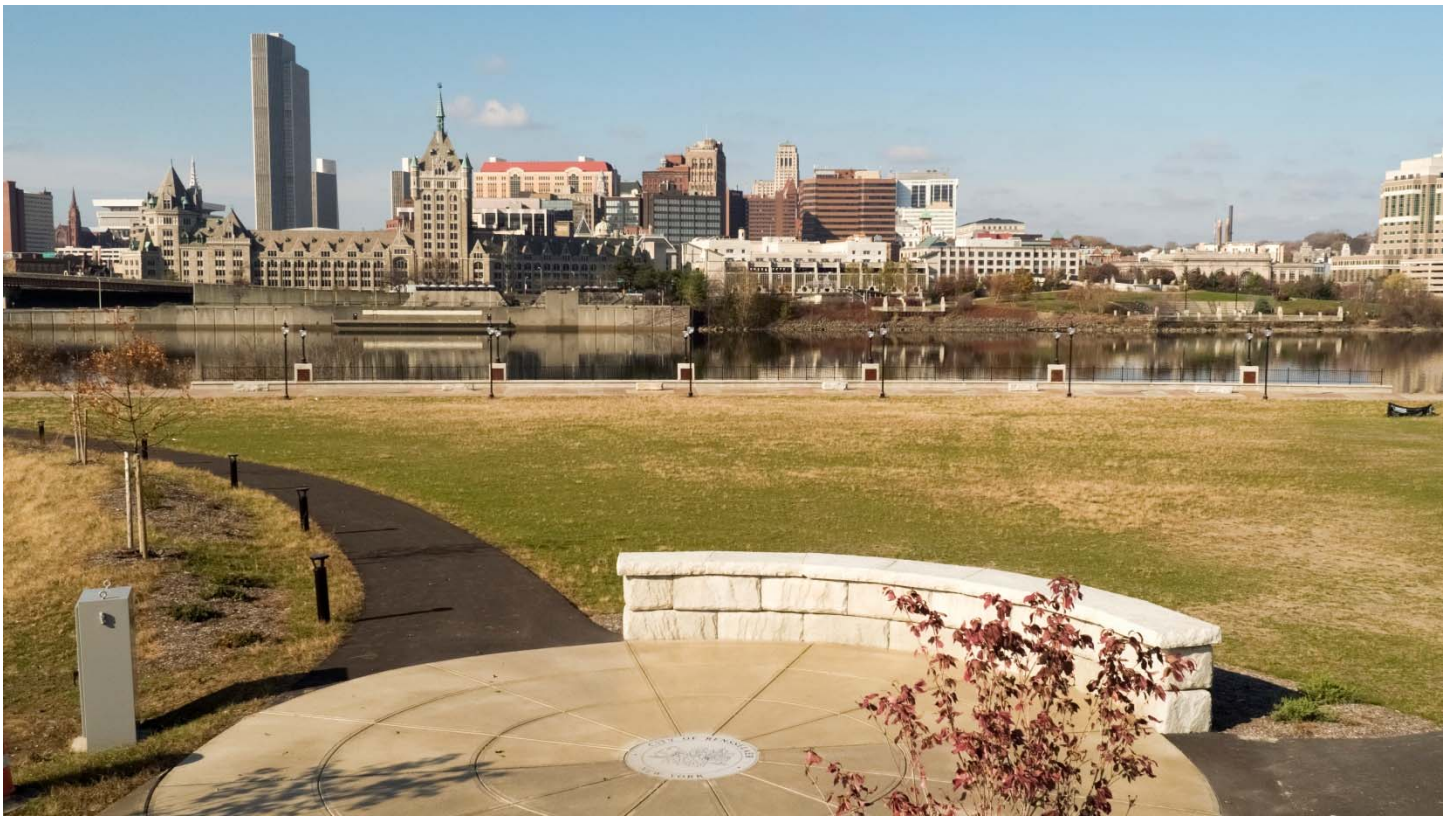
CDTC's New Visions 2040 Bicycle and Pedestrian Action Plan was last updated in 2015. This plan identified 5 objectives and **performance measures**, which are below:

1. Improve safety; reduce the number of vehicle crashes involving bicyclists and pedestrians.
    a. Measure: crashes involving bicyclists and pedestrians
2. Increase the number of bicycle and pedestrian trips (esp. commuting trips) in the Capital Region.
    a. Measure: rate of bicycling and pedestrian commuting (Census & local counts)
3. Reduce obesity rates, heart disease and other chronic illnesses related to inactivity.
    a. Measure: rate of obesity, heart disease and other chronic illnesses in the Capital Region
4. Increase economic activity related to biking and walking.
    a. Measure: combine expenditures for major running and bicycling events in the Capital Region with those at bicycle-pedestrian-oriented businesses (ex. bicycle shops, running/hiking shoe stores).
5. Increase funding for bicycle and pedestrian projects, particularly on the on-road portions of the bicycle and pedestrian priority networks.
    a. Measure: dollars in the TIP program

Similarly, the plan included several **recommended action items** to support the goal of increasing access to safe bicycle and pedestrian infrastructure, the rate of bicycling and walking, and the amount of funding available for bicycle and pedestrian infrastructure projects.

1. Update TIP evaluation methodology
2. Develop bicycle and pedestrian priority matrix – help prioritize projects that have greatest potential impact on New Visions goals
3. Develop and maintain inventories - ADA Transition Plans, sidewalks, bicycle infrastructure, highway shoulders, etc.
4. Measure the economic impacts of bicycling, walking, and transit infrastructure in the Capital District.
    a. Business
    b. Health – work with state and county health departments
    c. Evaluate existing projects
5. Develop and distribute a potential user survey – what types of infrastructure are desired and what are the perceived and real barriers to biking and walking in the Capital District.

6. Find local project champions, especially to help garner support to close gaps in regional bicycle and pedestrian networks, like trails.
7. Research and establish a program managed by CDTC to leverage dollars by coordinating group purchases for amenities such as bike racks, signage, and materials for pavement markings for pedestrians and/or bicyclists.
8. Research the feasibility of and potential fund source(s) of a regional revolving loan fund specifically for bicycle and pedestrian infrastructure projects.
9. Support the Complete Streets Advisory Committee in developing a Complete Streets guidebook that outlines specific types of improvements by street typology, including retrofits, and a Complete Streets user checklist.
10. Recommend funds be carved out in the New York State Consolidated Funding Application (CFA) specifically for bicycle and pedestrian infrastructure and education projects.
11. Inventory parking and utilization in the Capital District to help establish new parking maximums, which consider access to alternative modes of transportation.
12. Continue to incrementally increase funding available for bicycle and pedestrian projects through the CDTC Bicycle/Pedestrian Network Set-Aside.
13. Complete the following trail/greenway projects:
    - Uncle Sam Bikeway
    - Patroon Creek Greenway
    - Mickey Mahar Trail
    - Zim Smith Trail
    - Albany County Rail Trail with a connection to the Corning Preserve trail



Rensselaer Riverfront Trail, Rensselaer, NY

Progress Since New Visions 2040

Performance Measures

The long range transportation plan has established performance measures within each topic area. The New Visions 2040 Bicycle and Pedestrian White Paper put forth five performance measures which serve as benchmarks for the improvement of walking and bicycling conditions in the Capital District. The objective of New Visions 2040 is to establish policies and principles that guide transportation infrastructure investments. These policies are used to prioritize projects, develop and asses design alternatives, and set standards.

Federal Law established a performance- and outcome-based transportation program in MAP-21 and later the FAST Act. The law sets performances measures for safety, pavement conditions, freight performance, on-road mobile source emissions, bridge conditions, National Highway System reliability, and transit asset conditions. The objective is for States and transit agencies to invest resources in projects that collectively make progress toward the achievement of national goals. CDTC, as a MPO, is required to coordinate with the state and transit agencies through its planning and programming activities to assist the state in meeting its goals.

[insert language re: relationship between NV performance measures and FAST Act performance measures]

1. Improve Safety - number of vehicle crashes involving bicyclists and pedestrians.

GOALS

Conformity ☑
Accessibility ☑
Mobility ☑
Resiliency ☐
Connectivity ☐
Equity ☑
Opportunity ☑
Reliability ☑
Safety ☑
Livability ☑

RELATED TASKS

- Capital Coexist
- Local Road Safety Action Plan
- Capital District Trails Plan
- Complete Streets Workshops
- NACTO Guideline Training
- Transportation & Community Linkages Program

TREND: DECREASING

Motor vehicle crashes are a leading cause of death in New York State.[1] According to the National Highway Transportation Safety Administration, traffic fatalities showed a slight decrease in 2018. However, pedestrian and bicyclist deaths have been increasing – on average, 17 pedestrians and two bicyclists were killed each day in traffic crashes in 2018, nationwide.[2] As new technology and vehicle design improves efficiency, performance, and safety for people *inside* the vehicles, the impacts on people *outside* the vehicles are unknown still.

Regionally, there were 30,405 crashes report between 2011 and 2016 on all public roads. Information published by the New York state Department of Transportation (NSYDOT) shows the average cost of a fatal crash is $3.2 to $4.9 million and the average cost for an injury crash is $85,000 to $102,000. Due to the physical, emotional, societal, and financial costs of these fatal and serious injury crashes, reduction of higher severity crashes is emphasized in NYSDOT's Strategic Highway Safety Plan and Capital District Local Road Safety Plan. While severe crashes can have lifelong impacts on those involved, pedestrians and bicyclists can be devastated by even minor crashes.

In the Capital District, the percent of traffic crashes involving bicyclists and/or pedestrians has not changed at any significance since 2011. Overall, the number of fatalities and injuries resulting from crashes involving bicyclists and pedestrians has decreased. A more detailed analysis of traffic crashes and safety can be found in the New Visions 2050 Safety White Paper and Capital District Local Road Safety Plan.

Table 1. Injuries & Fatalities Resulting from Crashes involving Bicyclists & Pedestrians

B&P Crashes	2011	2012	2013	2014	2015	2016	2017	2018
Fatalities	14	8	13	14	15	18	13	10
Injuries	581	555	566	573	538	538	495	493
Total	595	563	579	587	553	556	508	503

https://www.health.ny.gov/statistics/prevention/injury_prevention/traffic/county_of_residence.htm
[2] https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812749

2. **Increase the number of bicycle and pedestrian trips** (esp. commuting trips): mode share in the Capital Region.

GOALS

Conformity ☑
Accessibility ☑
Mobility ☑
Resiliency ☑
Connectivity ☑
Equity ☑
Opportunity ☑
Reliability ☑
Safety ☑
Livability ☑

RELATED TASKS

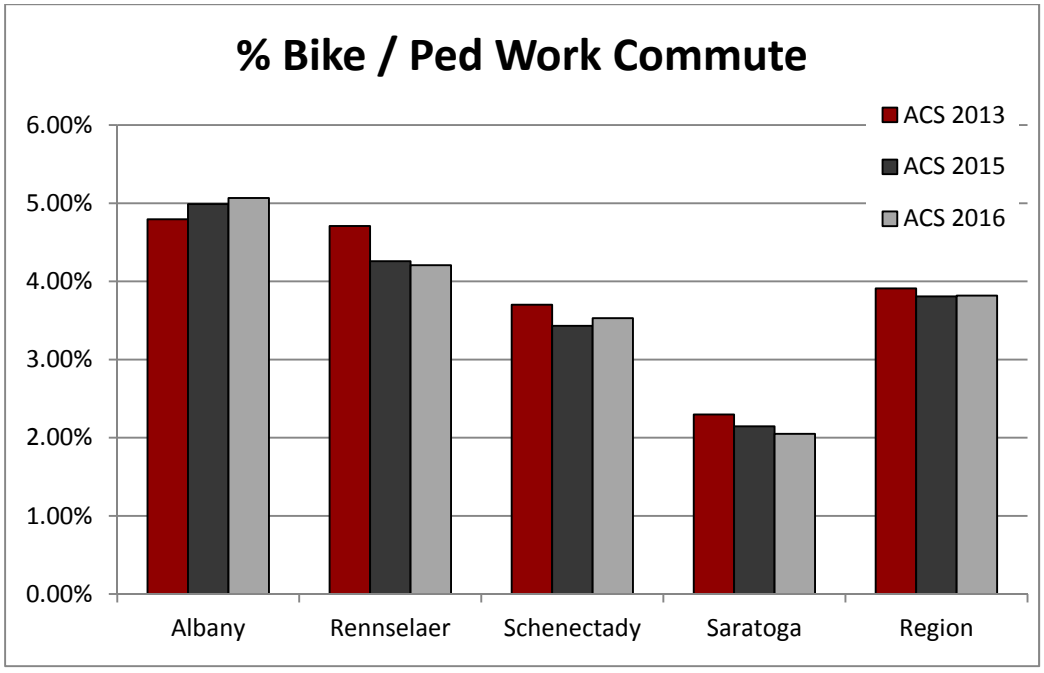
- Capital Coexist
- Capital District Trails Plan
- Transportation & Community Linkages Program
- Bike to Work Day
- CDPHP Cycle!
- Capital District Clean Communities
- Complete Streets Workshops
- Sidewalk Infrastructure Data Collection
- Bike Infrastructure Data Collection

TREND: NO CHANGE

Walking and bicycling are viable modes of transportation and mobility for many people in the Capital District. Rates of walking and bicycling are on the rise national wide, and not just for recreation. The evolution of shared mobility, like bike share and other services, have expanded mobility options and helped change the way we get around. Creating "walkable communities" and Complete Streets have become priorities for local governments who are competing for investment and new residents. Numerous communities in the Capital District have adopted Complete Streets ordinances or policies, more equally considering the needs of bicyclists and pedestrians, as well as transit riders, freight, and automobiles.

Regional rates of walking and bicycling to work have not changed in any significant way, however the rate of people walking to work in individual cities within the region has. For example, the percent of people walking to work in the cities of Albany, Troy, and Saratoga Springs have all increased.

Figure 2. Percent of Bike & Walk to Work Trips



Date Source: American Community Survey

Despite some slight decreases and leveling off of walk and bike to work trips, non-commute trip and multi-modal data indicate both viability of walking and bicycling and preference. The 2017 National Household Transportation Survey found that 49 percent of all trips in the Capital District are 3 miles or less and 28 percent of all

trips are 1 mile or less—distances easily traversed by foot or bicycle.[3] Data collected by CDTC indicates increased walking activity in the region's cities. These trips are not limited to commuting and include trips to/from transit or parking. Demonstrating that at some point in every trip, we all become pedestrians. Figure 3 compares regional pedestrian counts since 1995, and data on each count location can be found in Appendix A. Bike boardings on CDTA busses continue to reach about 70,000 per year, even with the launch of CDPHP Cycle!, a regional bike sharing system.

Figure 3. CDTC Pedestrian Counts

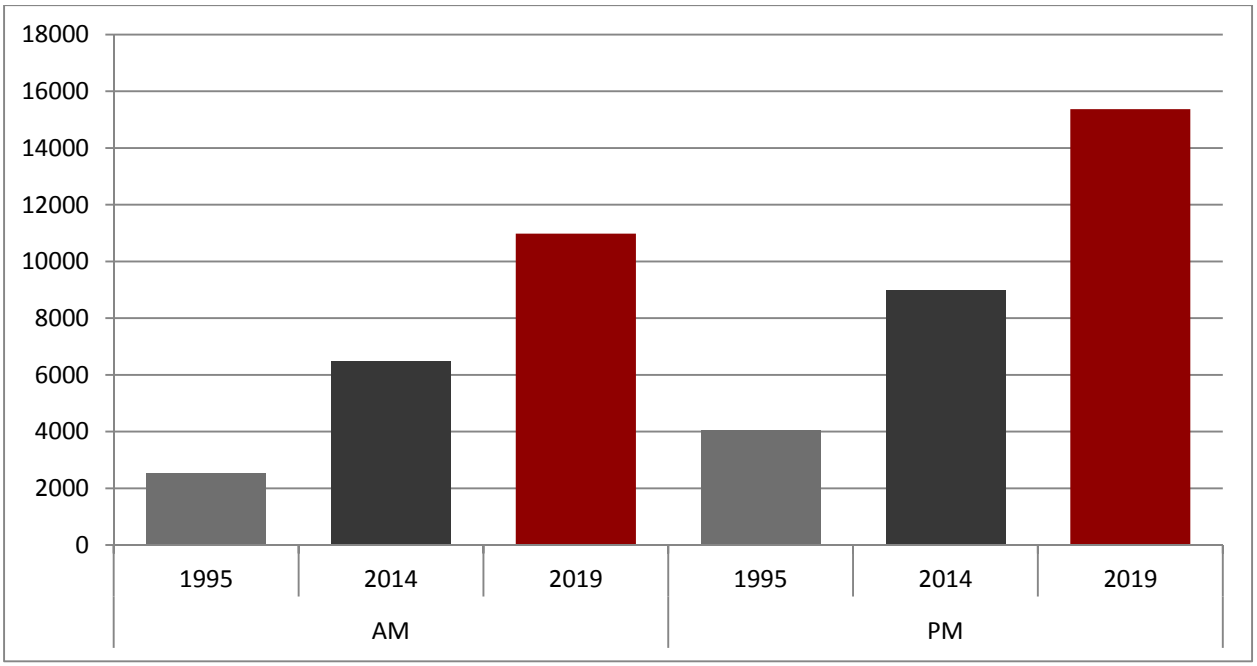
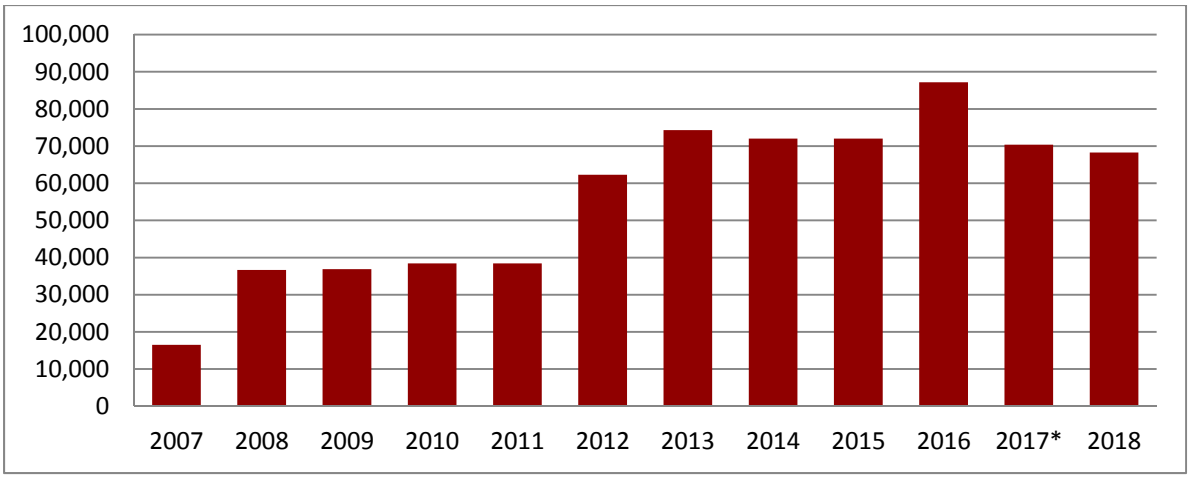


Figure 4. Annual CDTA Bike Boardings



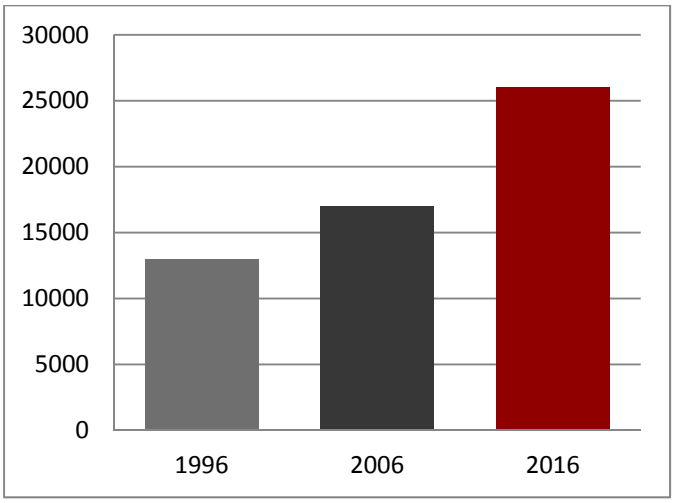
**CDPHP Cycle! Launch & TNCs begin operating*

The 2016 Regional Trail Perspectives study surveyed trail users on 9 of the Region's major paved, multi-use trails. Based on the user surveys, only 4.5% of trail users reported commute to school/work as their primary purpose for using a trail, but almost 15% of respondents reported that running errands and visiting friends or visiting the library or other civic

[3] Bureau of Transportation Statistics. National Household Travel Survey, 2017

spaces was their primary purpose for using the trail. Trail user counts conducted in 2016 recorded a 60 percent increase over 2006 traffic at the Lions Park trailhead in Niskayuna and a 252% increase on the Zim Smith Trail in Saratoga County. Of the 3 trails that were counted in both 2006 and 2016, overall trail use increased by 25%, with an estimate of 1.6 million visits to multi-use trails in the Capital District in 2016. This could be simply attributed to the additional miles of trails constructed since 2006, however when comparing the number of users per mile of trail, it is apparent that those numbers are increasing as well. Demonstrating increases in all types of walking and bicycling trips on the trail network.

Figure 5. Trail Users Per Mile (1996-2016)



Another indicator of growing interest in bicycling is the success of CDPHP Cycle! which launched during the summer of 2017. This regional system has 80 stations and 350 bicycles and has expanded to include coverage in 7 cities (Albany, Schenectady, Cohoes, Troy, Saratoga Springs, Scotia, and Waterford). Since its launch, the number of registered members, trips, and miles biked massively grown in each season, including a record-breaking 40,000+ rides during the 2019 season.

Figure 6. Bike Share User Stats (2017-2019)

CDPHP Cycle! User Stats

Category	2017	2018	2019	Total
Members	2,467	4,108	5,741	**12,316**
Trips	11,418	23,535	41,578	**76,531**
Hours Used	5,504	11,086	19,478	**36,068**
Miles	26,877	53,917.15	78,151	**158,945.15**
Carbon Reduced	23,701	47,544.12	68,915	**140,160.12**
Calories Burned	1,075,090	2,156,686	3,126,044	**6,357,820**

3. **Reduce obesity rates, heart disease & other chronic illnesses** related to inactivity

GOALS

Conformity ☐
Accessibility ☑
Mobility ☑
Resiliency ☐
Connectivity ☑
Equity ☑
Opportunity ☑
Reliability ☐
Safety ☑
Livability ☑

RELATED TASKS

- Capital Coexist
- Capital District Trails Plan
- Transportation & Community Linkages Program
- CDPHP Cycle!
- Complete Streets Workshops
- Sidewalk Infrastructure Data Collection
- Bike Infrastructure Data Collection

TREND: DECREASING

A transportation system designed primarily for motor vehicles often poses barriers to use by pedestrians, bicyclists, and public transportation users and limits active transportation opportunities and their potential resulting health benefits. Additionally, long amounts of time spent in a vehicle can reduce the amount of time people have the opportunity to engage in physical activity. It has been widely documented that physically active adults have lower rates of heart disease, diabetes, and other chronic illnesses. Every 60 minutes spent in a car each day increases a person's odds of being obese by 6%. On the other hand, each mile walked per day decreases the odds of obesity by 7.7%.[4]

According to the NYS Department of Health (NYSDOH), as of 2016, the top 7 leading causes of death in New York are:

1. Heart Disease
2. Cancer
3. Chronic Lower Respiratory Disease (CLRD)
4. Unintentional Injury
5. Stroke
6. Pneumonia and Influenza,
7. Diabetes

Heart disease, cancer, CLRD, unintentional injury, and stroke have been in NY's top 5 leading causes of death since, at least, 2008. Being physically activity can help individuals achieve healthy weight and reduce their risk of chronic diseases such as heart disease and other leading causes of death in New York State. Diabetes is the most rapidly growing chronic disease, affecting one out of every 12 adults in NY. As more children in the United States become overweight and inactive, type 2 diabetes, which used to be diagnosed mainly in overweight adults, has become increasingly common in the youth population.

According to a report by the New York State Comptroller's Office, New York ranks second among states in adult obesity-related medical expenditures, with total spending estimated at nearly $7.6 billion (81% of which is paid by Medicaid and Medicare), and far exceeding the national average of 52%.5 As noted in Table 3, almost 22% of adults in the Capital District reported not being physically active but

[4] Andresen, Martin A, Frank, Lawrence D and Schmid, Thomas L. Obesity Relationships with Community Design, Physical Activity, and Time Spent in Cars. American Journal of Preventative Medicine, 27(2). [Online]August 2004.
[5] Office of the State Comptroller. Preventing and Reducing Childhood Obesity in New York. 2008 Oct. 1-4 pp.

over 87% reported they have access to exercise opportunities.

Overall, the most recently available data indicates a reduction in obesity in both children and adults in the Capital Distirct. CDTC has worked with County public health officials and local health agencies have led efforts to develop Complete Street policies throughout the region. Preventing chronic illness, like obesity and cardiovascular disease, is a priority for the County Health Departments in the Capital District. An effective strategy for reducing chronic illness is increasing physical activity and County Health Departments have initiated programs that encourage walking and bicycling at the neighborhood level, while working with planners, engineers, and decision-makers to implement Complete Streets policies. CDTC's partnership with the County Health Departments has been successful and has yielded positive results, as reflected in the reduction of chronic illness rates in the Capital District.

Table 2. Capital District Childhood & Adult Obesity Rates (2012-2016)

	2012-2014		2014-2016	
	Adult	Children/Ad	Adult	Children/Ad
Albany	26.0%	17.0%	25.3%	16.4%
Rensselaer	26.8%	18.0%	31.5%	18.7%
Schenectady	32.8%	18.8%	28.9%	18.8%
Saratoga	25.9%	14.7%	25.7%	14.0%

Source: New York State Department of Health

Table 3. Health & Transportation Indicators for the Capital District

	NY	Albany	Rensselaer	Saratoga	Schenectady	Capital District
Physical Inactivity	25.0%	22.0%	22.0%	20.0%	22.0%	21.5%
Access to exercise opportunities	93.0%	92.0%	69.0%	92.0%	96.0%	87.3%
Long commute - drive alone	38.0%	21.0%	32.0%	37.0%	34.0%	31.0%
Diagnosed Diabetes (adults)†	-	9.0%	6.8%	6.9%	9.0%	7.9%
Cardiovascular disease††	-	6.6%	8.8%	7.4%	8.0%	7.7%

† Age-adjusted percentage of adults with physician diagnosed diabetes, 2016

†† Age-adjusted percentage of adults with cardiovascular disease (heart attack, coronary heart disease, or stroke), 2016

Source: New York State Department of Health

4. Increase economic activity related to walking & bicycling

GOALS

Conformity ☐
Accessibility ☐
Mobility ☐
Resiliency ☑
Connectivity ☑
Equity ☑
Opportunity ☑
Reliability ☐
Safety ☐
Livability ☑

RELATED TASKS

- Capital District Trails Plan
- Transportation & Community Linkages Program
- CDPHP Cycle!

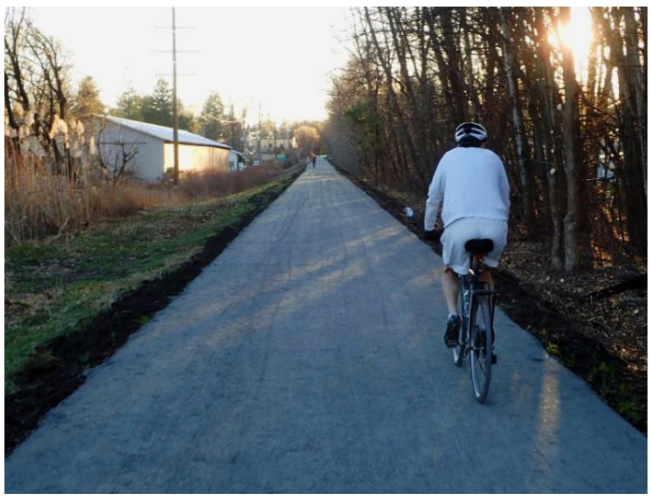
TREND: UNKNOWN

Spending on leisure, biking and walking is a major aspect of the national economy, but more importantly, a focus of the spending for these activities is the neighborhoods in which the activity occurs. Additionally, bicycle and pedestrian facilities can promote job creation and employment by area residents and businesses. The intent of this performance measure is to generate opportunities and increase economic activity in neighborhoods and communities throughout the region, as a result of the public investment in walking and bicycling infrastructure. CDTC does not have any reliable data to illustrate improvements or trends for region wide economic impacts of walking and bicycling, however, the Capital District Trails Plan measured the economic benefits of the 100+ mile trail network and projected the impacts of a future, expanded network.

Based on a trail user survey conducted by CDTC in 2016, trail tourists, meaning visitors from outside of the Capital District, spent an average of $193 per day on their trip (which doesn't include the cost of their bike). With tourists generating 5% of trail visits, it is estimated that $15.4 million in trail-related tourism is generated mainly from the Mohawk-Hudson Bike-Hike Trail and the Albany County Helderberg-Hudson Trail. Since trail tourists mainly visited these two trails, it can be assumed that the economic benefits stayed in close proximity. CDTC's goal is to increase access to trails and bicycle and pedestrian facilities to all Capital District residents, and therefore increase the reach of economic benefits.

Trail user spending is not limited to tourists. The 2016 trail user surveys indicated that even local trail users are spending money at restaurants and bars and grocery and takeout food while visiting trails. Other trail related spending includes bicycle purchases, repairs, and specialized footwear and clothing for bicycling, walking, skating, and running. Capital District residents spend an estimated $63.2 million, or an average of $179 million per household, on sports and recreation equipment annually. Only a portion of this spending is related to trail use, but overall, the presence of trails and other bicycle and pedestrian facilities, support the regional economy both in terms of direct and indirect consumer spending.

Other ways bicycle and pedestrian infrastructure support the local economy is through their construction and their impact on property values. Trails, sidewalks, and in-road bike treatments require a significant investment of local, state, and federal resources. And the maintenance costs of these facilities usually fall on local governments. There is a considerable return on this investment of resources. The Capital District Trails Plan estimated that the impact of trails on property values averages about 1 percent. Using that estimate and looking at all parcels within 800 meters of the trail network, the mid-range market value impact of the region's trail system is about $27.5 million. Applying the region's median tax rate to the assessed value indicates that the trail system generates almost $7 million in annual local taxes to counties, cities, villages, and school districts.


People take to the Rail Trail to enjoy the fall foliage, and it's good for local business

Oct 10, 2018 Michael Hallisey Bethlehem, Community, Environment, Government, Health & Fitness, Nature/Outdoors, News, The Spot, Towns

A story in Spotlight News about the new businesses & opportunities on and near the Albany County Helderberg-Hudson Rail Trail which opened to the public in 2016.

Despite a lack of data that ties economic benefits directly to walking and bicycling, other anecdotal information makes a strong case. One-time benefits from the initial expenditure of building infrastructure result in wages and salaries for employees of planning, engineering, and construction companies within the Capital District. As noted earlier, 81%of the nearly $7.6 billion New York State spends on obesity-related medical expenditures is paid by Medicaid and Medicare. New York shifts more of its Medicaid costs to local government than any other state.[6] The economic benefits of trails include reduced medical and health care use thereby reducing system wide health care costs.

Shifting more trips to walking or bicycling also reduces emissions and pollution, which impacts health, particularly in low-income and minority communities that are disproportionately exposed to them. Other indirect benefits include safety and reduced traffic crashes, new business attraction, and environmental benefits. "Trails benefit the environmental as well as the people they serve. Trails provide opportunities for habitat protection and enhancement, storm water and floor retention, improved water and air quality, conservation of natural and cultural resources, and scenic views."[7] In addition to health benefits, the regional investment in bicycle and pedestrian infrastructure has economic benefits, climate action benefits, and addresses inequity.

Trails aren't the only bicycle and pedestrian infrastructure that generates economic activity. Bicycle and pedestrian improvements to the street or roadway can attract more visitors to downtowns and Main Streets and increase retail spending. Businesses are increasingly demanding better walking and bicycling infrastructure throughout the region in order to attract new talent and retain the staff they need to thrive. Employees who are physically active take fewer sick days each year and people who walk or bike to work report feeling more refreshed and alert when they arrive at their offices. Overall, active travel is accessible and inclusive, two goals of an effective and sustainable transportation network. Making it easier to walk or bike means that residents in all Capital District communities can enjoy the benefits.

[6] (https://www.empirecenter.org/publications/shifting-shares/)
[7] https://www.ahettrail.org/

5. Increase funding for bicycle and pedestrian projects, particularly on the on-road portions of the bicycle and pedestrian priority networks.

GOALS

- Conformity ☑
- Accessibility ☑
- Mobility ☑
- Resiliency ☑
- Connectivity ☑
- Equity ☑
- Opportunity ☑
- Reliability ☑
- Safety ☑
- Livability ☑

RELATED TASKS

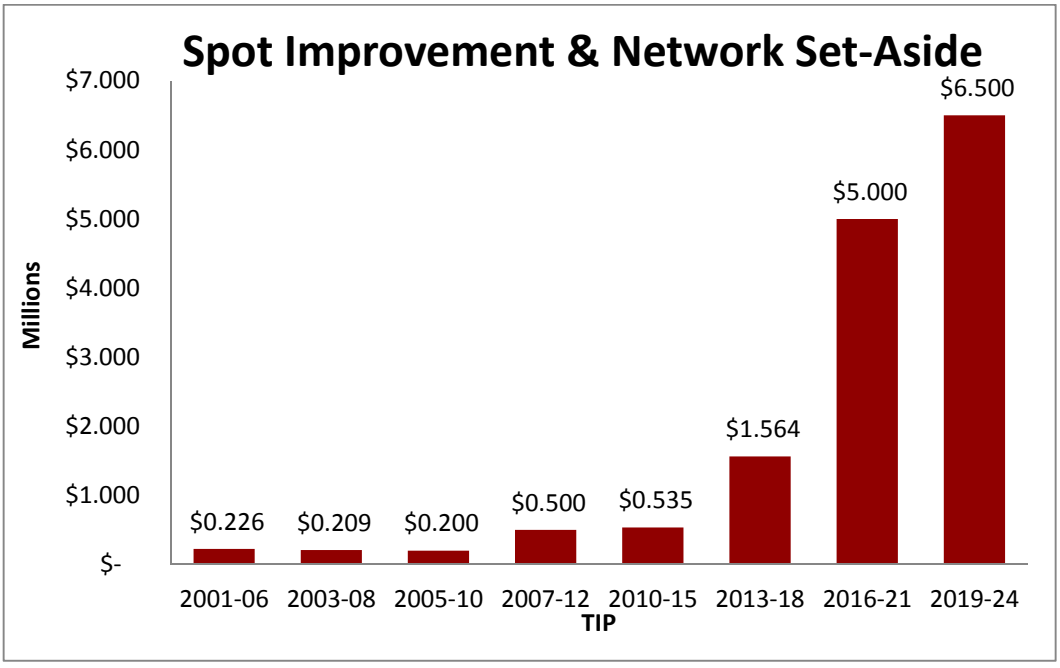
- Capital District Trails Plan
- Transportation & Community Linkages Program
- Transportation Improvement Program

TREND: INCREASING

The Transportation Improvement Program (TIP) is a 5-year capital improvement program that allocated federal transportation funds to specific projects. TIP projects reflect the priorities and principles of the New Visions Plan. CDTC's Policy Board approved the first "Spot Improvement for Bicycle and Pedestrian Access" program in 1997. This program set aside funds in the TIP for projects whose scopes were too small for other programs or could not compete with highway and bridge projects, or even trail development projects. The projects funded through this program addressed problems at specific locations such as intersections, short lengths of roadways, or single destinations like office buildings or shopping centers.

Since funds were set aside in the 2001-06 TIP for bicycle and pedestrian projects, the program has continued and grown due to demand for bicycle and pedestrian infrastructure investments. The "Spot Improvement" program has been renamed the "Bicycle and Pedestrian Network Set-Aside" and prioritizes projects that meet the criteria for the CDTC Bicycle and Pedestrian Priority Network and make significant improvements for walking and bicycling. A $6.5 million set-aside was approved in the 2019-24 TIP, the largest set-aside specifically for bicycle and pedestrian infrastructure projects to date.

Figure 7. Spot Improvement & Network Set-Aside



The Bicycle and Pedestrian Network Set-Aside isn't the only funding source for bicycle and pedestrian infrastructure projects. Some pavement preservation and reconstruction projects also include the construction of bicycle and/or pedestrian facilities. Some examples of these types of projects from the 2019-24 TIP include the Route 2 Corridor Project in Troy which proposes to reallocate pavement in the corridor for a protected bicycle facility, and the Delaware Avenue Reconstruction and Road Diet project in Bethlehem which will reconfigure Delaware Avenue to reduce the number of

traffic lanes and add bicycle lanes and pedestrian amenities. The dollar value of these facilities within larger projects is not currently tracked by CDTC.

The FAST Act also authorizes funds under the "Transportation Alternatives" (TAP) and "Recreational Trails Program" (RTP). NYSDOT administers the TAP program, which it combines with Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds for projects that specifically support "bicycle, pedestrian, multi-use path and transportation-related projects and programs, as well as projects that reduce congestion, and will help meet the requirements of the Clean Air Act." The TAP / CMAQ Program guidelines can be downloaded and read here (https://www.dot.ny.gov/divisions/operating/opdm/local-programs-bureau/tap-cmaq/repository/TAP-CMAQ-Guidebook-2018.pdf). The NYSOPRHP administers the RTP which funds the development and maintenance of recreational trails and trail-related facilities for both nonmotorized and motorized recreational trail uses. The FAST Act requires States to use 30% of these funds for non-motorized recreation, 30% for motorized recreation, and 40% for diverse recreational trail use. The RTP guidelines can be downloaded and read here (https://parks.ny.gov/grants/documents/NYSRTPGuide.pdf).

Rendering of the South End Bikeway Connector, Albany, NY

[other photos that could replace this: Hoosic River Greenway, Saratoga Spa State Park Rte 50 trail, Geyser Rd Trail]

6. Improve access to walking & bicycling by evaluating projects based on the level of access for walking & bicycling they provide. .

GOALS

- Conformity ☑
- Accessibility ☑
- Mobility ☑
- Resiliency ☑
- Connectivity ☑
- Equity ☑
- Opportunity ☑
- Reliability ☑
- Safety ☑
- Livability ☑

RELATED TASKS

- Capital District Trails Plan
- Transportation & Community Linkages Program
- Transportation Improvement Program
- Sidewalk Infrastructure Data Collection
- Bike Infrastructure Data Collection
- CDPHP Cycle!

TREND: INCREASING

Access to safe walking and bicycling facilities directly impacts individuals' ability to move safely through their community and region without a vehicle and reach employment opportunities and other services. To achieve the goal of reducing vehicle miles traveled and greenhouse gas emissions, more trips need to shift from single occupancy vehicles to other modes, like walking and bicycling. A connected network of facilities also provides exercise and recreational opportunities, particularly to low-income communities. Increasing access to this infrastructure will support local, state, and federal goals in terms of reducing cardiovascular disease, obesity, and other chronic illness.

New Visions 2040 recommended improving access to walking & bicycling. It suggests that estimating the number of residents within one mile of an improved sidewalk or multi-use trail and five miles within access to bicycling infrastructure would indicate increased access. When the performance measure was developed, CDTC lacked baseline data on miles of sidewalk and bike facilities. Since then, CDTC has developed an extensive database that now includes trail, sidewalk, and bike facility infrastructure.

Table 4. Total Miles of Bicycle & Pedestrian Infrastructure

Year	Trails (Mi.)	Sidewalks (Mi.)	Bike Facilities (Mi.)	Total (Mi.)
2009	74	-	-	-
2014	102	-	-	-
2016	118	-	-	-
2019	132	1,230	33	**1,395**

Based on CDTC's inventory of trail data, the miles of multi-use trails have increased by about 23% since *New Visions 2040* was released in 2015. This would suggest that more residents have access to safe walking and bicycling infrastructure in the Capital District. The availability of sidewalk and bike facility data will allow CDTC to track the progress the region is making in expanding infrastructure for walking and bicycling.

CDTC Accomplishments

The *New Visions 2040 Bicycle and Pedestrian Action Plan* has served as a "toolbox" for bicycle and pedestrian planning. The objective of the bicycle and pedestrian program at CDTC is to provide tools and resources to municipalities and regional organizations that help move New Visions principles forward and implement major projects and/or new types of infrastructure in the region. Below is a summary of programs and tasks that have been developed and maintained by CDTC since 2015.

Capital Coexist

CDTC and NYSDOT have both approached pedestrian and bicycle safety strategy with the "3 E's:" engineering, enforcement, and education. Since 2009, CDTC has launched several initiatives, funded with federal planning funds, to educate drivers, pedestrians, bicyclists, law enforcement, local lawmakers, planners and engineers on traffic safety and roadway design. Capital Coexist, was launched in 2009, originally as a bicycle safety campaign. It has since expanded to include pedestrian safety. CDTC has provided funding for local law enforcement training, hosted Traffic Skills 101 classes with League of American Bicyclists certified instructors, purchased and distributed bike helmets, and supported a number of local pedestrian and bicycle safety events and demonstration projects.

Demonstration projects like the one pictured above in Schenectady use inexpensive materials to show street users how roads & intersections could be improved for safety.

The Capital Coexist Traffic Safety Ambassador Grant, also known as the "Mini-Grant" program began in 2016. The motivation behind the program was to expand CDTC's bicycle and pedestrian education efforts and leverage the relationships and resources being expended within communities on bicycle and pedestrian programming. Since 2016, CDTC has done an annual solicitation for projects. The grant is unlike any other funding support CDTC provides, with a maximum of $5,000 and eligible recipients include local governments, first responders, businesses and non-profit organizations. Proposed projects that target underserved or particularly vulnerable populations, like children or seniors are prioritized for funding. Since 2016, more than $100,000 has been invested in 32 different projects.

A number of educational opportunities have also been made available to local planners and engineers through Capital Coexist. CDTC purchases the Association of Pedestrian and Bicycle Professionals monthly webinar series and hosts them, at no cost to local planners and engineers, who can earn professional development credits by attending. Each year CDTC plans and hosts a hands-on training workshop. In 2015, CDTC worked with the NYSAMPO and FHWA to hold the Designing Streets for Pedestrian Safety Workshop. CDTC

hosted the first National Association of City Transportation Officials (NACTO) training workshop in New York State in September of 2017. The workshop provided training on the NACTO Urban Bikeway Design Guide.

In 2018, CDTC partnered with the New York Public Transit Association (NYPTA) on a NACTO Transit Street Design Guide training in conjunction with the annual NYPTA Fall Conference. Additionally, CDTC's Complete Streets Educational and Technical Workshop Series has funded 8 separate trainings that bring together key decision makers, stakeholders, and agency professionals within communities to develop and implement policies that routinely create and maintain Complete Streets.

Niskayuna's 2018 Bike-Ped Festival featured a bicycle safety course for kids. Pictured above, a participant in a CDTC reflective safety vest.

Partnerships with federal, state, and local agencies have helped expand the message of Capital Coexist and lend value to other safety campaigns like the ***See, Be Seen*** campaign developed through a partnership between the NYSDOT, NYS Department of Health (NYSDOH), and Governors Traffic Safety Committee (GTSC). CDTC has also provided technical assistance and support in developing plans for dedicated pedestrian and bicycle facilities, evaluating roadway design alternatives, and exploring the feasibility of road diets.

Capital Coexist Mini-Grants

Over **$100,000** in mini-grants have been distributed to **32** local pedestrian & bicycle safety projects **since 2016.**

Capital Coexist

Mini-grants have provided funding for **7 demonstration projects** & distributed over **1000 free helmets** throughout the region.

Support for these related tasks remains strong.

CDTC creates, purchases, and distributes various educational materials that promote bicycle and pedestrian safety. A mix of print materials has been created for a variety of road users – bicyclists, pedestrians, and drivers – and a range of age groups. Child-size reflective safety vests, LED bike lights and LED bracelets have also been purchased, branded with the CDTC logo or *See! Be Seen!* messaging and distributed throughout the Capital District at events. These materials can be requested through an order form on the CDTC website. Many requests come from schools that participate in National Walk to School (October) and National Bike to School Day (May). Below are examples of print materials created by CDTC and by other organizations, that CDTC reprints and makes available upon request.

Figure 8. Examples of Educational Materials Created by CDTC

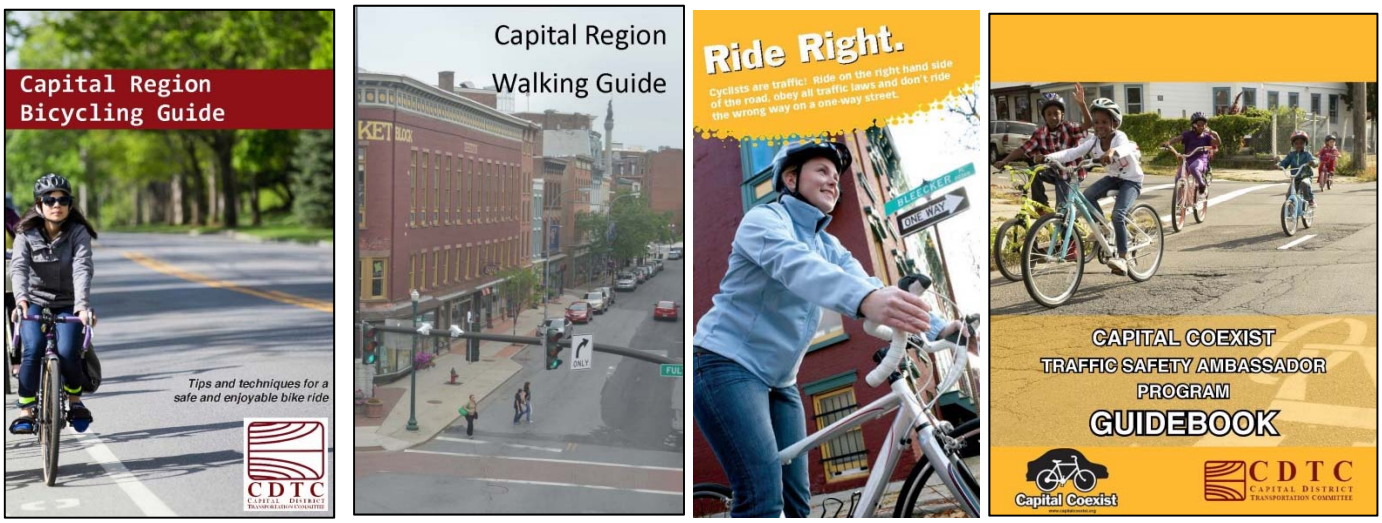
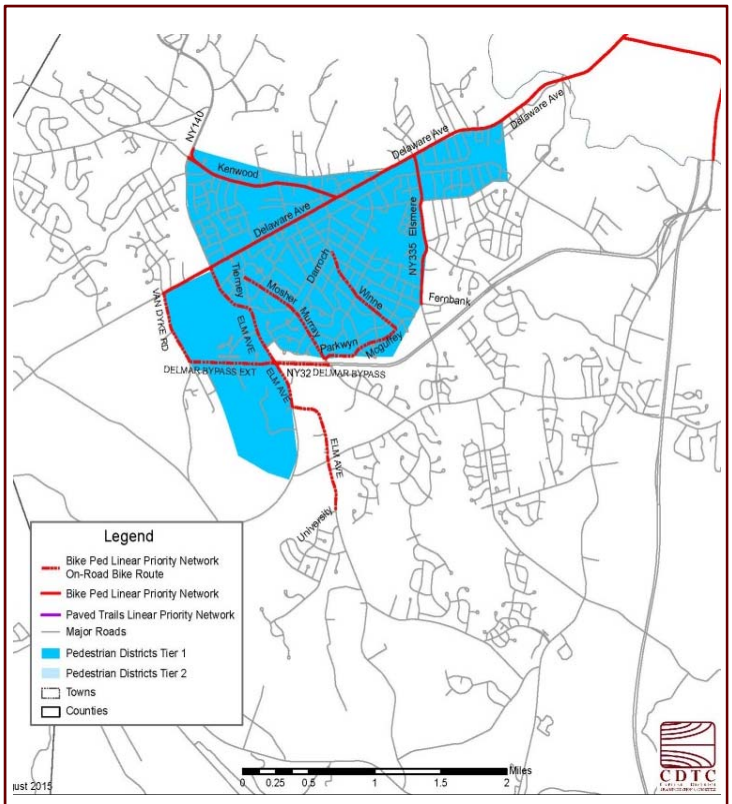


Figure 9. Examples of Educational Materials Created by Other Organizations but Reprinted & Distributed by CDTC

The CDTC Bicycle & Pedestrian Prioritization Tool

There is no regional bicycle and pedestrian plan for the region. However, the Bicycle and Pedestrian Prioritization Tool, formerly known as the "Bicycle and Pedestrian Priority Network," was developed by CDTC as an instrument for evaluating TIP project proposals and prioritizing projects that will benefit pedestrians and bicyclists most. The Prioritization Tool was overhauled in New Visions 2040 and includes two parts – pedestrian districts and a linear network of priority bicycle routes.

The Pedestrian Districts were created to highlight and address the fact that pedestrian movement is more fluid than linear and that investments in pedestrian infrastructure should be made strategically, where there are greater densities of people living or working in close proximity to destinations that generate activity. To develop the Pedestrian Districts, CDTC staff, under advisement of the BPAC, collected and mapped data to illustrate and identify locations where the most need for safe pedestrian infrastructure exists. CDTC drafted Tier 1 and Tier 2 Pedestrian Districts. The criteria for Tier 1 and Tier 2 Pedestrian Districts can be found in Table 5.



Delmar in the Town of Bethlehem is an example of a Tier 1 Pedestrian District.

Table 5. Pedestrian District Criteria

Pedestrian Districts	**Tier 1**	Population Density & Employment Density	***PLUS Proximity to at least 2 of the following***	Schools	Shopping centers	Hospitals	Parks/ Trails	Environmental Justice Populations
	Tier 2	*The remaining incorporated areas of all cities and villages, not meeting the Tier 1 Ped District Criteria noted above*						

The Bicycle Network is a linear network that connects the Pedestrian Districts via major travel routes, as well as making connections to identified pedestrian generators that may be located outside of the proposed Pedestrian Districts. Studies indicate that, like motorists, bicyclists prefer the most direct routes. Again with the advisement of the BPAC, CDTC staff began by mapping Federal-Aid eligible roadways with an annual average daily traffic volume of 10,000 vehicles or more on roads that do not currently prohibit bicycles.

Table 6 describes the criteria used to develop the network. The basis for this linear network was that longer routes are attractive to bicyclists and manageable to travel by bicycle. Other Non-Federal Aid eligible and lower volume roads were added to make needed connections.

Table 6. Linear Network Criteria

Linear Network	Federal aid eligible roadway AADT >= 10,000*	***AND road is located within:***	Tier 1 Ped District Tier 2 Ped District	Population Density & Employment Density	***OR road is part of:***	Connects at least 2 pedestrian generators**
	OR is a…					
	Designated bike route					
	Mohawk Towpath Scenic Byway					
	Multi-use paths (existing & proposed)					

**Only roads that do not currently prohibit bicycles are included*
***Pedestrian generators = schools, parks, trails, hospitals and shopping areas*

The current linear, bicycle network has a total of 396 centerline miles. Of these, 162 (41%) are locally owned center miles. This includes some state signed routes in cities and villages. The remaining 234 (59%) center line miles are state owned roadways. All state bicycle routes are included in the linear network, with a total of 104 center lane miles. The state bike route system is 44% of the total state owned center miles on the network. The centerline mileage does include multi-use trails, which are all paved off-road trails that are part of the Prioritization Tool. A map showing all the pedestrian districts and linear network can be found in Appendix B. Other linear routes that meet the tool's criteria are trails, Scenic Byways, and designated bike routes which can also be found in Appendix B. Combined, these four networks create 518 linear miles.

CDTC committed to updating the prioritization tool every 5 years or as necessary. In reviewing updated data, CDTC found that traffic volumes, areas defined as "environmental justice populations" and functional classification that may allow or prohibit bicycles and pedestrian to use a roadway have changed. Staff reviewed options for updating the prioritization tool and determined it was infeasible to properly update it within the New Visions 2050 timeline. However, CDTC staff will continue to explore the following options for updating or redesigning the tool to maximize its effectiveness in achieving the goal of developing a regional network of connected bicycle and pedestrian facilities:

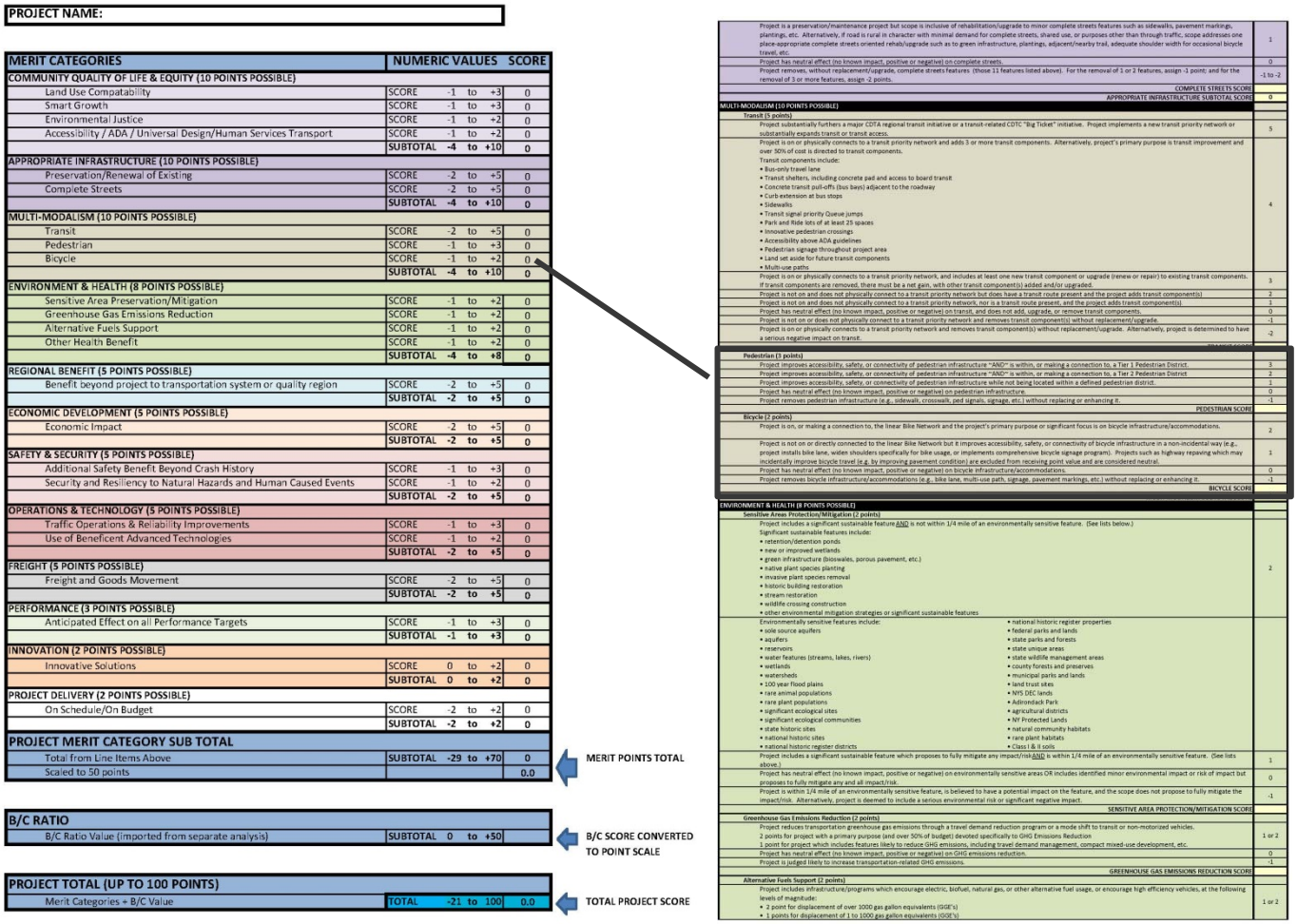
- Option 1) Update the existing tool using newer data sets while continuing to use the same criteria for inclusion. This option is feasible, but in the long term, will be hard to maintain as new data sets are released over time.
- Option 2) Reexamine the criteria used to define the tool and evaluate the amount of effort required to keep the Network updated and relevant in terms of incorporating the most recent data. Another fact to consider here is the availability of the data and the acknowledgement that even the most recent datasets are usually a few years behind. This discussion may lead to an effort to simplify the variables used to define the Network and therefore may change the definition, delineation or representation of the Network.

TIP Project Evaluation Methodology

In addition to the overhaul of the Bicycle and Pedestrian Prioritization Tool, CDTC updated its TIP project evaluation methodology ahead of the 2016-21 TIP. The new project scoring criteria provides a direct link between New Visions principles, recommendations, and funding priorities and the TIP project selection. It was designed to allow for adjustments as policies and principles change while providing an explicit, transparent, and easily understood evaluation system that better reflects the whole project value. By *whole* project value, CDTC is referring to both quantifiable benefits and non-quantifiable, or qualitative, benefits of each project.

The methodology maintains the cost / benefit ratio employed in TIP updates previous to 2016-21. CDTC's cost/benefit ratio uses potential market for bicycle/pedestrian travel, cost-effectiveness, and potential safety benefits (e.g. accident reduction or avoidance). The cost/benefit ratio captures the benefits of projects well, but additional scoring criteria are necessary to ensure programmed projects are consistent with the principles and goals of New Visions. A detailed explanation of the evaluation methodology for bicycle and pedestrian projects can be found in Appendix C.

Figure 10. TIP Project Merit Evaluation Sheet



PROJECT NAME:

MERIT CATEGORIES	NUMERIC VALUES	SCORE
COMMUNITY QUALITY OF LIFE & EQUITY (10 POINTS POSSIBLE)		
Land Use Compatability	SCORE -1 to +3	0
Smart Growth	SCORE -1 to +3	0
Environmental Justice	SCORE -1 to +2	0
Accessibility / ADA / Universal Design/Human Services Transport	SCORE -1 to +2	0
	SUBTOTAL -4 to +10	0
APPROPRIATE INFRASTRUCTURE (10 POINTS POSSIBLE)		
Preservation/Renewal of Existing	SCORE -2 to +5	0
Complete Streets	SCORE -2 to +5	0
	SUBTOTAL -4 to +10	0
MULTI-MODALISM (10 POINTS POSSIBLE)		
Transit	SCORE -2 to +5	0
Pedestrian	SCORE -1 to +3	0
Bicycle	SCORE -1 to +2	0
	SUBTOTAL -4 to +10	0
ENVIRONMENT & HEALTH (8 POINTS POSSIBLE)		
Sensitive Area Preservation/Mitigation	SCORE -1 to +2	0
Greenhouse Gas Emissions Reduction	SCORE -1 to +2	0
Alternative Fuels Support	SCORE -1 to +2	0
Other Health Benefit	SCORE -1 to +2	0
	SUBTOTAL -4 to +8	0
REGIONAL BENEFIT (5 POINTS POSSIBLE)		
Benefit beyond project to transportation system or quality region	SCORE -2 to +5	0
	SUBTOTAL -2 to +5	0
ECONOMIC DEVELOPMENT (5 POINTS POSSIBLE)		
Economic Impact	SCORE -2 to +5	0
	SUBTOTAL -2 to +5	0
SAFETY & SECURITY (5 POINTS POSSIBLE)		
Additional Safety Benefit Beyond Crash History	SCORE -1 to +3	0
Security and Resiliency to Natural Hazards and Human Caused Events	SCORE -1 to +2	0
	SUBTOTAL -2 to +5	0
OPERATIONS & TECHNOLOGY (5 POINTS POSSIBLE)		
Traffic Operations & Reliability Improvements	SCORE -1 to +3	0
Use of Beneficent Advanced Technologies	SCORE -1 to +2	0
	SUBTOTAL -2 to +5	0
FREIGHT (5 POINTS POSSIBLE)		
Freight and Goods Movement	SCORE -2 to +5	0
	SUBTOTAL -2 to +5	0
PERFORMANCE (3 POINTS POSSIBLE)		
Anticipated Effect on all Performance Targets	SCORE -1 to +3	0
	SUBTOTAL -1 to +3	0
INNOVATION (2 POINTS POSSIBLE)		
Innovative Solutions	SCORE 0 to +2	0
	SUBTOTAL 0 to +2	0
PROJECT DELIVERY (2 POINTS POSSIBLE)		
On Schedule/On Budget	SCORE -2 to +2	0
	SUBTOTAL -2 to +2	0
PROJECT MERIT CATEGORY SUB TOTAL		
Total from Line Items Above	SUBTOTAL -29 to +70	0
Scaled to 50 points		0.0

MERIT POINTS TOTAL

B/C RATIO		
B/C Ratio Value (imported from separate analysis)	SUBTOTAL 0 to +50	

B/C SCORE CONVERTED TO POINT SCALE

PROJECT TOTAL (UP TO 100 POINTS)		
Merit Categories + B/C Value	TOTAL -21 to 100	0.0

TOTAL PROJECT SCORE

Project is a preservation/maintenance project but scope is inclusive of rehabilitation/upgrade to minor complete streets features such as sidewalks, pavement markings, plantings, etc. Alternatively, if road is rural in character with minimal demand for complete streets, shared use, or purposes other than through traffic, scope addresses one place-appropriate complete streets oriented rehab/upgrade such as to green infrastructure, plantings, adjacent/nearby trail, adequate shoulder width for occasional bicycle travel, etc.	1
Project has neutral effect (no known impact, positive or negative) on complete streets.	0
Project removes, without replacement/upgrade, complete streets features (those 11 features listed above). For the removal of 1 or 2 features, assign -1 point; and for the removal of 3 or more features, assign -2 points.	-1 to -2
COMPLETE STREETS SCORE	
APPROPRIATE INFRASTRUCTURE SUBTOTAL SCORE	0
MULTI-MODALISM (10 POINTS POSSIBLE)	
Transit (5 points)	
Project substantially furthers a major CDTA regional transit initiative or a transit-related CDTC "Big Ticket" initiative. Project implements a new transit priority network or substantially expands transit or transit access.	5
Project is on or physically connects to a transit priority network and adds 3 or more transit components. Alternatively, project's primary purpose is transit improvement and over 50% of cost is directed to transit components. Transit components include: • 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 • Multi-use paths	4
Project is on or physically connects to a transit priority network, and includes at least one new transit component or upgrade (renew or repair) to existing transit components. If transit components are removed, there must be a net gain, with other transit component(s) added and/or upgraded.	3
Project is not on and does not physically connect to a transit priority network but does have a transit route present and the project adds transit component(s)	2
Project is not on and does not physically connect to a transit priority network, nor is a transit route present, and the project adds transit component(s).	1
Project has neutral effect (no known impact, positive or negative) on transit, and does not add, upgrade, or remove transit components.	0
Project is not on or does not physically connect to a transit priority network and removes transit component(s) without replacement/upgrade.	-1
Project is on or physically connects to a transit priority network and removes transit component(s) without replacement/upgrade. Alternatively, project is determined to have a serious negative impact on transit.	-2
TRANSIT SCORE	
Pedestrian (3 points)	
Project improves accessibility, safety, or connectivity of pedestrian infrastructure "AND" is within, or making a connection to, a Tier 1 Pedestrian District.	3
Project improves accessibility, safety, or connectivity of pedestrian infrastructure "AND" is within, or making a connection to, a Tier 2 Pedestrian District	2
Project improves accessibility, safety, or connectivity of pedestrian infrastructure while not being located within a defined pedestrian district.	1
Project has neutral effect (no known impact, positive or negative) on pedestrian infrastructure.	0
Project removes pedestrian infrastructure (e.g., sidewalk, crosswalk, ped signals, signage, etc.) without replacing or enhancing it.	-1
PEDESTRIAN SCORE	
Bicycle (2 points)	
Project is on, or making a connection to, the linear Bike Network and the project's primary purpose or significant focus is on bicycle infrastructure/accommodations.	2
Project is not on or directly connected to the linear Bike Network but it improves accessibility, safety, or connectivity of bicycle infrastructure in a non-incidental way (e.g., project installs bike lane, widen shoulders specifically for bike usage, or implements comprehensive bicycle signage program). Projects such as highway repaving which may incidentally improve bicycle travel (e.g. by improving pavement condition) are excluded from receiving point value and are considered neutral.	1
Project has neutral effect (no known impact, positive or negative) on bicycle infrastructure/accommodations.	0
Project removes bicycle infrastructure/accommodations (e.g., bike lane, multi-use path, signage, pavement markings, etc.) without replacing or enhancing it.	-1
BICYCLE SCORE	
ENVIRONMENT & HEALTH (8 POINTS POSSIBLE)	
Sensitive Areas Protection/Mitigation (2 points)	
Project includes a significant sustainable feature AND is not within 1/4 mile of an environmentally sensitive feature. (See lists below.) Significant sustainable features include: • retention/detention ponds • new or improved wetlands • green infrastructure (bioswales, porous pavement, etc.) • native plant species planting • invasive plant species removal • historic building restoration • stream restoration • wildlife crossing construction • other environmental mitigation strategies or significant sustainable features	2
Environmentally sensitive features include: • sole source aquifers • aquifers • reservoirs • water features (streams, lakes, rivers) • wetlands • watersheds • 100 year flood plains • rare animal populations • rare plant populations • significant ecological sites • significant ecological communities • state historic sites • national historic sites • national historic register districts • national historic register properties • federal parks and lands • state parks and forests • state unique areas • state wildlife management areas • county forests and preserves • municipal parks and lands • land trust sites • NYS DEC lands • Adirondack Park • agricultural districts • NY Protected Lands • natural community habitats • rare plant habitats • Class I & II soils	
Project includes a significant sustainable feature which proposes to fully mitigate any impact/risk AND is within 1/4 mile of an environmentally sensitive feature. (See lists above.)	1
Project has neutral effect (no known impact, positive or negative) on environmentally sensitive areas OR includes identified minor environmental impact or risk of impact but proposes to fully mitigate any and all impact/risk.	0
Project is within 1/4 mile of an environmentally sensitive feature, is believed to have a potential impact on the feature, and the scope does not propose to fully mitigate the impact/risk. Alternatively, project is deemed to include a serious environmental risk or significant negative impact.	-1
SENSITIVE AREA PROTECTION/MITIGATION SCORE	
Greenhouse Gas Emissions Reduction (2 points)	
Project reduces transportation greenhouse gas emissions through a travel demand reduction program or a mode shift to transit or non-motorized vehicles. 2 points for project with a primary purpose (and over 50% of budget) devoted specifically to GHG Emissions Reduction 1 point for project which includes features likely to reduce GHG emissions, including travel demand management, compact mixed-use development, etc.	1 or 2
Project has neutral effect (no known impact, positive or negative) on GHG emissions reduction.	0
Project is judged likely to increase transportation-related GHG emissions.	-1
GREENHOUSE GAS EMISSIONS REDUCTION SCORE	
Alternative Fuels Support (2 points)	
Project includes infrastructure/programs which encourage electric, biofuel, natural gas, or other alternative fuel usage, or encourage high efficiency vehicles, at the following levels of magnitude: • 2 point for displacement of over 1000 gas gallon equivalents (GGE's) • 1 points for displacement of 1 to 1000 gas gallon equivalents (GGE's)	1 or 2

A "multi-modalism" category was added to the qualitative section of the evaluation methodology (see Figure 10). Within multi-modalism, are criteria for receiving points for proposed projects that include accommodations or facilities specifically for transit users, pedestrians, and bicyclists. "Pedestrian" and "Bicycle" points are designed to prioritize projects that meet the criteria of the Bicycle and Pedestrian Prioritization Tool. The standards were tightened to ensure that projects receiving points and therefore being prioritized for funding, included a strong commitment to facilities that are meant to designate space or some level of protection for pedestrians and bicyclists. Figure 11 shows the criteria for receiving pedestrian and bicycle points. All of the projects programmed under the Bicycle and Pedestrian Network Set-Aside met the criteria of the Bicycle and Pedestrian Prioritization Tool and received the maximum number of points for at least one mode (pedestrian or bicycle).

Figure 11. Pedestrian and Bicycle Point Criteria

MULTI-MODALISM	
Pedestrian (3 points)	
Project improves accessibility, safety, or connectivity of pedestrian infrastructure ~AND~ is within, or making a connection to, a Tier 1 Pedestrian District.	+3
Project improves accessibility, safety, or connectivity of pedestrian infrastructure ~AND~ is within, or making a connection to, a Tier 2 Pedestrian District	+2
Project improves accessibility, safety, or connectivity of pedestrian infrastructure while not being located within a defined pedestrian district.	+1
Project has neutral affect (no known impact, positive or negative) on pedestrian infrastructure.	0
Project removes pedestrian infrastructure (e.g., . sidewalk, crosswalk, ped signals, signage, etc.) without replacing or enhancing it.	-1
PEDESTRIAN SCORE	
Bicycle (2 points)	
Project is on, or making a connection to, the linear Bike Network and the project's primary purpose or significant focus is on bicycle infrastructure/accommodations.	2
Project is not on or directly connected to the linear Bike Network but it improves accessibility, safety, or connectivity of bicycle infrastructure in a non-incidental way (e.g., project installs bike lane, widen shoulders specifically for bike usage, or implements comprehensive bicycle signage program). Projects such as highway repaving which may incidentally improve bicycle travel (e.g. by improving pavement condition) are excluded from receiving point value and are considered neutral.	1
Project has neutral affect (no known impact, positive or negative) on bicycle infrastructure/accommodations.	0
Project removes bicycle infrastructure/accommodations (e.g., bike lane, multi-use path, signage, pavement markings, etc.) without replacing or enhancing it.	-1
BICYCLE SCORE	

Bicycle & Pedestrian Data Collection

Since 2015, CDTC has collected data on the location of sidewalks and bicycle facilities throughout the region. CDTC has also verified and updated multi-use trail location data. These GIS-based inventories were created with various data sources, including data collected by CDTC with a GPS device and aerial imagery from available GIS data and Google Imagery. The sidewalk data was compiled with the objective of creating inventories to support municipalities as they developed Americans with Disabilities Act (ADA) Transition Plans and identify deficient pedestrian facilities. The inventory also provides baseline data for CDTC to measure progress in expanding pedestrian infrastructure and developing connections to multi-use trails and other destinations.

There are approximately 1,230 miles of sidewalks within the CDTC Planning Area. When comparing the regional sidewalk mileage collected by CDTC to the regional road mileage from NYSDOT's 2016 Highway Mileage report, (6,738 miles) CDTC found that nearly 20% of the region's roads have sidewalks, however, the road and sidewalk mileages are not direct comparisons because sidewalk data is in actual miles and roadway data is in centerline mileage. About 69% of sidewalks are located in our region's cities (850 miles), 20% are located in towns (245 miles), and 11% are in villages (130 miles). All of the region's cities and villages contain sidewalk infrastructure whereas there are several rural towns and villages with less than one mile of sidewalk, and 8 towns within the region without any sidewalks.

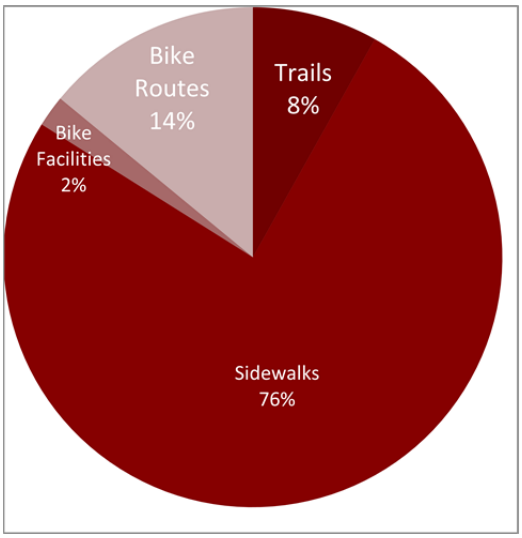
As bicycle lanes, cycle tracks, and other on-road bike facilities are constructed throughout the region, CDTC incorporates the data into their Bicycle Infrastructure database. The most extensive inventory of bicycle facilities is multi-use trail data. As of October 2019, CDTC estimates 132 miles of multi-use trails. "Multi-use" refers to paved, off-road or separated paths for bicyclists, pedestrians, and other non-motorized wheeled vehicles (i.e. inline skating, scooters, etc.). The Empire State Trail Project, which was announced in 2017, will add another 30 miles to the regional network by the end of 2020.

State Bike Route 5

In addition to these designated facilities for bicyclists and

Bicycle & Pedestrian Infrastructure Snapshot

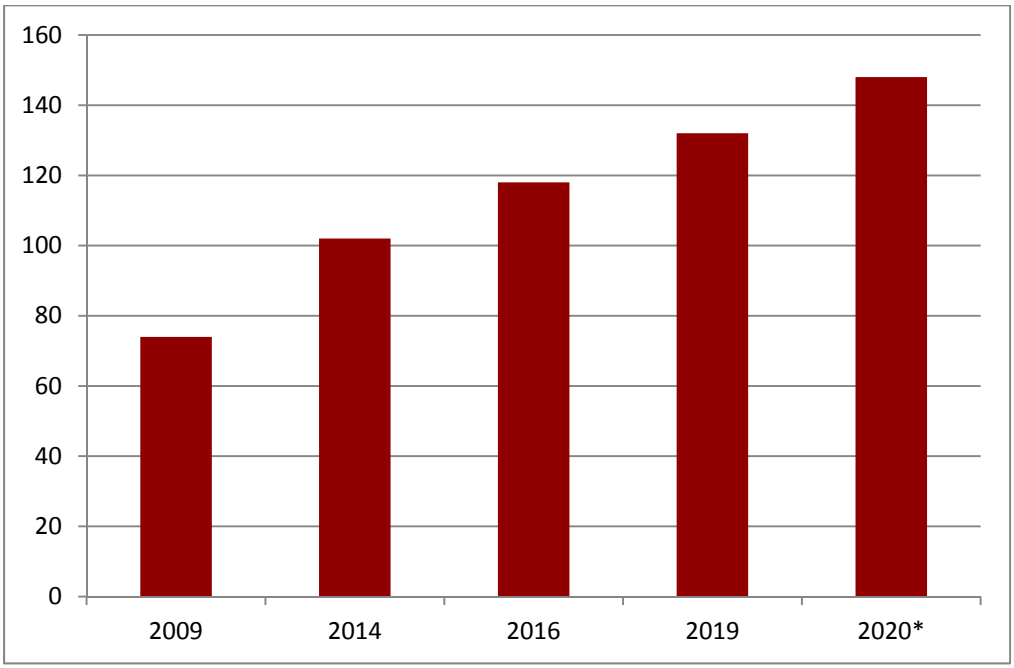
There are **1,623 miles** of walking & bicycling infrastructure in the Capital District & **Sidewalks** make up over **75%** of the walking & bicycling network.



When the **Empire State Trail** is complete **in 2020**, there will be over **150 miles** of multi-use **trails** in the region. There are **228 miles** of designated **bike routes** & **33 miles** of **bike lanes** or other facilities designed for bicycles.

pedestrians, there are local and state designated on-road bicycle routes. State Bike Routes 5 and 9 traverse the Capital District. State Bike Route 5 extends 365 miles across the state from Niagara Falls to the Massachusetts state line. It parallels the Erie Canal and New York State Canalway Trail (a/k/a "Mohawk-Hudson Bike-Hike Trail in the Capital District). State Bike Route 9 intersects with State Bike Route 5 in the Capital District. Route 9 extends 345 miles from New York City to Rouses Point on the New York – Quebec border. Between the local and state bike routes, there are 228 miles of on-road bicycle routes in the region. There are 33 miles of designated bike facilities like bike lanes and cycle tracks. Maps of these routes can be found in Appendix B.

Figure 12. Miles of Constructed Multi-Use Paths



**Estimated trail mileage at completion of Empire State Trail Project*

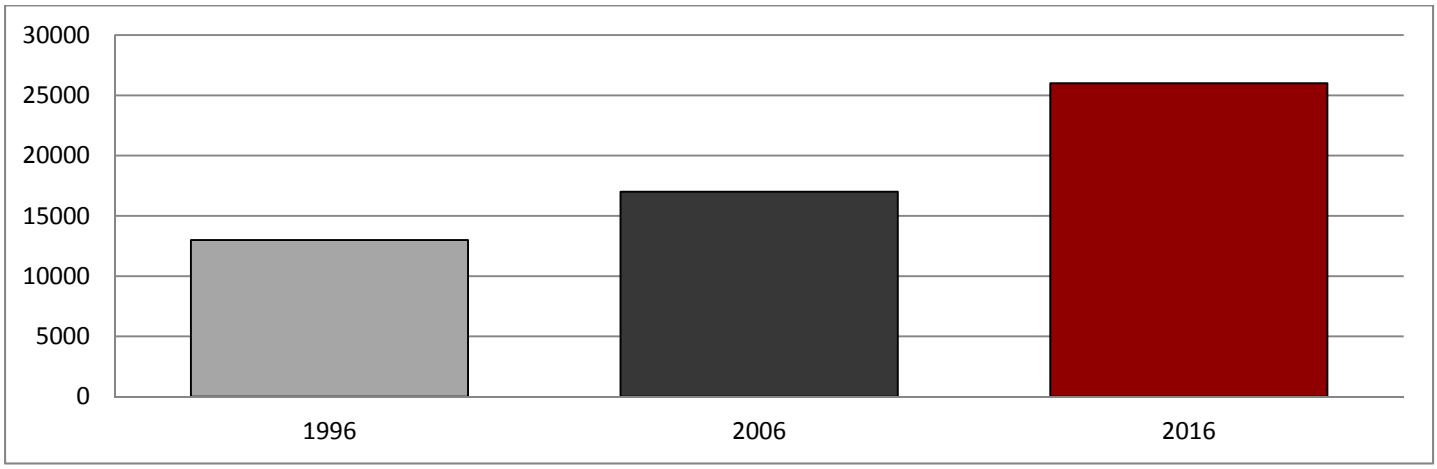
While CDTC requests updated data from all municipalities, tracks projects, and collects GPS data on new projects regularly, these inventories may exclude some facilities. Likewise, CDTC does not maintain up-to-date unpaved, or hiking trail data. These facilities are important to Capital District residents and sometimes serve as connections between multi-use paths, or eventually are paved and become part of the multi-use path network.

In addition to trail location data, CDTC has regularly counted and surveyed trail users since 1998, beginning with *The Mohawk-Hudson Bike-Hike Trail Analysis of Trail Use, Regional Benefits, and Economic Impact* report. CDTC evaluated trail use again in the *2006 Regional Trail Perspectives*, which expanded data collection to the 3 major trails in the region at the time. In 2017, CDTC released an updated Regional Trail Perspectives which analyzed trail use on 9 regionally significant trails in the region. Trail counts were conducted in 2016 and estimated nearly 1.7 million annual visits. Counts complemented user surveys, whose results showed increasing support for building and maintaining multi-use trails in the Capital District.

CDTC's popular Mohawk-Hudson Bike-Hike Trail and Regional Trail Maps are no longer in print. The rapid construction of new trails and expansion of the existing system make it difficult to maintain an accurate, updated published map of facilities. Additionally, the growing use of smartphone applications and other technology for navigation and trip tracking

have created new opportunities for trails groups and other organization to provide updated trail location data to the public.

Figure 13. Trails Users Per Mile



Bicycle & Pedestrian Network Quality

Evaluating the quality and safety of transportation facilities is a regular part of the transportation planning process. In 2019, CDTC analyzed various methodologies for measuring bicycle facility level of service and/or stress. Traditionally, level of service (LOS) has been used as a measure to evaluate the speed or flow of vehicular through traffic on streets and at intersections. CDTC used a Bicycle LOS (BLOS) model that was introduced in 1997. Since then, new methods for evaluating LOS have emerged and required further analysis to assess their applicability to Capital District roadways. The methodologies evaluated include Level of Traffic Stress (LTS) developed by the Mineta Transportation Institute, the Bicycle Level of Service (BLOS) from the Highway Capacity Manual, the Bicycle Network Analysis created by People for Bikes, and the Bicycle Environmental Quality Index (BEQI) developed by the San Francisco Department of Public Health. Based on the analysis, CDTC's preferred methodology is LTS.

The LTS methodology was developed by the Mineta Transportation Institute at San Jose University. The LTS is a set of criteria that classifies road segments into four levels of stress based on Dutch bikeway design criteria, representing a more realistic level of traffic stress that most adults will tolerate. Cyclists are typically classified into four groups:

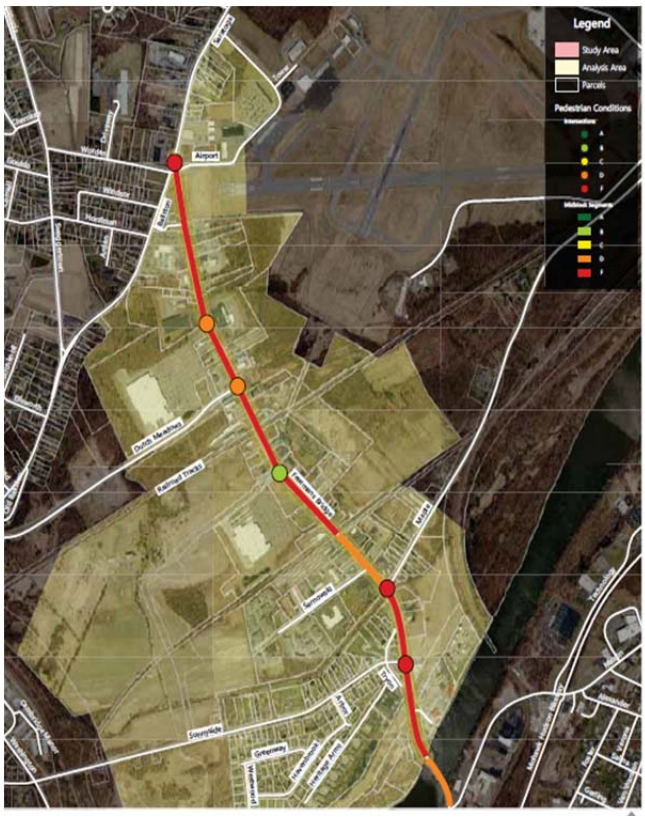
- Strong & Fearless (<1%)
- Enthused & Confident (7%)
- Interested but Concerned (60%)
- No Way No How (33%)

It is a model that moves planners away from merely measuring the miles of bicycle facilities as a measure of progress and towards measuring bicyclists' level of comfort in traveling between home, work, and other destinations. It helps highlight low-volume streets that do not necessarily have designated bike facilities yet create a low-stress environment for bicyclists and serve as part of a community's bicycle network. So rather than limiting bicyclists to a set of streets and paths that cities and regions advise bicyclists to use as primary routes, low stress streets identified using LTS may well represent where people, particularly less confident cyclists, actually ride.

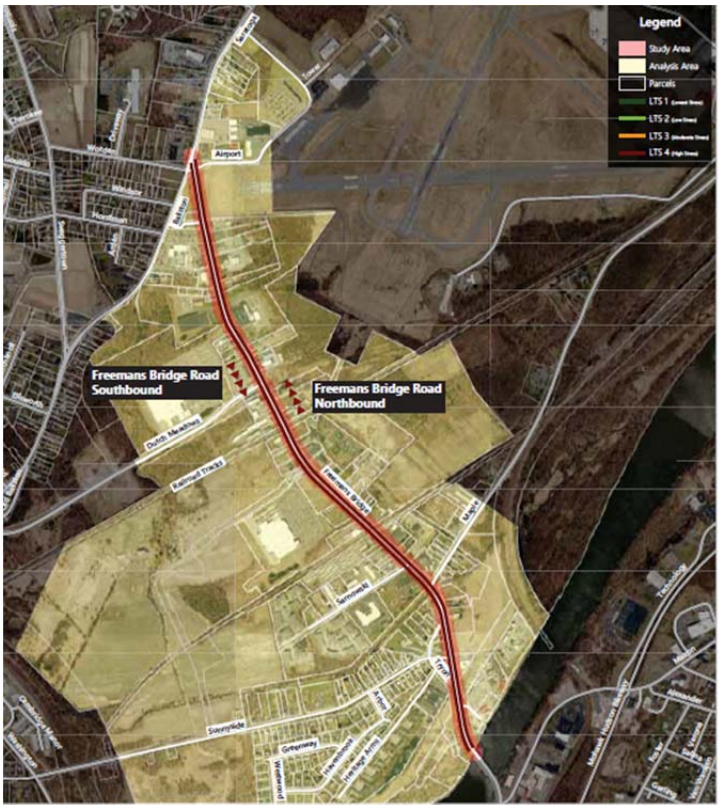
LTS measures traffic stress and bicyclist comfort based on several roadway characteristics:

- Number of lanes
- Traffic speeds
- Presence of a parking lane
- Presence of a designated bike facility
- Whether bikes are in mixed traffic
- Whether a shoulder or bike lane is adjacent to parking

Figure 14. Use of LTS Methodology in Freemans Bridge Road Complete Streets Concept Plan



Freemans Bridge Road Complete Streets Concept Plan intersection LTS analysis.

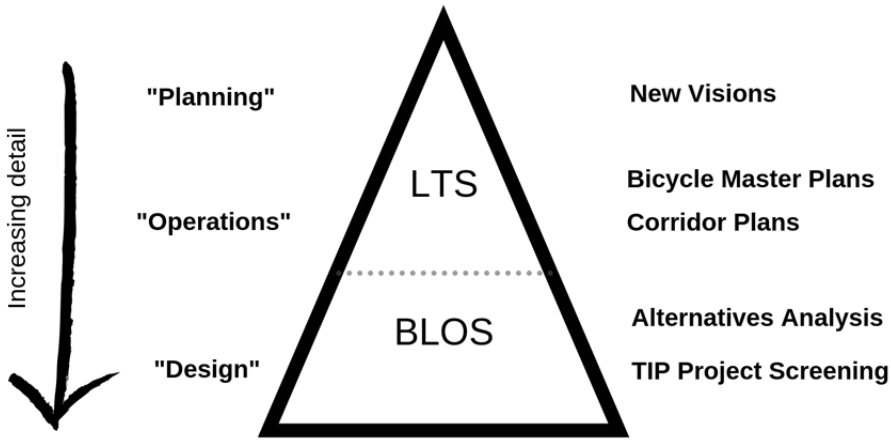


Freemans Bridge Road Complete Streets Concept Plan Bicycle LTS analysis.

The LTS does not, in itself, measure accessibility, but a network analysis using the LTS model can help planners and engineers identify connectivity gaps between activity generators and destinations. If determining the priority of certain bike facility or pavement projects, an LTS analysis can prioritize a short segment of road that may not seem worthy of a designated bike facility, but if it connects two low stress areas of streets, it can demonstrate significant network benefits. Since the model is based on the four classifications of cyclists, in can be calibrated based on local preferences and levels of perceived comfort. Some cities and regions have conducted visual surveys to gather data on public perceptions of traffic stress and adjusted the LTS model to their local needs. For example, if the majority of potential bicyclists do not perceive any road where bikes are mixed with traffic to be comfortable, then that city or region may adjust the model so that only separated multi-use paths are classified as LTS 1.

LTS is intended to measure the bike-friendliness of road segments, however, improvements for bicyclists generally translate into improvements for pedestrians as well the factors that make a road segment more or less friendly for bicycle travel, effect the pedestrian-friendliness and walkability. While this analysis did not include the evaluation of intersections, the LTS model provides criteria for rating intersections based on the type of crossing, vehicle speeds, and the number of lanes that are required to be crossed. This LTS model measures stress in terms of exposure, which is generally how pedestrian-friendliness is graded.

Figure 15. Figure 8. Model Choice & Planning Context



While CDTC is confident that the LTS model is the preferred methodology for the Capital District, planners and engineers should always assess the planning context before embarking on tasks and projects related to transportation planning and measuring bike-friendliness. The LTS model should be used as prescribed in "Level of Traffic Stress Criteria for Road Segments, Version 2.0, June, 2017." LTS does not measure bicycling demand, accessibility or surrounding land use connection, safety, or bicycle congestion and traffic. The model does not take bicycle facility type (sharrows vs. protected cycle-track) into consideration when determining LTS, but research suggests that buffered bike lanes improve cyclist comfort and safety. It also does not consider topography (hills), pavement condition, left turn lanes, or driveway/curb-cut density, which all impact bicycling comfort.

Despite the factors not included in LTS analysis, the model offers advantages over simply assessing routes based on whether they are equipped with bike lanes or other bicycle-specific infrastructure. Unlike the BLOS model, LTS considers the different types of bicyclists using the system and is easy to explain to the public and policymakers. The LTS methodology yields more meaningful results than BLOS, allowing bicyclists to choose routes based on how much traffic stress they are comfortable with. The simplicity of the methodology makes it easier to apply on a large scale, or future suitability mapping projects.

There are weaknesses in the LTS model because, although it has become popular, it is relatively new and lacks extensive research and validation.[8] Additionally, it is not directly applicable to rural areas. Recent research has indicated that LTS is a valid measure of a household's propensity to bicycle, but the model must continue to be studied and re-evaluated. The LTS model can be improved and calibrated to the local context through visual preference surveys. CDTC will conduct

[8] Wang, Haizhong & Palm, Matthew & Chen, Chen & Vogt, Rachel & Wang, Yiyi, 2016. "Does bicycle network level of traffic stress (LTS) explain bicycle travel behavior? Mixed results from an Oregon case study," Journal of Transport Geography, Elsevier, vol. 57(C), pages 8-18.

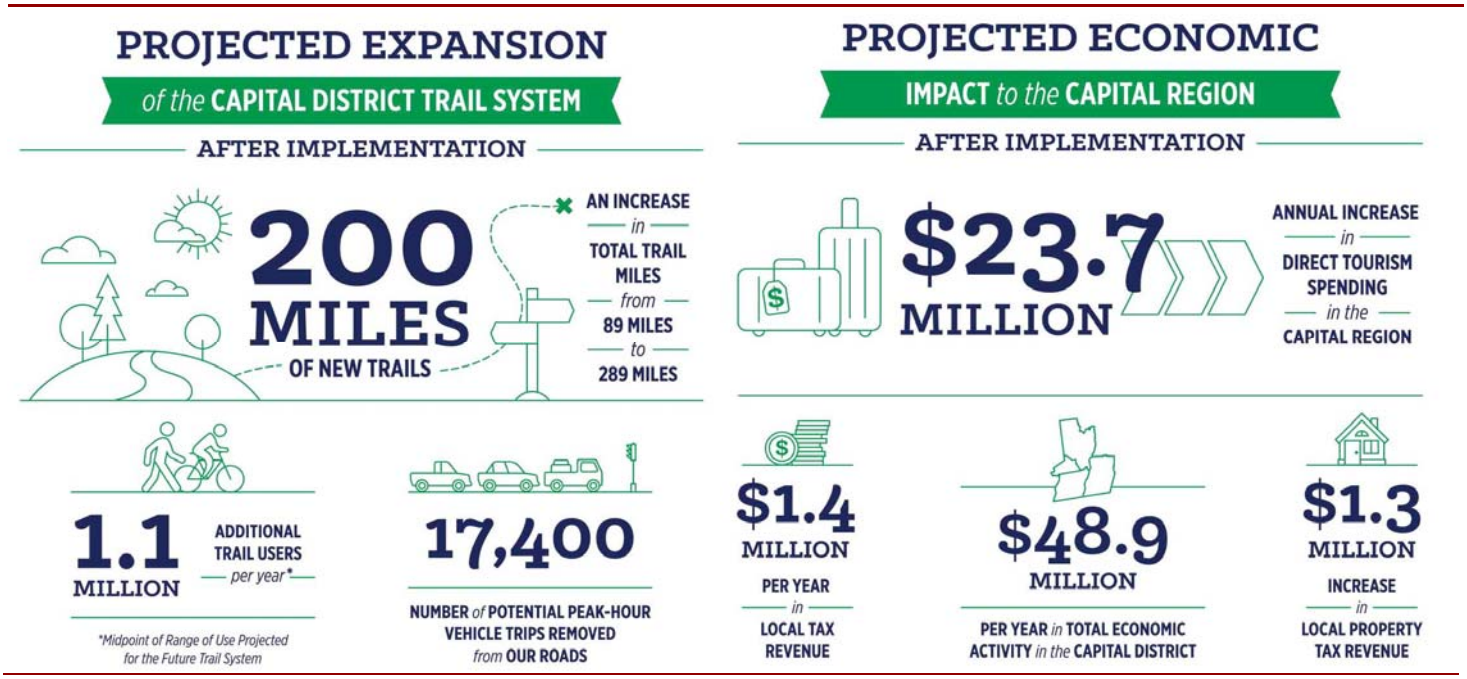
bicycle facility preference surveys on an ongoing basis, in the development of New Visions 2050 and all Community and Transportation Linkage Studies thereafter. The data collected through these surveys will help LTS criteria to fit local bicycling preferences, reformat LTS tables, and remove any found inconsistencies.

CDTC transportation planning initiatives that include the evaluation of design alternatives, after an initial LTS analysis, should consider the use of the BLOS model to help guide decision-making. The BLOS model requires data that may not be available in existing inventories or easy to obtain. Any planning task that anticipates an evaluation of design alternatives should include sufficient budget and clearly outline a data collection and BLOS modeling task in the scope. The full details of the analysis can be found in Appendix D.

Active Transportation Planning

"Active transportation" refers to transportation faculties like shared- or multi-use trails and paths, bike lanes, and sidewalks for people of all ages, incomes and abilities. They connect the transportation network and region efficiently and comfortably and provide more transportation choices. An active transportation network can improve safety, reduce vehicle miles traveled, single-occupancy vehicle travel, and greenhouse gas emissions and provide opportunities for exercise throughout the day.

CDTC released the *Capital District Trails Plan* in 2019. The plan was an update of the 2007 *Tech Valley Trails* plan. The plan proposes a 300-mile network of multi-use trails and on-road routes that would create a seamlessly connected region. The plan proposes "Core Trails" and a "Supporting Trail Network." Core trails are those which have been identified and proposed as the primary transportation routes for non-vehicular travel. These interconnected routes would link multiple towns and population centers throughout Albany, Rensselaer, Saratoga, and Schenectady counties. The supporting trail network is comprised of secondary connections which serve lower population areas however are still very important to the functionality of the larger transportation network. The proposed system is not unlike a highway system with a secondary local road network that provide choices and access to the larger system.



There are 18 core trails which would provide a total more than 214 miles of dedicated off-road multi-use trails and approximately 76 miles of on-road bike routes. Nearly 90 miles of the core system has already been constructed. Trail use data and surveys collected indicate strong public support for constructing trails. Case studies on trails from other parts of the country indicate that an expanded, connected system, could generate positive economic benefits for the region through tourism and increased property tax revenues. New Visions 2040 highlighted several regionally significant trail projects as "Key Recommendations." Many of these proposed projects have progressed in significant ways. These projects and their current status are listed in Table 7.

Table 7. New Visions 2040 Key Recommendations & Project Status

Proposed Project	Description	Status
Uncle Sam Bikeway	This connection between the Uncle Sam Trail and the Troy-Menands Bridge in South Troy was constructed in 2018 and includes a mix of on-road buffered cycle track and traditional bike lanes	Completed
Patroon Creek Greenway	A feasibility study released in 2007 proposes an off-road connection between the waterfront in Downtown Albany and the Albany Pine Pine Bush Preserve via an Albany County water line right-of-way	No progress
Mickey Mahar Trail	This trail concept envisions a connection between the City of Rensselaer and the City of Troy via a route close the Hudson Riverfront	Rensselaer County is currently studying its feasibility
Zim Smith Trail	This trail concept is proposed to connect Mechanicville to the south end of the Saratoga Spa State Park	Connection between Halfmoon & Mechanicville completed
South End Bikeway – connection between Albany County Rail-Trail and Corning Riverfront / Mohawk-Hudson Bike-Hike Trail	CDTC funded the Albany Waterfront Connector Feasibility Study in 2017 that proposed an alignment for a two-way cycle track that connects the southern end of the Albany County Rail Trail with the Mohawk-Hudson Bike-Hike Trail which terminates at the Albany Corning Riverfront park	To be completed by end of 2020
Livingston Avenue Bridge bicycle and pedestrian connection	The swing rail bridge has been slated for replacement. It is CDTC's policy that if the structure is replaced using federal transportation funds, it must include a bicycle and pedestrian path, as the original bridge did.	No progress
Watervliet connection to the Mohawk-Hudson Bike-Hike Trail	The Watervliet Bicycle Master Plan, funded by CDTC, prioritized Broadway (NYS Route 32) to be improved for bicycles because of its connection to the Mohawk-Hudson Bike-Hike Trail. The City of Watervliet proposed a two-way cycle track	It was let for construction in October 2019 and should be completed by the end of 2020
Close the gap between Rotterdam Junction and Amsterdam on the Mohawk-Hudson Bike-Hike Trail	The gap will be closed at Scrafford Lane as part of the Empire State Trail project.	To be completed by end of 2020

The *Capital District Trails Plan* also includes an estimate of economic impacts from the existing and proposed trail network. The core trails system was inserted into the CDTC traffic demand model which estimates over 17,000 peak-hour vehicle trips could be shifted to a trail if the proposed network was completed. Beyond commute trips, an expanded trail network provides safe walking and bicycling opportunities for routes to schools and other non-commute trips. Best practices for trail maintenance and management are also included in the plan as a stand-alone document. Lastly, a branding and marketing plan was developed. This section of the plan proposes a logo and a strategy for branding the regional network to create an identity and helps promote trails as part of a connected network. Examples of how the logo could be integrated into signage and wayfinding can be found in the *Capital District Trails Plan* in Appendix E.

An example of how the Capital Trails logo should be applied to existing trail signage.

CDTC works closely with state and local departments of health on active transportation planning and Complete Streets initiatives. Active transportation trips made by walking or bicycling, was identified by the U.S. Department of Health and Human Services Healthy People 2020 as a target for measuring progress for healthier people.[9] People living in communities with access to safe, pedestrian and bicycle infrastructure, are more likely to use physically active modes of transportation (e.g. walking, bicycling), have a lower body mass index (BMI) and drive less than less walkable communities.[10] CDTC's goals of increasing access to transportation options and reducing obesity and chronic illness related to inactivity are consistent with state and local health agency goals and priorities.

Coordinating on transportation planning activities and bicycle and pedestrian encouragement and safety education has helped maximize reach and resoruces available to each individual organization. Some examples of these coordinated activities include the Albany County Complete Streets Workshops, Albany County Healthy Streets Program, and the Schenectady County Bike Rodeo Kit project. CDTC has assisted Albany County with planning and coordinating countywide training on Complete Streets design and in managing the Healthy Streets Program which was modeled after the CDTC Traffic Safety Ambassador Program mini-grants. Albany County used grant funds to build and establish a "lending library" for bicycle and pedestrian demonstrations that includes street furniture, cones, speed guns, signage, and other tools needed to construct temporary bike lanes and other facilities. The Schenectady County Department of Health used a mini-grant to build bike rodeo kits that could be distributed to municipalities and other organizations throughout Schenectady County to plan bike safety events for school-aged children.

[9] https://www.healthypeople.gov/

[10] Hoehner, Christine M. et al. Commuting Distance, Cardiorespiratory Fitness, and Metabolic Risk. American Journal of Preventive Medicine, 42(6). [Online] June 2012. http://www.ajpmonline.org/article/S0749-3797(12)00167-5/pdf.

Driving Forces

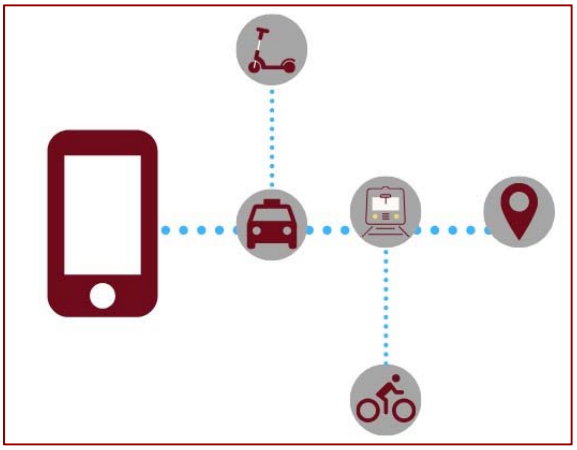
Social

Millennials and Baby Boomers are the largest consumer groups in the U.S. Their shifting lifestyle choices are driving development and changes in our cities and towns. Unit-for-unit, multi-family housing is outpacing single family housing construction in the Capital District, based on Capital District Regional Planning Commission reports.[11] Aging Baby Boomers are trading suburban single-family homes for apartments, condominiums, and homes in denser neighborhoods. Changing consumption patterns and delay of traditional, significant life milestones, for Millenials, have contributed to not just changing housing choices, but the rise of the sharing economy. Micromobility, like bike share and scooters, has quickly proliferated across U.S. cities.

There are many other factors influencing these changes, including a changing economy and technology. However, being in close proximity to amenities like transit, entertainment, and recreation is a trend that cuts across generations and is influencing how municipalities are planning and designing neighborhoods and business districts. Shared mobility is the first revolution in transportation, changing how individuals move around and expect the transportation system to function. Coupled with technological changes like electrification and automation, urban infrastructure investment and modernization upgrades will be essential to creating a regional transportation system for the next generation.

Technology

Mobility as a Service (MaaS) refers to the shift away from personally-owned modes of transportation and towards mobility solutions, or alternative modes, that are consumed as a service. One of the most prevalent MaaS changes in the Capital District has been ridehailing. Transportation Network Companies (TNCs) like Uber and Lyft, began operating in Upstate New York in 2017. They allow users to request a ride from a network of contracted drivers via a smartphone app. TNCs have disrupted the taxicab industry and transit. Micromobiliy has made more transportation choices for personal mobility available to more people than ever before. Complemented by technology and internet connectedness, travel information is easily accessible and integrated with trip planning, payment, and a managed user experience.



Anticipating connected and automated vehicles (C/AVs) is a major theme in long range transportation planning. They are the most significant transportation technology on the horizon. There are six levels (0-5) of vehicle automation according to the National Highway Traffic Safety Administration (NHTSA). Level 0 requires the driver to perform all driving tasks and Level 1 includes features like parking assistance, which has existed for several years. The second level includes lane centering and adaptive cruise control, which are all available on most new vehicles today. Level 3 is self-driving functions that still requires a high level of driver control. Level 4 technology is available in some new, advanced, luxury vehicles (i.e. Tesla). The Automated Driving System (ADS) can perform all driving tasks and monitor the driving

[11] https://cdrpc.org/data/housing

environment in certain circumstances but the vehicle still requires a driver. The last level, 5, is full self-driving, automated technology that performs all driving functions and does not require a driver or occupants at all.[12]

Other automated vehicles include aerial and sidewalk drones. E-commerce, or commercial transactions made via the internet, have already activated changes to the transportation system and land uses. For example, 24-hour delivery and courier services have increased VMT and greenhouse gas emissions in some cities. As retail and commercial activity is increasingly conducted online, brick and mortar stores are closing or consolidating. Land uses like shopping malls are gradually becoming centers for entertainment, with storefronts being converted into bowling alleys, restaurants, and even day spas. Automation means drones can save businesses money by removing the human labor required to sell and deliver some goods. Items like prescription drugs, fast food, and other small items can be delivered within a few hours of being ordered.

"Smart" technology refers to a range of initiatives and applications that improve mobility within communities, from technology infrastructure like sensors and payment systems to services that help consumers make transportation choices. These technologies can manage traffic and reduce congestion at intersections, manage parking more efficiently, and provide shared mobility services like car share and bike share. Smart technology that helps monitor and analyze operations within a city can save local governments money and improve efficiency in the delivery of services. These have been applied to assist with snow removal and stormwater system maintenance in cities across the U.S.

Environmental

Based on NYSDEC's estimates, by the 2050s, sea level is expected to be as much as 30 inches (2.5 feet) higher in New York's coastal area, as compared with sea level averaged by 2000-2004. By 2100, New York's cost could see up to 6 feet of sea-level rise. The Capital District is not a coastal area, however, sea level rise will cause the Hudson and Mohawk Rivers and their tidal wetlands to rise and making the region vulnerable to severe flooding and other hazards.[13] Climate change is predicted to have a significant impact on agriculture and natural resources. In addition to environmental health, climate change poses a risk to the health of people, including respiratory conditions from air quality and diseases spread by pests.

Greenhouse gas emissions from human activities are the most significant driver of the climate crisis. The transportation sector is the largest source of New York's greenhouse gas emissions. Shifting to electric vehicles, investing in pedestrian and bicycle infrastructure, reducing congestion, and upgrading and expanding public transportation are priorities of NYS in order to achieve a 40% reduction in greenhouse gas emissions from 1990 levels by 2030, and 85% by 2050. The Climate Leadership and Community Protection Act (CLCPA), signed by the Governor in 2019, commits the state to developing a carbon-free electricity system and meeting these ambitious greenhouse gas emission reduction goals through strategic investments.[14]

According to the NYS Department of Environmental Conservation (NYSDEC), research has shown that a variety of climate change impacts have already been observed in New York and across the northeastern U.S. Annual average temperatures have risen and precipitation has increased. In addition to an increase in the overall amount precipitation, the number of downpours has increased significantly and demonstrated the inability of our current infrastructure to handle the impacts of climate change. The Capital District has experienced severe flooding and washouts in the last several years. A number

[12] https://www.nhtsa.gov/technology-innovation/automated-vehicles-safety#topic-road-self-driving
[13] https://www.dec.ny.gov/energy/94702.html
[14] https://www.dec.ny.gov/energy/99223.html

of cities are currently undertaking mitigation projects, like rebuilding sea walls, with assistance from the Federal Emergency Management Administration (FEMA) because of damage from recent storms and heavy rain events.

Economic

The *Capital District Regional Indicators* (2016) report by the Capital District Regional Planning Commission uses American Community Survey (ACS) data to examine and compare the Capital District metropolitan statistical area with its peer groups as it relates to social welfare, education, housing, economics, transportation and health. The report illustrates the stability of the regional economy due to its large base of government, education, and healthcare institutions that provide employment and generate economic activity in cities and towns throughout the region.[15] However, urban areas still struggle with reducing poverty. While many economic factors are beyond the control of CDTC and the transportation system, access to transportation and connectivity to employment and activity centers can create economic opportunities.

Table 8. Annual Cost of Vehicle Ownership

New Vehicle Category	Annual Cost*
Small Sedan	$7,114
Hybrid	$7,736
Electric	$8,320
Small SUV	$8,394
Medium Sedan	$8,643
Medium SUV	$10,265
Large Sedan	$10,403
Pickup	$10,839
Average	**$8,964.25**

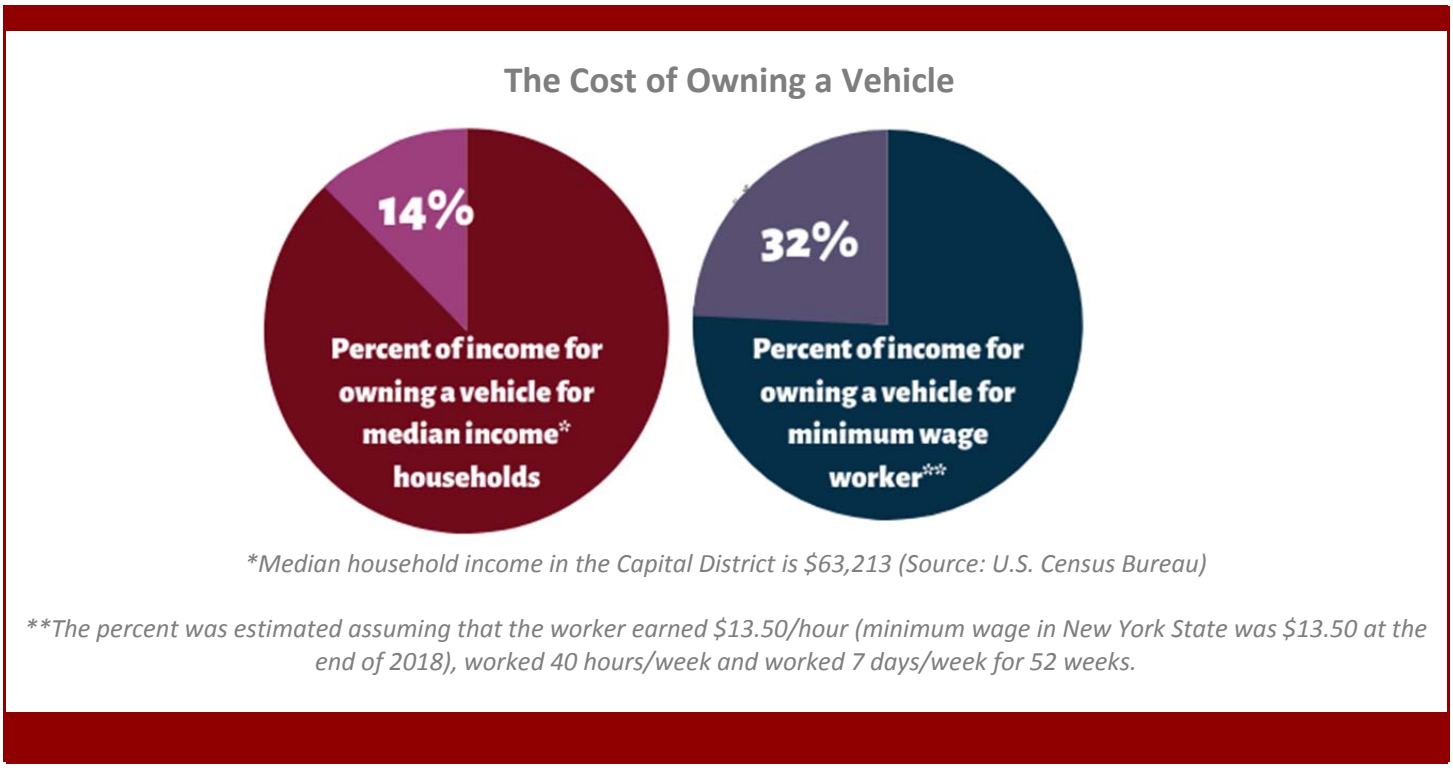
**Based on driving 15,000 miles per year*

Despite the high cost of private vehicle ownership, cheap energy has historically created demand for large single-family home development and kept most consumers dependent on their vehicles for mobility. According to Census data, nearly 11% or 90,000 residents of the Capital District do not have a vehicle. Communities where zero-vehicle households are high, are typically dense urban areas within the region's cities with access to transit and sidewalks. There are some rural and village communities in the region where households do not have access to a vehicle and are not served by transit or sidewalk facilities. Oil and gas prices have been relatively low, but volatile. In a global economy, disruptions from extreme weather events, wars, trade disputes, and other political conflicts can significantly impact supply and cause dramatic price spikes.

Similarly, natural gas, has provided cheap and abundant energy for much of the U.S., including throughout New York state. While the U.S. has become more energy independent, states and communities have had to balance the trade-offs of providing energy and disrupting natural resources. These pressures on natural resources, compounded by a changing climate, have created demand for improvements in energy efficiency as well as alternative energy sources like solar, wind, and hydrogen. Increasing demand for efficiency and alternatives also puts pressure on towns and cities to invest in infrastructure that supports walking, bicycling, and access to transit and other mobility services.

[15] https://cdrpc.org/wp-content/uploads/2016/11/FINAL-Capital-District-Regional-Indicators-2016-LANDSCAPE-FORMAT.pdf

Similar to their changing preference in lifestyle, Millennials, lean to access over ownership. The "Sharing Economy" has increased access to mobility in the same way libraries expanded access to books. Technology has removed barriers to entry like cost and availability of bicycles, cars, and most recently, electric-scooters and mopeds. As the sharing economy revolutionizes mobility, it is uncertain if a shared ownership model will, at any point, overtake personal vehicle ownership. Other emerging technologies like automation and electrification could be paired with MaaS to transition to a shared fleet of vehicles which will have significant impacts on land use and the transportation system.



The Fixing America's Surface Transportation (FAST) Act was signed in December 2015 authorizing $305 billion through 2020 for transportation funding. Included in the FAST Act was $4.3 billion for the Transportation Alternatives Program (TAP), which is a set-aside for "smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habituate connectivity."[16] In addition to TAP, the FAST Act includes $12 billion for Congestion Mitigation and Air Quality (CMAQ) programs. CMAQ eligible projects must help meet the requirements of the Clean Air Act and reduce congestion and improve air quality. Bicycle and pedestrian projects are eligible for funding under this program, which also provides funds to alternative fuel vehicles and infrastructure and intersection projects that reduce congestion like traffic signals and roundabouts.[17]

The Highway Trust Fund is the source of funding for most of the programs in the FAST Act. The source of funding for the Highway Trust Fund are motor fuel taxes, however the FAST Act transfers additional funds from other sources into the Highway Trust Fund in order to keep it solvent through 2020.[18] As fuel efficiency standards increase and electric vehicles increase in numbers, the future of the Highway Trust Fund is more uncertain than ever. States and transportation

[16] https://www.fhwa.dot.gov/fastact/factsheets/transportationalternativesfs.cfm
[17] https://www.fhwa.dot.gov/fastact/factsheets/cmaqfs.cfm
[18] https://www.fhwa.dot.gov/fastact/summary.cfm

organizations have initiated discussions and plans to complement and/or replace fuel taxes with VMT or user fees and congestion pricing. Some states have begun to pilot these financing strategies to evaluate the feasibility of implementing them on a larger scale but no decisions have been made related to future funding sources. As of October 2019, there is no draft transportation bill for 2021.

Albany County Helderberg-Hudson Rail-trail, Albany, NY

Planning for 2050

What is Scenario Planning?

Scenario planning is a process that evaluates the effects of alternative policies, plans, and/or programs on the future of the region. Scenario planning cannot tell you what *will* happen, because there are an infinite number of possibilities, and social, political, economic, technological, and environmental forces are rapidly changing. Effectively planning for change requires the cultivation of a participatory and informed decision-making process that regularly considers what is *likely to happen*, what *could happen* and what the community *wants to happen* in the future. Scenario planning provides a framework, a way to consider the issues and opportunities of different futures and plan accordingly.

The rapidly changing cultural trends, emerging technologies, and economy have upended traditional long-range planning. New mobility services and technologies have had a disruptive effect on transportation systems and the economy. These are forces that the region has little control over but it needs to understand and prepare for the potential impacts so it can adapt. The following are four basic scenarios identified by CDTC:

A) **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 LRTP update. In this scenario, the gradual adoption of Connected and Automated Vehicle (C/AV) technologies would not change trend land use and development patterns. Mobility as a Service would increase without dramatically changing travel behavior. Adoption of electric vehicles would continue through 2050 at the trend pace predicted by national forecasts.

B) **Sprawl Development.** This scenario assumes that adoption of C/AV technologies will encourage development further from urbanized areas. Some commentators suggest this will be the case, as people traveling in C/AVs will view commuting travel time as potentially productive. Private ownership of vehicles would remain similar to current ownership rates, and Mobility as a Service would be limited and concentrated in 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 transit service would become more challenging. Adoption of electric vehicles would continue through 2050 at the trend pace predicted by national forecasts.

C) **Compact Development.** This scenario assumes that urban living will be made more attractive through new transportation options like Mobility-as-a-Service (MaaS) and C/AV technologies. In addition, this scenario assumed a high level of urban 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 Mobility as a Service and C/AV technologies could lead to reduced private ownership of vehicles. This land-use pattern furthers the New Visions Plan development goals. Adoption of electric vehicles would continue through 2050 at the trend pace predicted by national forecasts.

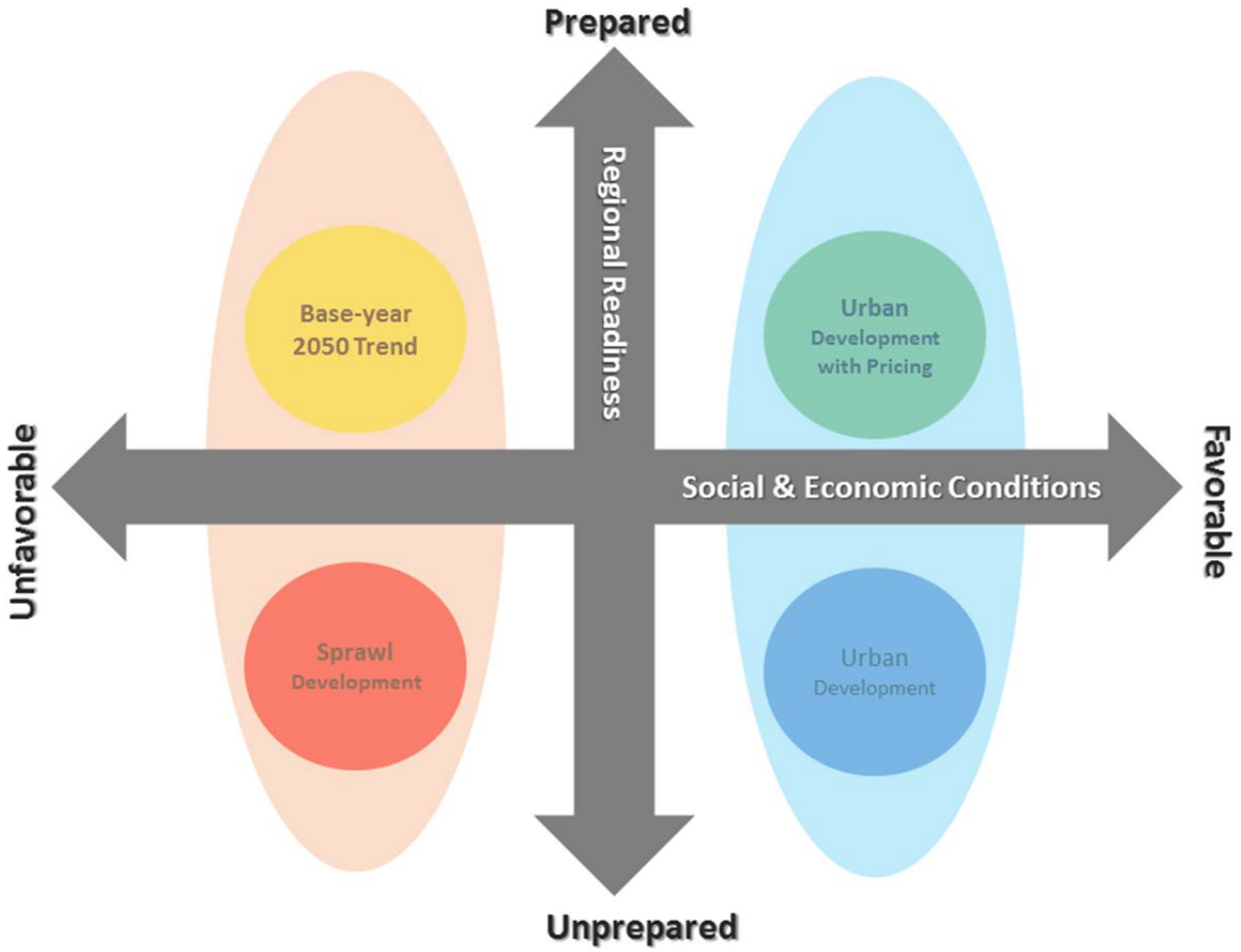
D) **Compact Development with Incentives.** This scenario uses the land-use assumptions from the Urban Development Scenario to explore the impacts of increasing household transportation costs. This could result from instituting several pricing options, including a carbon tax, a VMT tax or fee structures 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. Adoption of electric vehicles would continue through 2050 at the trend pace predicted by national forecasts.

Two Overlay Scenarios which could happen in combination with other scenarios:

Optimistic AV. This scenario assumes that automated vehicles will be well integrated into the land use and transportation system with pricing and policy structures that encourage ridesharing and transit use. Under this scenario, empty self-driving cars on the road will be minimal and vehicle miles of travel will be less than trend. Increased efficiency of self-driving allows greater real capacity on expressways, and traffic incidents will be rare. The potential safety benefits of AV's will be fully realized.

Pessimistic AV. This scenario assumes that the availability of AV's result in significant increases in vehicle miles of travel due to empty cars circulating or returning to the car owner's home. Increased congestion results from inadequate facilities for AV's dropping off passengers. Transit service declines dramatically.

Figure 16. Scenario Planning for 2050



Goals

The following are goals related to transportation infrastructure that supports walking and bicycling. These goals will shape policy and decision-making in the metropolitan planning process and help in evaluating trade-offs in scenario planning.

1. Conformity

Ensure walking and bicycling infrastructure conforms to existing standards, rules and laws.

- No new project or program should violate air quality standards, Americans with Disabilities Act (ADA) standards, and existing design standards.
- Promote ADA compliance and assist communities in the development of transition plans. All public rights-of-way, particularly sidewalks and multi-use trails using federal transportation funds must meet ADA-compliance.
- Prioritize projects that repair or improve existing walking and bicycling infrastructure.
- Guide communities in the development of plans to maintain trail and sidewalks in a state of good repair.
- Ensure natural resources, cultural assets, and open and recreational spaces are preserved by encouraging green infrastructure and nature-based design practices in building bicycle and pedestrian infrastructure.

2. Accessibility

Expand access to walking and bicycling infrastructure to all communities.

- Promote the Capital District Trails Plan and connect as many people as possible to the trail network.
- Encourage trail communities to improve lighting and amenities along trails to make them useable for all, regardless of age or ability.
- Encourage municipalities to adopt zoning laws and subdivision regulations that create connections as development occurs.
- Increase the number of sidewalk miles that are ADA-compliant.
- Increase the miles of dedicated bike lanes and protected bike facilities.
- Prioritize communities that have urgent safety and equity needs for building new sidewalks, trails, and dedicated bike facilities.
- Identify barriers to walking and bicycling one at a time and work to address them incrementally, as opportunities arise.

3. Mobility

Develop walkable, bike-friendly centers that support people of all ages and abilities.

- Balance traffic volumes and VMT projections with needs & safety of other users of the system in mind. Consider peak hours/days by all modes.
- Prioritize investments in areas that enable short trips for walking or bicycle to work, transit, or daily needs.
- Promote first mile/last mile connections to transit stops, especially high-frequency stops and transit hubs.
- Promote Smart Growth, Transit Oriented Development, human scale urban design of streetscapes and other public spaces that make walking and bicycling comfortable.
- Foster the application of advanced technologies that provide travel information to commuters to help them make efficient, active transportation choices.
- Support the implementation of Complete Street principles on every roadway and with any project receiving federal funds.

4. Resiliency

Build a transportation system that has the ability to move people despite obstacles or inability to access a private vehicle.

- Consider climate risk when programming and designing all transportation infrastructure.
- Ensure major transportation routes have redundancy and can shift to alternative modes when private vehicle travel isn't practical.
- Identify vulnerable walking and bicycling infrastructure and design new infrastructure to be more resilient to climate impacts.
- Identify walking and bicycling routes for weather and other emergencies, route closures or rerouting.
- Ensure the development of new bicycle and pedestrian infrastructure doesn't negatively impact water quality by incorporating green infrastructure into project design and construction.

5. Connectivity

Create a connected walking and bicycling network by filling identified network gaps.

- Focus on closing the gaps in the regional trail system to implement the 300-mile network of multi-use trails and on-road routes that, when completed, will connect all 4 counties and 8 cities in the region to form an active transportation highway system.
- Connect transportation modes by prioritizing sidewalk and bike lane connections to transit stops, park and ride lots, and shared mobility services.
- Identify major roads or highways that create barriers to walking and bicycling and work to address them incrementally as opportunities arise.

6. Equity

Focus on closing gaps and expanding walking and bicycling infrastructure to those in the region with the greatest need to walk, bike, and take transit.

- Enhance walking and bicycling infrastructure around transit stops.
- Protect environmental justice areas from underinvestment and ensure the harmful effects of any transportation construction and maintenance projects do not disproportionately impact children and low income, minority, elderly, or disabled people with the Capital District.
- Target environmental justice areas for investments in walking and bicycling safety improvements.
- Identify the social, economic, and demographic health and physical activity risk factors and prioritize projects that facilitate active transportation for those populations.
- Involve environmental justice, low-income, and minority communities in the transportation planning and decision-making process in a meaningful way.

7. Opportunity

Prioritize investments in walking, bicycling and transit as a means of expanding economic opportunity, like access to jobs, childcare, and medical services.

- Reduce the percent of household income spent on transportation by expanding transportation choices.
- Invest in a transportation system consistent with the needs and values of the next generation.
- Prioritize investments in walking, bicycling, and transit infrastructure around key transit hubs, government institutions, hospitals and medical services, schools, colleges and universities, and retail centers/clusters.
- Improve access to online travel information, maps, and services including outreach and communications provides for Limited English Proficiency populations.
- Strengthen the ability to obtain input on bicycle and pedestrian plans from neighborhood groups and communities organizations to create an inclusive transportation system that serves the needs of those that depend on walking, bicycling, and transit for getting work, school, and other appointments.

8. Reliability

Build a regional transportation network that links places where people live and work and be navigable with comfort and dignity by users of all ages and abilities.

- Promote transit, walking and bicycling to reduce demand and congestion and making the overall system more reliable.
- Identify the most congested corridors and prioritize them for multimodal design and planning initiatives, as the integration of smart technology.
- Identify barriers to greater transit mode share and take steps to address those barriers.

9. Safety

Get people where they need to go safely and efficiently by prioritizing safety above all other considerations, especially speed.

- Move toward zero bicycle and pedestrian deaths.
- Promote lower speed limits to improve safety for bicyclists and pedestrians.
- Prioritize midblock crossings and intersections for pedestrian safety improvements.
- Educate drivers, bicyclists, and pedestrians on Vehicle and Traffic Law.
- Cultivate a culture of empathy for all road users through public outreach and communications.
- Prioritize the most vulnerable road users when designing projects.
- Promote protected bike lanes as the preferred design alternative when developing bike networks.
- Discourage the use of sharrows and wide outside lane design on arterials and other major routes. These features do not provide adequate protection for bicyclists in these environments.

10. Livability

Federal transportation funds should be invested in a system that enhanced the economic and social well-being of Capital District residents while promoting quality of life and positive effects on the surrounding community.

- Develop wayfinding plans for bicyclists and pedestrians in and around activity centers and trailheads.
- Use lighting as a strategy to enhance the appearance of infrastructure, experience of navigating the transportation system at night, and improve safety for bicyclists and pedestrians.
- Encourage public art, landscape design, and other distinctive features in transportation plans and designs to create identity and sense of place and establish landmarks in communities. These are the things that make streets interesting and encourage people to shift trips from their vehicles to walking or bicycling.
- Promote land use policy and development incentives that encourage mixed land uses that improve walkability and bicycling.
- Highlight streets as the basis for public life in cities – reimagine streets as places in the planning and design process. This might include creating opportunities for public markets, neighborhood greenways, parklets, or "Ciclovías."

The "20 Minute Neighborhood" Concept

A "20-minute neighborhood" is a people-centered place where residents have convenient and easy access to places and services they visit and rely on daily. People are connected by a network of sidewalks, bike lanes, trails, and transit. These networks provide transportation choices that reduce household spending on transportation and reduce greenhouse gas emissions. A 20-minute neighborhood also improves public health by providing opportunities to access destinations by walking or bicycling. A 20-minute neighborhood helps achieve all of the bicycling and walking New Visions 2050 goals outlined in this paper.

Most adults can walk 1 mile in 20 minutes

The typical adult can ride 3-5 miles in 20 minutes

49% of all trips in the Capital District are 3 miles or less & 28% of all trips are 1 mile or less – distances easily traversed by bike or foot. [19]

[19] National Household Travel Survey

Getting There

The metropolitan planning process is continuing, collaborative, and comprehensive. The goals laid out in the long-range plan can only be achieved through a performance-driven process that evaluates and prioritizes strategies and plans, based on feedback on an ongoing basis. This "feedback" includes data collection, policy change at the state and federal levels, the driving forces mentioned earlier, budgets, and extensive public outreach and involvement. CDTC provides guidance to local governments in coordinating their planning initiatives with the goals and principles laid out in New Visions. Guidance comes in the form of competitive grant programs, technical assistance, training, resource development, and networking.

CDTC implements the priorities and principles in New Visions through the TIP and UPWP. Projects proposed to be programmed on the TIP must be consistent with New Visions principles, which are woven through the project evaluation process. The UPWP outlines the planning activities and initiatives through which CDTC promotes the priorities and principles of New Visions. The following section recommends strategies, concepts, and initiatives to be integrated into the CDTC metropolitan planning process. They consider the four basic and two overlap scenarios that will influence land use and personal mobility but reflect the goals, which prefer a future transportation system that prioritizes the movement of people in a way that preserves a high quality of life in the region.

A Toolbox for Developing a Regional Bicycle & Pedestrian Network

Action: Develop a robust bicycle and pedestrian data collection program

One of the greatest challenges in bicycle and pedestrian planning is the lack of documentation of usage and demand. There is limited data on active transportation in the Capital District. Ongoing monitoring and analysis can provide baseline and trend information to assist in planning and programming new infrastructure investments. Data can measure bicyclist and pedestrian exposure which can then guide policy and design to develop a network that is safe for the most vulnerable road user. A comprehensive count database can provide accurate data for key stakeholders to communicate the value of walking and bicycling facilities to the public, pursue competitive funding opportunities, and promote walking and bicycling as viable modes of transportation.

In addition to count data, public opinions and preferences should be collected regularly through surveys and public outreach activities. This information can begin analysis of the correlations between various factors and bicycle and pedestrian activity throughout the region that may range from land use to demographics to type of treatments and facility design. As towns, cities, and villages construct new sidewalks, trails and bike facilities, CDTD should continue to update and maintain its infrastructure databases, which are made available to local planners, engineers, and officials to assist in developing maintenance and other plans.

A comprehensive database of bicycle and pedestrian use and infrastructure information can also be used to:

- Identify vulnerable assets
- Develop ADA Transition Plans
- Locate gaps and barriers in the overall network
- Communicate relevant safety information
- Tailor public outreach efforts to communities
- Creating route maps & mapping tools

Action: Measure the economic value of walking and bicycling infrastructure

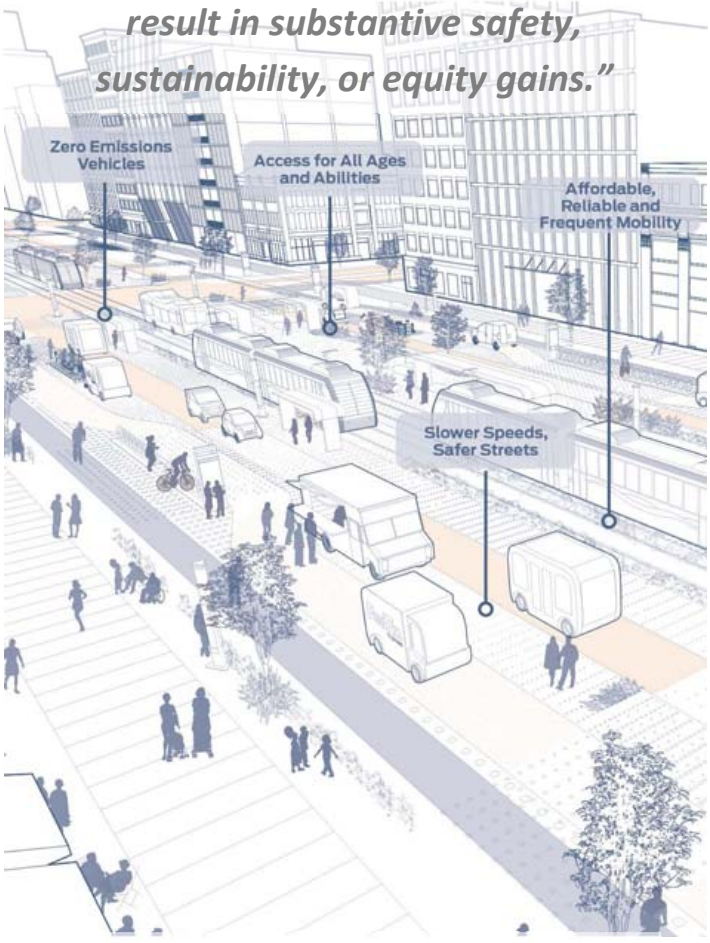
Information on infrastructure costs and the return on investment in bicycle and pedestrian facilities is also lacking. Collecting and compiling accurate and up-to-date cost data for specific design elements can help municipalities put together better project proposals and budgets. Cost data can be used by CDTC and other organizations to measure the economic impact of individual projects. The *Capital District Trails Plan* estimates the economic impact of the existing and proposed trail network but not Complete Streets, sidewalks, and other construction projects specifically for bicyclists and pedestrians. Analyzing cost and economic impact data before and after projects can better prioritize projects and communicate the value of infrastructure to the public. It can also help to develop a more equitable transportation system.

Action: Plan to be AV-Ready

C/AVs are the most anticipated transportation technology of the 21st century. As Complete Streets policies and ordinances must adapt to include provisions for autonomous mobility to protect the safety of pedestrians and bicyclists. NACTO has proposed vigorous guidelines for creating a human-focused autonomous future in its *Blueprint for Autonomous Urbanism*. "Automation without a comprehensive overhaul of how our streets are designed, allocated, and shared will not result in substantive safety, sustainability, or equity gains." Which is why the Blueprint puts people at the center of street design while taking advantage of new technologies in order to meet environmental, safety, and economic goals.[20] These "Complete Streets 2.0" policy and investment decisions can safeguard against potential negative externalities while leveraging the benefits of the technology instead of allowing the technology to direct policy and investment.

In anticipation of C/AVs, municipalities should pursue lowering vehicle speeds, particularly on neighborhood streets and activity centers like downtowns, school routes, and community centers. Design standards should prioritize the most vulnerable road users and give strong preference to protected bike lanes over traditional painted lanes and shoulders.

"Automation without a comprehensive overhaul of how our streets are designed, allocated, and shared will not result in substantive safety, sustainability, or equity gains."



Source: NACTO Blueprint for Autonomous Urbanism

[20] https://nacto.org/publication/bau2/

Action: Implement a regional trail network

The Capital District Trails Plan proposes 200 miles of new trails to be built to achieve a regional, connected network. CDTC cannot initiate construction of a trail but can assist municipalities in adopting the regional plan and developing their own local vision. Ongoing trail planning initiatives can identify champions for individual projects. The Capital District Trails Plan provides the information and tools to any municipality or grassroots organization interested in taking responsibility for marketing and shepherding the plan through implementation. CDTC should encourage the development of trail maintenance plans as part of any new trail construction project as well as existing regionally-significant trails.

Table 9. Capital District Trails Plan: Core Trails

Core Trail	Total Miles	Miles Constructed	Miles to be Completed
Albany County Helderberg-Hudson Rail Trail	31.1	8.7	22.4
South End Bikeway Connector*	1.5	0	1.5
Albany Loop	15.2	0	15.2
Patroon Greenway	8.8	0	8.8
Hudson Northway	11.7	0	11.7
Mohawk-Hudson Bike-Hike Trail (Erie Canalway Trail)*	41.1	39.7	1.4
Albany-Hudson Electric Trail*	15.6	0	15.6
Rensselaer Riverwalk / RPI Trail	5.1	2.3	2.8
South Troy Riverfront Bikeway	2.3	1.1	1.2
Uncle Sam Bike Trail	4.2	4.2	0
River Road	10.0	0	10.0
River to Ridge Path	28.6	0	28.6
Ballston Veterans Bike Trail	12.5	3.4	9.1
Zim Smith Trail	15.7	8.7	7.0
Champlain Canal Trail*	44.5	11.4	33.1
Saratoga Greenbelt Trail*	17.9	8.3	9.6
Wilton-Moreau Trail	16.1	0	16.1
Schenectady Park Connector	7.0	1.5	5.5
Total	**288.90**	**89.30**	**199.60**

**All or part of project is currently being constructed*

New Visions 2030 set a goal of constructing 10 miles of trail per year. Since then, the region has built trails at a rate of 7 miles per year. Momentum and interest in trail development on the heels of the Empire State Trail makes a rate of 10 miles per year ambitious but achievable, with a build-out timeline of 20 years. Table 9 contains the "core trails" proposed in the regional network and how many miles of them have been constructed as of February 2019. An essential link is missing from the table, but the Livingston Avenue Bridge connection is the crux of the trail system. Any investment in the maintenance or overhaul of the structure must include consideration of bicycles and pedestrians. If replacement of the bridge is postponed indefinitely, there should be an assessment of the feasibility of rehabilitating the original structure that has been closed due to its decrepit condition but was intended for pedestrians. The full *Capital District Trails Plan* and map of core trails can be found in Appendix E. Multiple trails or pieces of trail are currently being constructed as part of the Empire State Trail and other local projects, which could accelerate the implementation of a regional trail network.

Action: Explore integrating Health Impact Assessments into the metropolitan planning process

"A Health Impact Assessment (HIA) is a tool that can help communities, decision makers, and practitioners make choices that improve public health through community design."[21] MPOs have started utilizing HIAs to measure the impact of the transportation system in personal health. The tool allows MPOs to advance transportation projects that address public health priorities, like obesity and chronic illness. The Nation Research Council defines a HIA as "a structured process that uses scientific data, professional expertise, and stakeholder input to identify and evaluate public health consequences of proposals and suggests actions that could be taken to minimize adverse health impacts and optimize beneficial ones."[22]

CDTC's relationships with local departments of health have generated opportunities to positively impact current public health issues through transportation infrastructure and programming, but HIAs can advance health and equity goals on a systematic level. The development of a HIA paired with a comprehensive bicycle and pedestrian information database can provide funding opportunities outside of the federal transportation program. The major sponsorship of the CDPHP Cycle! bike share system by a large, local health insurance provider demonstrates an interest by private companies and non-profits in investing in active transportation projects and programs.

Action: Leverage emerging technology to promote walking & bicycling as transportation

As vehicle and other transportation technologies come to market, CDTC should evaluate their viability and applicability in the Capital District. Technologies like mobility services, smartphone applications, and automated counting tools, should be used strategically to achieve New Visions goals. The region is more digitally connected and CDTC could make information available through smartphone applications and communicate effectively through social media and other platforms. Working to move trail and other bicycle and pedestrian route maps to a smartphone application will help promote walking and bicycling as viable modes of transportation. Other tools have the potential to increase productivity and the quality of products created and delivered to the public while reducing staff time and resources committed to them.

Action: Cultivate partnerships in the Capital District

The CDTC Bicycle and Pedestrian Issues Task Force's New Visions report in 1995 recommended establishing a standing bicycle/pedestrian committee to continue meeting and providing advice to the Planning and Policy Committees. The concept was endorsed by the CDTC Administrative and Financial Standing Subcommittee with the objective that it would provide reports to Planning Committee on problems in the bicycle and pedestrian travel environment, draft planning products and provide comments on bicycle and pedestrian elements of transportation plans, and carry out special projects as requested by the Committee. The Task Force evolved into the "Bicycle and Pedestrian Advisory Committee" (BPAC) and has met almost every month since the late 1990s.

The BPAC consists of federal, state, and local governments, interested citizens, non-profit organizations, and advocacy groups. It has created opportunities for CDTC to coordinate and establish partners to develop plans and programs that are consistent with New Visions goals. One example is the relationship with local and state health departments which

[21] https://www.cdc.gov/healthyplaces/hia.htm
[22] https://www.nap.edu/resource/13229/Health-Impact-Assessment-Report-Brief-Final.pdf

has been instrumental in expanding bicycle and pedestrian safety education efforts throughout the region and state. CDTC should continue to support the BPAC and include more organizations in order to continue to pursue New Visions goals, particularly in terms of equity, accessibility, and safety. Below are examples of types of planning that should be coordinated with the long range plan. They provide examples of how organizations that have not traditionally been part of the metropolitan planning process can become partners and synchronized with regional planning efforts.

Table 10. Community Planning Activities to be Coordinated with New Visions 2050

Type of Planning / Organization	Examples of Coordination
Comprehensive Plans, Sustainability Plans, and Corridor Studies	Include bicycle and pedestrian oriented development strategies and use bicycle, pedestrian, and transit plans to help achieve sustainability objectives.
Neighborhood Plans	Work with municipalities and neighborhoods on traffic management projects that include sidewalks, bicycle routes, and traffic calming and traffic safety features that benefit walking and bicycling.
Municipal zoning laws	Ensure that zoning laws incorporate suitable sidewalk and bicycle parking requirements.
Street and subdivision design standards	Develop pedestrian and bicycle friendly street designs. Incorporate paths and connecting links when possible. Locate public services, such as schools, colleges and, local shops, within easy bicycling and walking of residences.
Land preservation	Promote the incorporation of trails when planning land use, agricultural and other land preservation.
Traffic enforcement	Establish bicycle and pedestrian traffic law enforcement and safety programs
Economic development	Provide suitable pedestrian bicycle facilities to tourist attractions. Create trails that are tourist attractions and seeks to provide public transit access to the trails and other tourist attractions.
Parks	Develop walking and bicycling routes to public parks. Look for opportunities where parks can be included in walking and bicycling networks.
Schools	Perform pedestrian and bicycling audits around schools. Identify funding sources to improve pedestrian and bicycling access to schools and related destinations. Encourage safe routes to schools programs.
Utilities	Encourage utilities to construct trails on utility corridors where feasible. Coordinate utility infrastructure projects/maintenance with trail maintenance and reconstruction.
Railroads	Work with railroads to develop trails with rails where feasible. Work with railroads as lines are sold or abandoned to transfer ownership to state agencies or municipalities to preserve for future trail development.

Action: Provide training, educational opportunities, tools, and resources specifically on bicycle and pedestrian infrastructure design to local planners and engineers

CDTC has provided a range of resources to promote bicycle and pedestrians safety in the Capital District since 2009. The Capital Coexist bicycle safety campaign has been expanded to included pedestrian safety education. Under this program, CDTC has purchased and hosted several webinar series by the Association of Pedestrian and Bicycle Professionals (APBP), the Transportation Research Board (TRB), and Institute of Transportation Engineers (ITE) in addition to planning and hosting NACTO Design Guide and FHWA Training Workshops. More recently, CDTC has administered the Traffic

Safety Ambassador Grant, or, "mini-grant" program which provides small amounts of funds to support local bicycle and pedestrian safety programs.

Programs like the mini-grants have advanced innovative roadway designs like protected bike lanes, cycle-tracks, and pedestrian bulb-outs. "Demonstration projects," are sometimes referred to as "tactical urbanism" and can be described as short-term, low-cost, and highly flexible ways to test run and experience potential design solutions that have not been implemented before in a community. It's a chance to start small and their support through the mini-grant program has yielded better designed projects that have more support from the public than simply going from planning to design to construction. Demonstration projects should be integrated into the planning process as appropriate and CDTC should work with partners to develop guidance on how to plan and execute successful demonstrations.

Continued support for webinars and training that provide continuing education credits for planners and engineers will encourage municipalities and local practitioners to adopt New Visions principles. CDTC should also develop tools and resources that assist municipalities and local practitioners in developing transportation plans that are consistent with New Visions goals. Similarly, resources that promote bicycle and pedestrian safety and cultivate a culture of empathy for all road users must be disseminated and communicated to the public.

Funding the Plan

Funding levels will dictate the pace at which transportation can adopt plans to create a more walk- and bike-friendly transportation system as well as new, cleaner technologies. A decrease or flattening of funding will likely lead to the continuation of a car-centric, petroleum-based system. Current federal transportation legislation, the FAST Act, is funded through the end of 2020 and there are no bills drafted to replace it. A 21st century transportation system will require investments in bicycle and pedestrian infrastructure equitable to other modes. The following are recommendations for funding a regional bicycle and pedestrian network:

- Increase the TIP Bicycle and Pedestrian Network Set-Aside incrementally; limit eligibility criteria to on-road projects.
- Establish a separate, Regional Trails Network Set-Aside.
- Consider the cost(s) of the climate crisis when making investment decisions.
- Leverage partnerships to attract private investments and sponsorships in the regional trail system.
- Explore the feasibility of a local revolving loan fund for bicycle and pedestrian infrastructure.
- Participate in the development of the Northeast Low Carbon Transportation Network framework to encourage the investment in bicycle and pedestrian infrastructure and programs with anticipated revenues.
- Research the feasibility of local congestion pricing.
- Encourage municipalities to adopt dynamic parking pricing and curb management. Collected fees can be invested in bicycle and pedestrian infrastructure.
- Promote Generic Environmental Impact Statements as a mechanism for collecting mitigations fees which can be invested in bicycle and pedestrian infrastructure.

Bicycle & Pedestrian Network Indicators

How will CDTC measure progress in developing a transportation system that achieves the goals outlined in New Visions 2050? Below is a framework of suggested performance measures or "indicators" that will help gauge the region's progress in developing a transportation network that meets the goals mentioned earlier. The indicators require collecting, analyzing, and reporting information regarding the performance of the transportation system as it relates to bicycle and pedestrian travel. Making goals that are characterized as "qualitative" into quantitative measures justifies increasing resources available to supporting an infrastructure network that encourages individuals to choose walking and bicycling instead of single occupancy vehicle travel for frequently made trips.

Table 11. New Visions 2050 Performance Measures

Measure	Date Source
Crashes involving bicyclists & pedestrians	ALIS
Mode share - rate of bicycling and walking	NHTS, Census, CDTC
Rates of cardiovascular disease, obesity & chronic illness related to inactivity	NYSDOH
Miles of trail constructed	CDTC GIS
Percent of TIP dollars for bike/ped projects	CDTC TIP
Miles of protected bike lanes	CDTC GIS

Social, economic, environmental, and especially technological changes will affect the progress of meeting New Visions goals. Transportation was revolutionized by railroads, canals, then roads in the early 1900s but today is being transformed by shared mobility, electrification, and automation. Technology and new mobility services are disrupting the transportation system in ways we haven't experienced. In order to support the continued improvement and development of Capital District communities and maintain a high quality of life, issues of traffic congestion, accessibility, and emissions must be resolved. These 21st century revolutions create an opportunity for CDTC and local governments to approach planning and programming proactively and systemically instead of fragmented and reactionary.

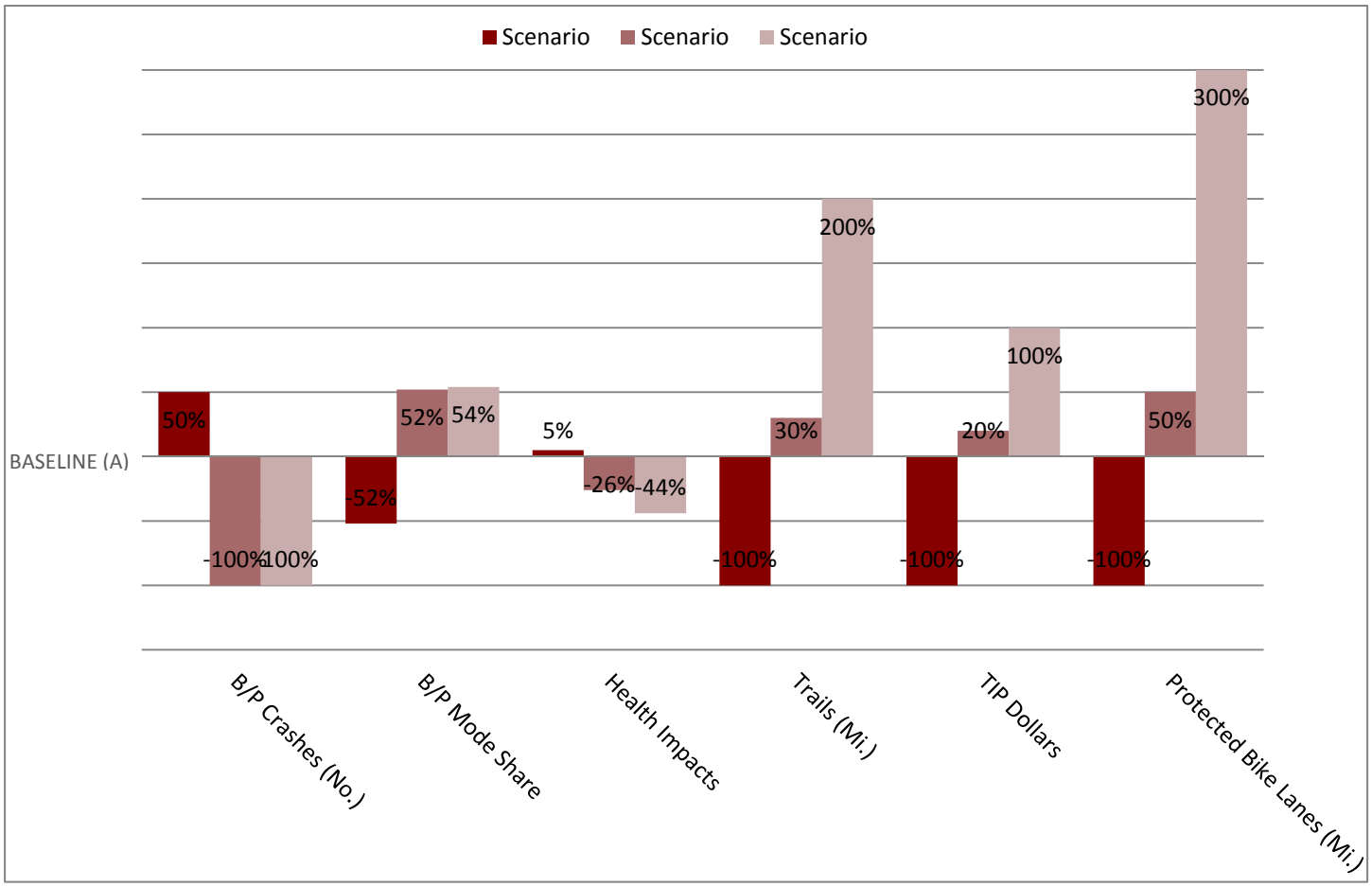
Community-readiness will shape how the region allows these forces to affect them. It is important to consider the potential impact of each of these scenarios on the suggested performance measures in order to select strategies and investment priorities for the long-term preservation and adaptability of the regional transportation system. Scenario planning helps to capture the potential influence of policy or regulation to encourage movement towards a preferred future. Decision-makers can select a preferred scenario and identify appropriate strategies and actions that will lead toward that vision. Table 12 and Figure 17 illustrate how the different scenarios could affect the suggested performance measures.

The primary indicator of a bicycle and pedestrian network that connects people to jobs and opportunities, is safe, and efficient, is the number of individuals who choose to walk or bike, especially for commuting. Mode share for walking and bicycling will be the primary indicator to evaluate the progress and condition of the network of walking and bicycling infrastructure in the Capital District. CDTC will supplement NHTS and Census data with local pedestrian and bicycling counts on trails, intersections, and other important routes.

Table 12. Anticipating the Impact of Scenarios on the Bicycle & Pedestrian Network

Measure	Scenario			
	A	B	C	D
Number of bicycle & pedestrian crashes	⇔	⇧	⇩	⇩
Bicycle & pedestrian mode share	⇔	⇩	⇧	⇧
Health impacts (obesity & chronic illness)	⇔	⇧	⇩	⇩
Miles of trail	⇔	⇩	⇧	⇧
TIP dollars available for bicycle & pedestrian projects	⇔	⇩	⇧	⇧
Miles of protected bike lanes	⇔	⇩	⇧	⇧

Figure 17. Anticipating the Impact of Scenarios on the Bicycle & Pedestrian Network



Conclusion

This plan outlines how CDTC has moved the region forward through its support for creating safe walking and bicycling networks. However, two obstacles remain – education and funding. As social, environmental, economic, and especially technological conditions change, policy-makers must have the dexterity to adapt, through policy and investment decisions. In its role as the MPO for the Albany-Schenectady-Troy and Saratoga Springs metropolitan areas, CDTC will continue to promote the development of safe walking and bicycling network and develop tools and programs that assist communities as they prepare, design and maintain an accessible and safe transportation system for the next generation.

Livingston Avenue Bridge, Albany, NY