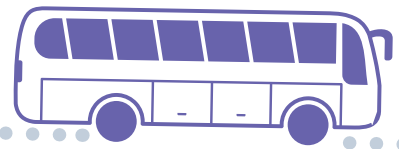


IMAGINE 2050 Greater Bridgeport Valley



METROPOLITAN TRANSPORTATION PLAN 2023-2050

ENDORSED MARCH 30TH, 2023

EXECUTIVE SUMMARY, AUGUST 2023

Greater Bridgeport & Valley
Metropolitan Planning Organization



METROCOG

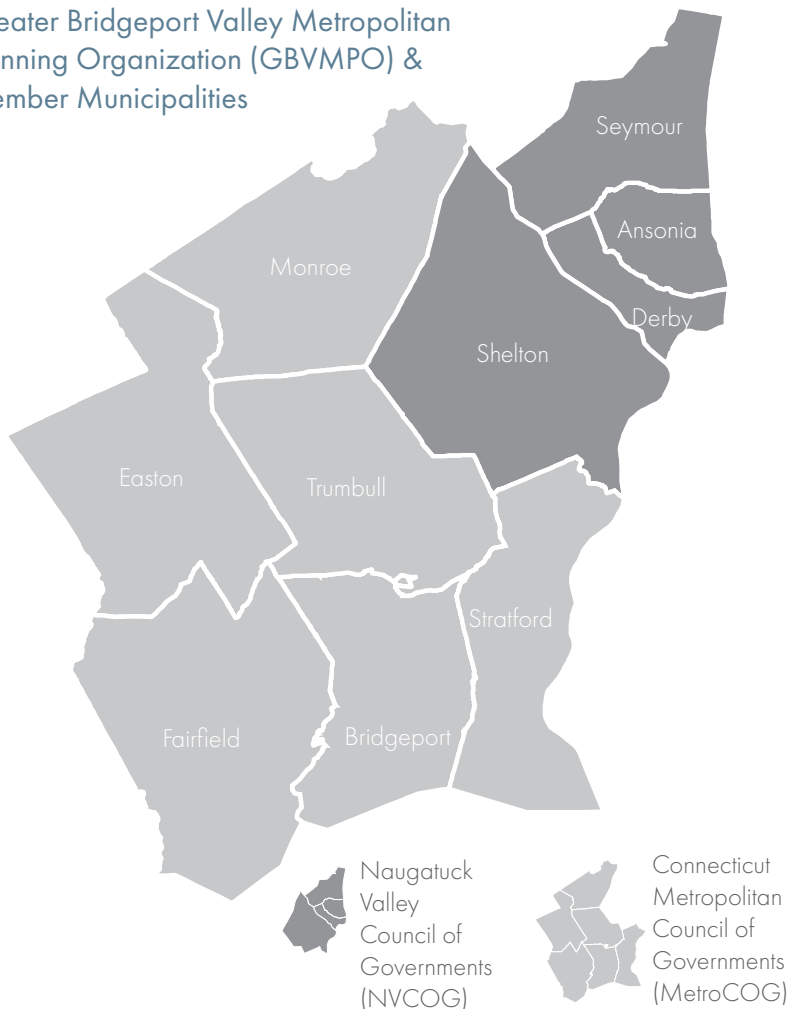


NVCOG

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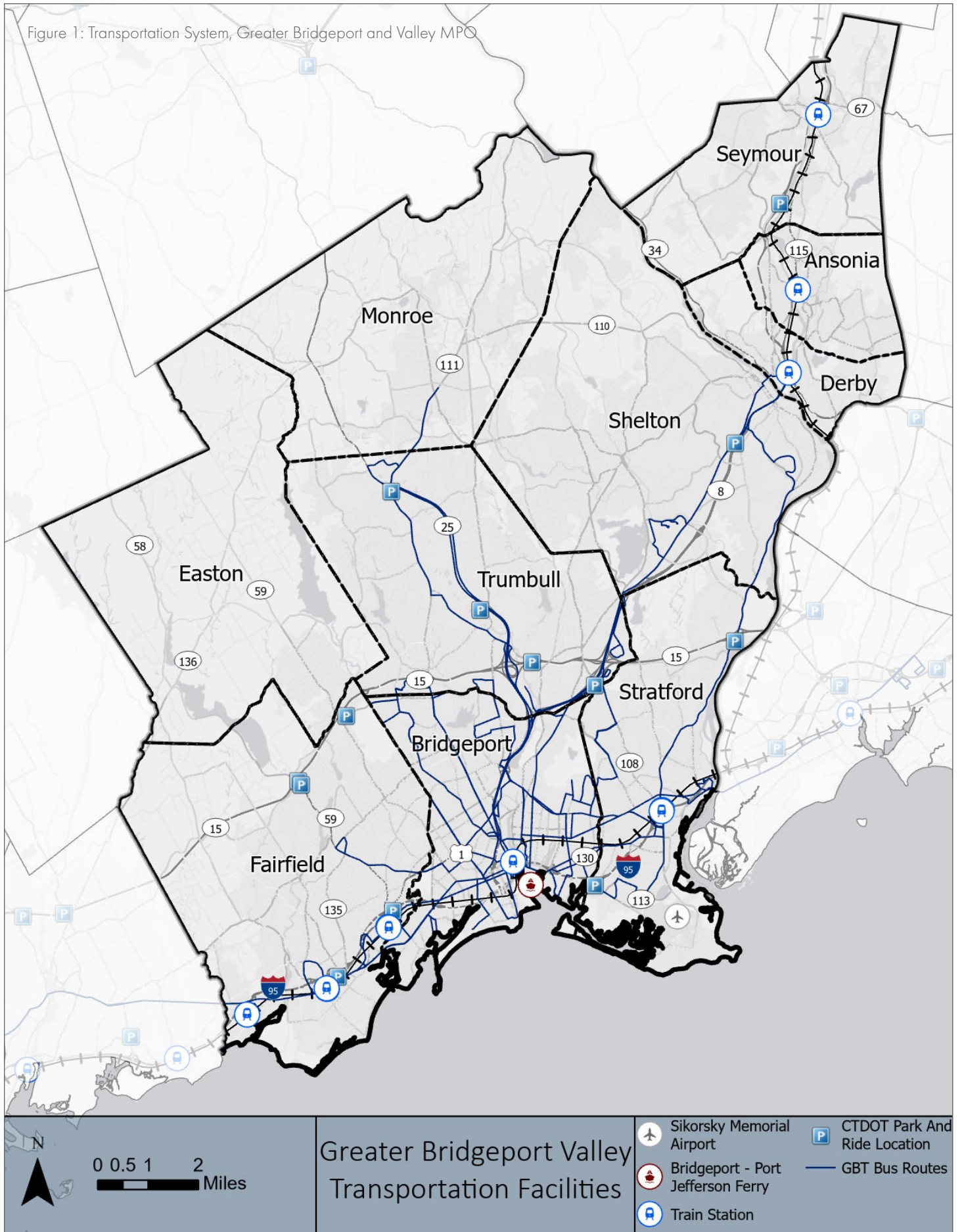
Hyperlinks are indicated with bolded and underlined text.

The Metropolitan Transportation Plan was prepared by the GBVMPO, MetroCOG and NVCOG, in cooperation with the Connecticut Department of Transportation and the U.S. Department of Transportation's Federal Highway Administration and the Federal Transit Administration.

The MPO may revise the transportation plan at any time using the procedures in 23 CFR Part 450.324 without a requirement to extend the horizon year.

MetroCOG staff are entirely responsible for the design and format of this report. The opinions, findings and conclusions expressed in this publication are those of MetroCOG and do not necessarily reflect the official views or policies of the federal and state agencies through which MetroCOG is funded.

Figure 1: Transportation System, Greater Bridgeport and Valley MPO



GOALS FOR THE GBVMPO REGION

1. Promote Safety Across all Aspects of the Transportation System.

- a. Work towards zero traffic deaths and serious injuries regionwide.
- b. Incorporate targeted safety countermeasures into the multimodal transportation system.

2. Bring all Regional Roads and Infrastructure to a State-of-Good-Repair.

- a. Build resilience into the system to lessen the impacts of roadway events.
- b. Evaluate and enhance how the right-of-way is utilized.

3. Increase the Efficiency and Reliability of all Transportation Modes.

- a. Improve implementation project delivery time by reducing project delays.
- b. Increase the frequency and reliability of public transit.
- c. Reduce vehicular congestion by implementing the Congestion Management Process (CMP).
- d. Facilitate the movement of goods and services through diverse transportation modes.
- e. Advance the use of data and technology throughout transportation infrastructure and systems.

4. Bolster Interconnected, Public Transportation across the Region and Strengthen Access to Economic Opportunity Centers.

- a. Foster an efficient, reliable, and inter-modal regional public transportation network.
- b. Identify opportunities for public transportation to support local economic development.
- c. Strengthen first- and last-mile connections and services

5. Ensure Data-Driven Transportation Investments with Equitable Benefits to all Users.

- a. Promote affordability and equitable access to public transportation in the region.
- b. Prioritize transportation investments in historically disadvantaged census tracts and areas of persistent poverty.
- c. Identify opportunities to mitigate transportation related adverse health outcomes.

6. Provide Shared/Active Transportation Initiatives that Strengthen First- and Last-Mile Connections.

- a. Expand, maintain, and improve accessible pedestrian infrastructure and amenities.
- b. Increase mobility choice and access to greenways, trails, and bike lanes.
- c. Support micro-mobility, shared transportation, and encourage flexibility as innovative services become available.

7. Promote Resilience and Environmental Sustainability within the Transportation System.

- a. Support reduced and zero-emissions transportation.
- b. Ensure transportation infrastructure is prepared to withstand the effects of climate change.

INTRODUCTION

The Metropolitan Transportation Plan (MTP) identifies opportunities to improve mobility for people throughout the Greater Bridgeport and Valley Region, from 2023 to 2050. Based on public and stakeholder input and data analysis, this plan will inform future decisions about transportation system investments. Eligibility for federal transportation funds requires that the Greater Bridgeport and Valley Region Metropolitan Planning Region have a Metropolitan Transportation Plan. All transportation projects funded through the federal government must also be identified in the MTP.

The full text of the MTP is available [HERE](#). This document serves as an Executive Summary outlining approaches to implement—and potential impacts that may result from—system-wide improvements to the Region’s transportation system. The actions included in the MTP prioritize resilience, sustainability, economic strength, and quality-of-life for the region’s residents. The goals and objectives for the region are provided on the previous page.

EXISTING CONDITIONS & TRENDS

The Greater Bridgeport and Valley Metropolitan Planning Organization Region (GBVMPO) is located in southwest Connecticut and consists of ten municipalities: the Cities of Ansonia, Bridgeport, Derby and Shelton and the Towns of Easton, Fairfield, Monroe, Seymour, Stratford, and Trumbull.

Demographics: The population of the region is 414,638 people (2020 Census), a $\pm 6.7\%$ increase since 2010 (388,565). The GBVMPO’s land area is 196.6 square miles, or $\pm 2,109.0$ persons per square mile, the highest population density of any region in the state. The region’s

population is expected to grow slightly over the next 25 years (University of Connecticut Center for Economic Analysis, Population Projections 2015-2025). The City of Bridgeport is the most populous municipality in the state. Table 1 provides population by municipality. Other demographic trends include (2020 ACS):

- 65,495 people are 65 years of age or older, $\pm 15.9\%$.
- Of the non-institutionalized population, approximately 48,601 people have one or more disability, $\pm 11.89\%$. Of the region’s population, 66.2% identifies as white, 22.5% as Hispanic or Latino, 16.5% as Black or African American and 3.8% as Asian.
- The Average Median Household Income is \$97,955, however this varies significantly between municipalities.
- Housing units total 148,112; 34.9% are located in Bridgeport.

Table 1: Population

MUNICIPALITY	POPULATION	LAND MASS*	PEOPLE/SQ MILE
Ansonia	18,918	6	3153.00
Bridgeport	148,654	16	9290.88
Derby	12,325	5	2465.00
Easton	7,605	27.4	277.55
Fairfield	61,512	30	2050.40
Monroe	18,825	26.1	721.26
Seymour	16,748	14.6	1147.12
Shelton	40,869	30.6	1335.59
Stratford	52,355	17.6	2974.72
Trumbull	36,827	23.3	1580.56
Total	414,638	196.6	2109.04

* Square miles Source: US Census 2020

Table 2: Travel Demand, GBVMPO, 2019-2050

DEMAND MEASURE	2019	2023	2025	2035	2045	2050
Vehicle Miles Traveled (VMT)	8,657,518	8,778,524	8,843,093	9,184,115	9,429,147	9,632,862
Vehicles Hours Traveled (VHT)	206,705	210,720	212,807	224,088	234,383	241,927

Source: CTDOT's Travel Demand/Air Quality Modeling Section, January, 2023

Table 3: Population & Employment, GBVMPO, 2019-2050

PROJECTION	2019	2023	2025	2035	2045	2050
Population	409,480	412,475	414,006	421,400	428,657	432,216
Employment	151,762	155,223	156,955	165,898	175,414	180,308

Source: CTDOT's Travel Demand/Air Quality Modeling Section, January, 2023; Source data includes CT DOL Industry Projections (2018-2028) and Employment/Wages by Industry (2019), CT DPH own/county population (2019), and US Census LEHD Origina-Destination Employment Statistics (2019).

Land Use & Zoning: Most of the undeveloped land in the region is located in the northern communities where land uses are more characteristic of rural patterns. Development is more intense along the coast.

Regional Core: The region's economic center is the City of Bridgeport. Land use is characterized by a core of urban development on the waterfront and gradual suburban development radiating from the downtown area.

Regional Activity Centers: Higher density development is located along the southern/coastal portions of Fairfield, Stratford and southern/inland portions of Ansonia, Derby, and Shelton.

Industry Sectors & Major Employers:

The Region's labor force is 332,448, of which 201,242 people ($\pm 60.5\%$) are employed. The largest concentration of jobs (30.4%) are located in Bridgeport, followed by Fairfield, Shelton, and Stratford ($\pm 15\%$ each).

Commuter Travel Patterns: Most of the Region's labor force (94.31%) work in Connecticut, of which the primary mode to work is the single occupancy vehicle ($\pm 85.17\%$). The average travel time among single occupancy vehicle commuters is approximately 30 minutes. Regional workers that commute using public transit ($\pm 4.5\%$) and by car-pool ($\pm 8.09\%$) exceed the state's averages. Current and projected travel demand, employment, and population can be found in Tables 2 and 3.

AIR QUALITY

The GBVMPO is located in the New York-Northern New Jersey-Long Island eight-hour Ozone Moderate Nonattainment and PM_{2.5} Attainment/Maintenance Area, which includes New Haven and Fairfield Counties. MTP and Transportation Improvement Plan (TIP) projects located in areas below standards for air quality must demonstrate consistency with—and evidence that progress is being made towards—federal air quality goals. See Table 4.

Table 4: EPA Approved Emissions Budgets

POLLUTANT	BUDGET (TONS)	
OZONE	2023-2050 (DAILY)	
Volatile Organic Compounds (VOC)	17.6	
Nitrogen Oxide (NOx)	24.6	
PARTICULATE MATTER (PM2.5)	2023 (YEARLY)	2025-2050
PM2.5	575.8	516
NOx	12791.8	9728.1

TRANSPORTATION FACILITIES

A list of key transportation facilities is provided on the next page. A map can be found at the beginning of this summary.

HIGHWAYS, ROADS & BRIDGES

The network of highways and roadways is critical to move all modes of transportation - passengers, vehicles, motorcycles, transit, and freight. The majority of non-limited access roads accommodate non-motorized means of travel as well.

Major Highways: Interstate 95 links the region with Stamford and Norwalk in southwestern Fairfield County and provides access to New York City and the greater tri-state region. Traveling east, I-95 provides access to New Haven and major New England cities. Route 15, or the Merritt Parkway is a limited access, principal expressway that runs 14-miles east-west through Stratford, Trumbull, and Fairfield. The Merritt provides a critical link to western Fairfield County, New York, Hartford, and I-91. Other Principal Arterials include Route 8, Route 8-25, Route 25, and US Route 1.

Bridges: In addition to providing road network connectivity, bridges span water bodies and other natural features, rail lines, and roadways. To be in the FHWA's National Bridge Inventory (NBI), the bridge structure must span $\geq 20'$.

MAJOR PROJECTS

The Strategic Implementation Plan for the I-95 West Corridor (April 2019) identified priority spot improvements for I-95 from the New York State Line to New Haven.

Short-Range I-95 NB Exit 27A; I-95/Route 8-25 Interchange. A two-lane off-ramp on I-95

KEY TRANSPORTATION FACILITIES

Interstate Route 95 – Governor John Davis Lodge Turnpike.

CT-15 – Merritt Parkway.

CT-8 and CT-25 Expressways.

Principal Arterials – US Route 1, CT-25, CT-34, CT-58, CT-113, CT-115, Main Street in Bridgeport and Pershing Drive in Ansonia.

Interconnected Minor Arterials and Collector Roads – CT-59, CT-67, CT-108, CT-110, CT-111, CT-113, CT-115, CT-127, CT-135, CT-188, CT-243, CT-313, CT-334, Bridgeport Avenue, Broadbridge Avenue, Constitution Boulevard, Daniels Farm Road, Fairfield Woods Road, Huntington Road, Huntington Street, Madison Avenue, and Park Avenue.

Greater Bridgeport Transit (GBT) & CTTransit - Local fixed-route bus services.

GBT & Valley Transit District (VTD) - Specialized paratransit services for the elderly and disabled.

Metro North Railroad Commuter Rail Service - New Haven Main Rail Line and Waterbury Branch Line

Amtrak -Intercity and interstate passenger rail.

Bridgeport-Port Jefferson Steamship Company - Passenger and Auto Ferry Service.

Bridgeport Harbor – Deepwater port.

Sikorsky Memorial Airport – General aviation/charter operations

Regional shared-use trails: Pequonnock River Trail, Naugatuck River Greenway, Derby Greenway, Ansonia Riverwalk and Shelton Riverwalk

Freight and goods movement – motor carriers, freight rail, waterborne shippers, air cargo and multi-modal shipments.

Commuter Parking Lots – Located along limited access highways.

NB will allow two lanes to exit to Route 8-25, which will reduce congestion and queuing on I-95.

Mid-Range: From Exits 27A to 19; adding a fourth lane along a 6-mile stretch of I-95 NB to improve travel time and reduce congestion.

Long-Range: widening and projects for three segments with significant congestion: Greenwich SB Exit 7 to the New York State Line, Stamford Exits 7-9 (both directions), and Norwalk Exits 13-16 (both directions).

Other major projects are listed below.

MAJOR PROJECTS

Ansonia: Franklin Street (CT-334) Improvements

Bridgeport/Fairfield: I-95 Capacity & Safety Improvements

Derby, Ansonia & Seymour: CT-8 Road & Bridge Improvements (Project 0036-0203)

Monroe/Oxford: CT-34/Stevenson Dam Bridge Replacement, (Project 0084-0114)

Strafford: MetroNorth Railroad & US-1 Bridge Replacement (Project 0138-0245)

Statewide

- Noise Wall Replacement Program (TAM)
- Culvert Replacement Program (TAM)
- Retaining Wall Program (TAM)

ACTIVE TRANSPORTATION

Active transportation refers to human-powered means of travel - biking, walking, and rolling. Integrating safe, accessible, and efficient facilities for vulnerable road users is critical to create a multi-modal transportation system.

Infrastructure Oriented to People:

Connecticut's transportation system has traditionally prioritized the efficient movement of vehicles. For many residents, driving is considered the safest and most convenient travel method. Vehicle congestion and speed paired with the scarcity of sidewalks, crosswalks, and bicycle facilities limit walking and cycling trips due to safety and accessibility concerns. Today, policies and programs in Connecticut require roadway design projects to prioritize bicyclists, pedestrians, and other vulnerable road users.

MetroCOG's Regional Safety Action

Plan commits MetroCOG to Vision Zero by setting the goal of reaching zero traffic-related deaths in the region by 2050. The [Plan](#) includes a High Injury Network (HIN) analysis, identifying the region's roadways where disproportionate traffic deaths and serious injuries occur. The Plan also includes regional Vision Zero countermeasures, strategies, policies, and projects.

NVCOG Regional Safety Action Plan & 2022 Addendum:

The [addendum](#) to NVCOG's 2019 Regional Transportation Safety Plan (RTSP) includes an expanded project list based on updated crash data (2019-2021), High Injury Network and Equity analyses, and input from municipal leaders and the public.

Complete Streets: The Complete Streets model focuses on providing a sense of place and to narrow the road and slow traffic speeds. Elements include:

Traffic Calming: site-specific safety countermeasures—adapted to the road's location, function, and users—to slow speeds and/or divert traffic. Solutions include traffic diversions, vertical and horizontal speed control measures, road narrowing, roundabouts, and roadway lane reallocations.

Cycling Infrastructure: Shared roadway facilities, rather than modifying sidewalks facilities to accommodate cyclists are preferred to limit pedestrians/cyclist conflicts. Equitable cycling infrastructure planning includes affordability, accessible distances to bike share stations and/or bike racks, as well as shifting local perceptions about barriers to riding a bicycle.

REGIONAL ACTIVE TRANSPORTATION PROJECTS

Connectivity to the [Pequonnock River Trail \(PRT\)](#), [Housatonic Greenway](#), and [Naugatuck River Greenway \(NRG\)](#) continues to be improved. Additional projects include:

Bridgeport: Pedestrian Bridge over Ash Creek connecting Black Rock and the Fairfield Metro Station.

Easton's Route 136 and Center Road Intersection pedestrian safety enhancements; the Town is implementing Road Safety Audit recommendations through a state grant.

Fairfield's [Complete Streets Policy](#), adopted in 2018, continues to be implemented; improvements along Kings Highway, US-1 in Southport, Route 130/Grasmere; planning studies along Black Rock Turnpike and the Post Road Circle.

Monroe's Pequonnock River Trail: a dedicated, off-road connection will be constructed in the Maple Drive vicinity; an RRFB will improve safety at the Purdy Hill Road Wolfe Park crossing.

Stratford's [Complete Streets Policy](#): a product of the [Stratford Complete Streets Plan](#) is focused on the Stratford Train Station and surrounding 0.5 mile; Phase I includes Main Street from Harvey Place to Barnum Avenue.; Phase II will occur on Main Street from Barnum Avenue to the Wilcoxson Avenue/Paradise Green area.

Trumbull continues to implement bicyclist and pedestrian safety enhancements and Complete Streets elements, with an emphasis on PRT crossings. These include the PRT at Route 111 and Spring Hill Road, as well as the [Long Hill Green & Village District Enhancement Plan](#).

BUS TRANSIT

The majority of fixed route and demand response bus transit in the Region is provided by [Greater Bridgeport Transit](#) (GBT). The [Valley Transit District](#) provides ADA/demand response service in Ansonia, Derby, Seymour, and Shelton. Fixed route refers to repetitive, route and scheduled based services with designated stops. Demand response service, complementary to fixed route service provides service for riders with disabilities and/or senior citizens. Safety, equity, frequency, sustainability, service span (the start and end of the service day), reliability, geographic coverage, and legibility (the ease riders can understand and use the system) are critical factors for delivering equitable bus transit.

GBT operates its services using three facilities on two campuses. The administration and maintenance buildings are located at One Cross Street in Bridgeport. The public passenger facility bus station is located at 710 Water Street in Downtown Bridgeport and is a part of the Bridgeport Inter-modal Facility. The Valley Transit District operates its fleet out of 41 Main Street in Derby. GBT operates

Table 5: GBT's Fixed Route Cost

MEASURE	GBT	AVG *
Passengers/Revenue Hour	31.4	27.2
Cost/Revenue Hour	\$102.90	\$142.20
Cost/Trip	\$3.28	\$5.24

*National Average; Source, National Transit Database 2019

a fleet of 87 buses: 57 fixed route and 37 demand response (minibuses); VTD operates a fleet of 14 minibuses.

Compared with national averages, GBT's fixed route system services a high number of passenger boardings per hour, with a low cost per revenue hour of service, and a low cost per trip. In March 2020, the pandemic caused ridership to drop from nearly 17,000 to as low as 4,000 daily boardings. GBT modified service, but never shut down during the pandemic. A revenue comparison is provided in Table 5.

Transit Gaps: A 2019 study by MetroCOG, CTDOT, and GBT found the majority of mobility gaps stem from a lack of late-night service, same day service for riders with disabilities and seniors, improved connectivity to rail, and improved information (e.g. route planning). In response, GBT created the Office of Mobility on Demand to oversee demand response service and design and implement new expanded services to close mobility gaps and explore new service models such as microtransit and micro-mobility.

Transition of Fleet to Zero Emission Propulsion Systems: GBT is transitioning its fleet of public transit buses to zero emission propulsion systems (ZEB)s. GBT has two battery electric buses (BEBs) in regular city service and is confident that the battery electric buses will soon have ranges which will make them close to com-

parable to diesel propulsion systems. However, continuing the transition will require attention to emerging concerns such as energy availability, resilience (from an energy perspective and from catastrophes), facility design, cost and availability of buses (including lead time for their procurement), and rapidly evolving technology.

RAIL TRANSIT

Metro-North Railroad (MNRR), a subsidiary of the New York Metropolitan Transportation Authority (MTA), services both commuters and inter-regional travelers. The New Haven Line-Main Line (NHL-ML) runs east-west along the shoreline, from New York City (western terminus) to New Haven (eastern terminus). Stations are located in Bridgeport, Fairfield, and Stratford. North-south rail service from Waterbury to Bridgeport is provided through the Waterbury Branch Line (WBL) with stations in Ansonia, Derby/Shelton and Seymour. Shore Line East operated by CTDOT, provides rail service between New London and New Haven. Amtrak operates inter-city and inter-state service along the NHL-ML under an agreement with CTDOT. Amtrak's Northeast Regional service stops in Bridgeport.

The Current State of Rail in

Connecticut: in-state trips relative to all trips taken (into NYC) has increased steadily over the year as a result of Connecticut's investment in commuter rail programs.

Ridership Projections: As part of the [Connecticut State Rail Plan](#) (2022-2026) a Federal Railroad Administration (FRA) model was utilized to assess two future ridership scenarios: no-build (no improvements made) and improvements to service. 2035 ridership under both scenarios were the same for the NHL but differed significantly for the WBL and Amtrak. See Table 6.

Infrastructure: CTDOT retains 100% responsibility for Connecticut's NH fixed infrastructure, including maintenance facilities, rail stations, platforms, tracks, communications, and systems/equipment.

Transit Oriented Development (TOD)

is a strategy for creating reliable transportation choices for communities through targeted mixed-use development, particularly affordable housing near mass transit. TOD can lead to expanded economic opportunities and more non-motorized

Table 6: 2035 Connecticut Rail Ridership by Service Level

LINE	2019 EXISTING, ONE-WAY RIDES	NO BUILD % INCREASE	IMPROVED SERVICE % INCREASE
Amtrak	232,700	6%	134%
Shore Line East	660,447	5%	13%
Hartford Line	730,589	5%	21%
New Haven Line	37,657,638	9%	9%
New Canaan Line	1,515,710	6%	5%
Danbury Line	724,630	6%	16%
Waterbury Line	336,534	7%	145%

Source: NEC FUTURE Intercity Model, Connecticut State Rail Plan 2022-2026

(walking/ bicycling) travel. Several municipalities have implemented various scales of TOD.

Improvements, Investments & Priority Projects include actions to maintain, improve, invest in, and modernize the NHL-ML and WBL through targeted efforts to rehabilitate infrastructure, build rail facilities and amenities, expand train station parking, and ensure equitable access.

NEW HAVEN MAIN LINE PROJECTS

Bridgeport & Stratford TIME Program (Track Improvements & Mobility Enhancements), Bridge Rehabilitation will enhance rail service by improving bridges, track mainlines, and catenary/ signals.

Bridgeport, NHL Planning & Environmental Linkages (PEL) Study: will assess performance and operational improvements on the NHL in support of Connecticut's High Speed Rail Program and Northeast Corridor (NEC) Service and Performance Objectives. The preliminary study area is focused on a segment of the NHL from Fairfield to Stratford.

Stratford-Milford, Devon Movable Bridge: The Devon Bridge is a 111-year-old bridge carrying NHL tracks over the Housatonic River that requires interim repairs and replacement.

WATERBURY BRANCH LINE PROJECTS

The Waterbury Master Plan provides short-, medium-, and long-term improvements to the rail line, including rail infrastructure, equipment (rail cars and locomotives), and service levels. Implementing the recommendations involves modernizing equipment, expanding commuter rail service, and identifying new rail storage and maintenance facility sites.

Ansonia: Improvements at the Ansonia Rail Station include a new station building with a waiting area with ADA-accessible high-level platforms and passenger amenities. An at-grade railroad crossing at Division Street will replace the crossing with an overpass/underpass.

Seymour Station: ADA-accessible platforms and amenities will be implemented at the Seymour Station, including relocation and consolidation of the station north of CT-67. This is a combined project with the Beacon Falls station.

Derby-Shelton Rail Station: In 2021, CTDOT was awarded \$24M under the USDOT RAISE Program to install high-level platforms and rehabilitate the station, including renovating the grounds, revitalizing the station building, improving parking, and adding bus bay and passenger amenities (information kiosks, walkways, and heated waiting areas).

FERRY & AVIATION

Passenger Ferry Services: the Bridgeport Port Authority (BPA) operates and maintains the Water Street Dock located on Bridgeport's Inner Harbor. The BPA leases the dock to the Bridgeport and Port Jefferson Steamboat Company for loading and unloading passengers and vehicles that utilize the ferry's Cross Sound service to Port Jefferson (Long Island). The City of Bridgeport/ BPA are constructing a High-Speed Ferry Facility north of the current terminal. Market studies show the cost to commute by high-speed ferry would be competitive with other modes and there are enough interested passengers to operate without subsidies.

Bridgeport-Sikorsky Airport provides general and business aviation services. The Airport,

located in Stratford's South End, is owned and operated by the City of Bridgeport. The airport's physical constraints (roads, wetlands, and surrounding land uses) require responsible and creative planning for future improvements.

FREIGHT

In Connecticut, freight is transported on roads, highways, rail, waterways, ports, and via air.

According to CTDOT's [Statewide Freight Plan Update \(2022\)](#), \$110.5B in direct outbound, inbound, and intraregional freight was moved by the state's freight network in 2019 (see Table 7). The Plan's goals include Safety and Security; Economic Competitiveness and Efficiency; Optimized Operations, Performance, and Resiliency; State of Good Repair; Equity, Environmental Protection and Livability; and Program and Service Delivery. Future Freight Considerations include:

Table 7: Freight Volume, Statewide

DIRECTION	TRUCK	RAIL	WATER	AIR	TOTAL
TONS					
Outbound	27,145,302	4,350,456	236,587	71,955	31,804,300
Inbound	46,902,176	1,747,296	6,811,884	97,478	55,558,834
Intra	17,251,790	560,328	1,128,022	0	18,940,140
Through	66,903,634	3,920	0	0	66,907,554
Total	158,202,902	6,662,000	8,176,493	169,433	173,210,828
UNITS *					
Outbound	2,057,882	43,744	0	0	2,101,626
Inbound	2,711,886	19,240	0	0	2,731,126
Intra	1,289,191	5,584	0	0	1,294,775
Through	3,667,072	40	0	0	3,667,112
Total	9,726,031	68,608	0	0	9,794,639
VALUE/MILLIONS					
Outbound	\$27,609	\$1,469	\$60	\$9,404	\$38,542
Inbound	\$67,065	\$1,509	\$4,113	\$11,921	\$84,609
Intra	\$24,262	\$6	\$233	\$0	\$24,502
Through	\$114,721	\$1	\$0	\$0	\$114,722
Total	\$233,657	\$2,986	\$4,406	\$21,325	\$262,374

*number of trucks or railcars Source: CT Freight Plan (draft), TRANSEARCH Freight Volume Summary, 2019

Truck Parking: Reliable access to designated parking and services such as restrooms, food and fuel are critical to ensure that truck drivers can safely and efficiently operate their vehicles

Highway Use Fees: Beginning in 2023, all vehicles weighing more than 26,000 pounds will be subject to an additional per mile fee to operate on the state's highways. These fees will be used to help offset the impact of heavier vehicles on roadways

Congestion: The recurring congestion on I-95 is partly due to capacity but is exacerbated by weaving conflicts and inadequate acceleration areas. This congestion impacts all drivers but causes unpredictability and poor reliability for on-time freight delivery.

Resilience: Sustainable operations for transportation will allow for development of resilience improvement plans in the region focused on potential alternative fueling stations.

Freight Railroads: after highways, rail facilitates the second highest freight movement volume in the state. The state's freight plan estimates that 6.7M tons valued at \$3B was transported via the state's freight rail system in 2019, 99% of which either originated or terminated in the state. Regional rail freight infrastructure is privately operated; the right-of-way for transporting freight is owned by freight rail companies, CTDOT, and Amtrak, with the exception of 2-miles locally owned in the Town of Bristol. Rail is on average, 3-4 times more fuel efficient than highway freight transport, resulting in less emissions. However, regional freight expansion is limited by right-of-way conflicts with passenger rail service, existing track structures and vertical clearance areas, and limitations at intermodal centers.

Water & Air: The Port of Bridgeport, one of three deep water ports in Connecticut, is a designated Primary Highway Freight System Intermodal Connector on the National Highway System (NHS). While some activity occurs at the Bridgeport and New Haven Harbors, the Port Authority of New York and New Jersey (PANYNJ) handles much of the region's water-borne freight. In 2019, the PANYNJ handled 136M tons of freight, Bridgeport handled 1.8M tons, and New Haven handled 9.3M tons. In Connecticut, air cargo mostly passes through Bradley International Airport (BDL) in Windsor Locks, the only airport in the state with regularly scheduled commercial freight service.

SAFETY, OPERATIONS, EMERGING TECHNOLOGY & RESILIENCE

Performance efficiencies can resolve transportation problems without requiring infrastructure construction. The statewide Intelligent Transportation System (ITS) includes many operations and safety strategies and will continue to evolve as new technologies are introduced.

OPERATIONS

Data: a robust, shared, high quality and complete transportation GIS is necessary to analyze transportation safety. GIS data sources include the CT Crash Data Repository, US Census, the CTDOT LRS Roadway Information System, CTDOT, and local/regional asset and parcel data.

Transportation Security: security of surface transportation and infrastructure is a critical issue as these facilities are targets for terrorism and vulnerable during natural disasters. The transportation system also plays a key role in emergency response, evacuations, and travel advisories. Critical asset categories include infrastructure, facilities, equipment, and personnel.

Emergency Management emphasizes the protection of critical mobility infrastructure, such as bridges, tunnels, and interchange areas through an alert system advising use of alternate routes. This requires coordination with CTDOT, the Connecticut Department of Emergency Management and Homeland Security, and fire, police, and other emergency responders.

SAFE SYSTEMS

This FHWA endorsed approach anticipates human mistakes and acknowledges that they are inevitable. Designing/managing road infrastructure effectively lowers the chance a mistake will happen in the first place. When a mistake leads to a crash, the reduced impact on the human body is less likely to lead to a fatality and/or serious injury. The elements of the Safe Systems Approach are detailed in the box below.

SAFE SYSTEMS APPROACH

Safe Speeds: Promote safer speeds in all roadway environments through a combination of thoughtful, context-appropriate roadway design, targeted education and outreach campaigns, and enforcement.

Safe Roads: Design roadway environments to mitigate human mistakes and account for injury tolerances, to encourage safer behaviors, and to facilitate safe travel by the most vulnerable users.

Post Crash Care: Enhance the survivability of crashes through expedient access to emergency medical care, while creating a safe working environment for vital first responders and preventing secondary crashes through robust traffic incident management practices.

Safe Road Users: Encourage safe, responsible behavior by people who use our roads and create conditions that prioritize their ability to reach their destination unharmed.

Safe Vehicles: Expand the availability of vehicle systems and features that help to prevent crashes and minimize the impact of crashes on both occupants and non-occupants.

CONNECTED & AUTONOMOUS VEHICLES (CAVS)

CAVs have the potential to improve the safety, reliability, accessibility, efficiency, and environmental impact of the transportation system. A range of privately-owned, shared and/or commercial/freight vehicles now have some level of connectivity or automation. CAV technology will continue to evolve, improve, and impact travel. Current AV technology has likely prevented or reduced the severity of vehicular crashes – but the extent of advancement and the ramifications of CAV technology by 2050 is unknown.

RESILIENCE & MITIGATION

The Fourth National Climate Assessment projects the Northeast Region will experience sea level rise of 2 feet and 4.5 feet by 2100 (Intermediate-Low and Intermediate scenarios from a recent federal interagency report). The strongest hurricanes are anticipated to become both more frequent and more intense in the future. The region already experiences the impacts of heavy, sudden rainfall and extreme heat. Reducing vulnerability to natural hazards, climate change, and sea level rise involves mitigating the impacts of the transportation system on the natural environment. Personal vehicles and public transportation, the two primary modes of travel for the region are large contributors to greenhouse gas emissions, which are known to accelerate climate change and negatively impact air quality.

NATURAL HAZARD MITIGATION PLAN

The primary goal of MetroCOG's Natural Hazard Mitigation Plan (NHMP) is to reduce loss of life, personal injury, and damage to property, infrastructure, and natural, cultural, and econom-

ic resources caused by natural disasters. Critical transportation infrastructure projects should factor in climate change mitigation strategies, including:

- Elevating roads in areas that experience regular flooding, especially those that are low lying, located in the 100-year flood plain and/or serve as evacuation routes.
- Improving drainage when completing roadway projects such as using pervious road materials, and green infrastructure designs to improve on-site storm water retention and reduce storm water runoff.
- Installing, replacing, or upgrading culverts in areas that experience regular flooding.
- Addressing flooding at underpasses, such as the New Haven rail line and I-95.
- Hazard mitigation planning should also consider education, access, and evacuation strategies, including:
- Incorporating the use of signage and large, visible staffs to indicate depths of water so that vehicles can avoid flooded viaducts.
- Identifying vulnerable neighborhood egress chokepoints and developing alternate access routes to neighborhoods and facilities.
- During flood events, utilize barricades on flooded roads to prevent access.

All municipalities in the region have resiliency and sustainability plans, which require assessing the extent of potential natural hazards and implementing resilience/sustainability plan recommendations. By integrating green infrastructure (GI) and low impact design (LID) in transportation projects, a range of natural hazards may be mitigated – including flooding and extreme heat. GI- and LID includes structural and non-structural strategies such as minimizing steep grades, creating rain gardens, investing in permeable pavement, and storing run-

off though bioswales. Clustering development and adaptive reuse minimize additional disturbance and can reduce vehicle miles traveled. Strategies directly related to a sustainable transportation system include investing in zero emission vehicle deployment, promoting public transit, and supporting complete street design elements.

PERFORMANCE MEASURES, TARGETS & CONGESTION MANAGEMENT PROCESS

Performance-based management and planning increases accountability and transparency of transportation investments, while offering a framework for decision-making focused on performance outcomes. The GBVMPO approved the federally required performance targets developed by CT-DOT and will invest resources to achieve them.

PERFORMANCE TARGETS: FHWA

Highway Safety: determined by the interaction between drivers, their behavior, and highway infrastructure. The five performance measures and corresponding targets for Highway Safety can be found in Table 8.

Table 8: Performance Targets, Highway Safety

MEASURE	YEARLY TARGETS						ACTUALS	
	2018	2019	2020	2021	2022	2023	5-Year Average*	Annual Trendlines**
Number of fatalities/year	257	274	277	270	270	270	289	327
Rate of fatalities/100 million Vehicle Miles Traveled (VMT)†	0.823	0.873	0.883	0.85	0.85	0.85	.932††	1.064
Number of serious injuries/year	1,571	1,574	1,547	1,360	1,300	1,300	1,442	1,521
Rate of serious injuries/100 million VMT	5.033	5.024	4.93	4.3	4.3	4.3	4.643††	4.951
Number of non-motorized fatalities & serious injuries/year	280	290	307	300	280	280	307	296

*5 year moving average for 2021, based on 2016-2020. This is how FHWA calculates progress toward achieving the target.

** 10 years, 2011-2021 (if 2021 data was available). CT-DOT utilized this calculation to inform the 2023 target setting process.

† Vehicle miles traveled; not yet available for 2021.

†† 2021 VMT data is not yet available, thus .932 and 4.643 are the 5-year moving averages for 2016-2020.

Asset Management: targets for pavement and bridge conditions are detailed in CTDOT's [Transportation Asset Management Plan \(TAMP\)](#), which identifies, quantifies, and prioritizes needs for pavement and bridge State of Good Repair (SGR) projects.

System Reliability: highway travel time reliability, closely related to congestion, is influenced by complex interactions between traffic demand, physical capacity, and roadway events. Level of Travel Time Reliability (LOTTR) is measured statewide, while Peak Hour Excessive Delay and Non-Single Vehicle Occupancy (non-SOV) are measured for the Bridgeport-Stamford Urbanized Area.

Freight Movement is assessed by the Truck Travel Time Reliability (TTTR) index, which is the ratio of a long travel time (95th percentile) to a normal travel time (50th percentile).

Air Quality (AQ): the USDOT requires states and MPOs to monitor the transportation system's influence on air quality, specifically vehicle exhaust emissions. The AQ performance measure is based on an assessment of projects funded under the FHWA's Congestion Mitigation and Air Quality Improvement (CMAQ) program.

PERFORMANCE TARGETS: FTA

Recipients and sub-recipients of FTA funds set annual performance targets for federally established State of Good Repair (SGR) measures through Transit Asset Management Plans. SGR performance measures for public transportation (rail, bus, and ferry) encompass four asset categories:

Rolling Stock - Revenue Vehicles: percent of revenue vehicles that either meet or exceed their useful life benchmark (ULB), the maximum age

Table 9: Performance Targets, Transit: Revenue Vehicles & Service Vehicles

TRANSIT ASSET, TIER II	ULB *, IN YEARS		% VEHICLES THAT MEET OR EXCEED THEIR ULB							
			Actual, 2017			Actual, 2021			Target for SFY**	
	Default	CT	CT	GBT	VTD	CT	GBT	VTD	2019	2022
Rolling Stock/Revenue Vehicles										
Bus	14	12	24%	9%	NA	5%	2%	NA	14%	14%
Cutaway	10	5	46%	13%	100%	57%	100%	0%	17%	17%
Minivan	8	5	0%	NA	NA	100%	NA	NA	17%	17%
Service Vehicles										
Trucks	14	14	32%	50%	100%	22%	29%	NA	7%	7%
Automobiles	8	5	100%	100%	NA	100%	100%	NA	17%	17%
SUVs	8	5	29%	50%	0%	81%	100%	100%	17%	17%
Vans	8	5	40%	NA	NA	71%	NA	NA	17%	17%

*ULB = Useful Life Benchmark **State Fiscal Year

of an asset based on operational characteristics (age, mileage, environment) before it is replaced or enters into the SGR backlog.

Service Vehicles: percent of non-revenue, support service/maintenance vehicle equipment that either meets or exceeds their ULB.

Guideway: percent of fixed guideway track segments with speed restrictions.

Facilities: percent of facilities within an asset class rated below condition three (adequate) on the five-point FTA Transit Economic Requirements Model (TERM) scale.

Table 9 provides measures and targets for rolling stock and service vehicles for GBT and VTD.

Transit districts are required to measure their safety performance through a Public Transportation Agency Safety Plan (PTASP), which establishes safety performance targets (e.g. actions and injuries) and measures system reliability and driver security for fixed route and demand response services. From 2019-2022, no fatalities occurred on either GBT's or VTD services. Both agencies have a target of zero fatalities (PTASP 2022). Table 10 provides details of additional safety targets identified by GBT.

CONGESTION MANAGEMENT PROCESS

A Congestion Management Process (CMP) is required for any Metropolitan Planning Organization (MPO) that includes an urbanized area with a population over 200,000. USDOT designates these areas as Transportation Management Areas (TMAs). The Greater Bridgeport Valley MPO (GBVMPO) includes the Bridgeport-Stamford Urbanized Area, thus requiring a CMP. The region's CMP, developed with the South Western Region MPO (SWRMPO), provides an analytical process for understanding congestion and creating mitigation strategies. As projects are completed, baseline measures will be monitored to gauge effectiveness.

The CMP was developed through the following process:

Determining the highway CMP network: The analysis focused on the National Highway System (NHS) roadways located within the urbanized area.

Calculations of current congestion through performance measures: Non-SOV Travel, Level of Travel Time Reliability, Truck Travel Time Reliability, and Peak Hour Excessive Delay.

Development of strategies to reduce congestion:

Categories include demand management, public transportation, traffic operations, and road capacity.

Table 10: Additional Safety Targets, GBT

SAFETY EVENTS	FIXED ROUTE		DEMAND RESPONSE	
	2019*	Target	2019*	Target
Average monthly preventable accident rate	1.7	1.5	0.39	0.39
Driver Assaults	0	0	0	0
Threats against drivers	0	0	0	0

*2019 is the baseline year

FUNDING

Transportation funding comes from various sources such as the federal government, state government, and local governments. Federal funds are either apportioned by formula or through competitive (discretionary) means. CTDOT receives the majority of federal transportation funds. In Connecticut, state transportation funds are provided through the Special Transportation Fund, Special Tax Obligation Bonds, and motor vehicle fuel and petroleum products gross earning taxes.

CTDOT calculated the total estimated FHWA funds for Connecticut (\$53,570,365,877) for the period 2023-2050 by compounding the estimated federal funds for federal fiscal year 2023 (\$1,600,000,000) at 1.5% for 28 years. Funds were split into two categories: system improvement and system preservation. Based on these calculations, the GBVMPO can anticipate \$1,589,615,928 in System Improvement and \$1,857,721,926 in System Preservation funds from 2023-2050. \$816,360,000 is estimated for major projects of statewide significance. These funds total to an FHWA investment of \$4,263,697,854 in the region through 2050. See Figures 2 and 3.

In coordination with the FTA, CTDOT developed anticipated revenues to maintain the transit system in a state of good repair and implement the TAMP. The resulting \$5.09B in transit funds was estimated using existing capital plans and in coordination

with transit districts. Rail makes up a significant amount of projected future funding needed: \$4.81 B for improvements to the New Haven Line (NHL), Waterbury Branch Line (WBL), the freight rail network, and some statewide improvements. See Table 11.

Figure 2: Highway Preservation, Revenues & Project Cost

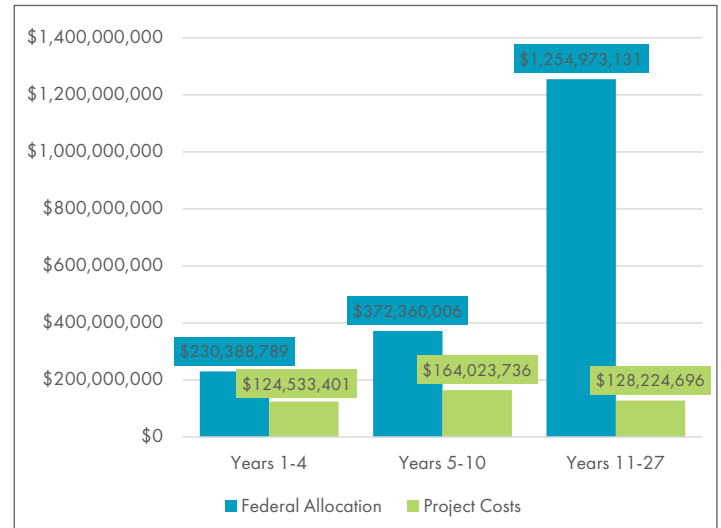


Figure 3: Highway Improvement, Revenues & Project Cost

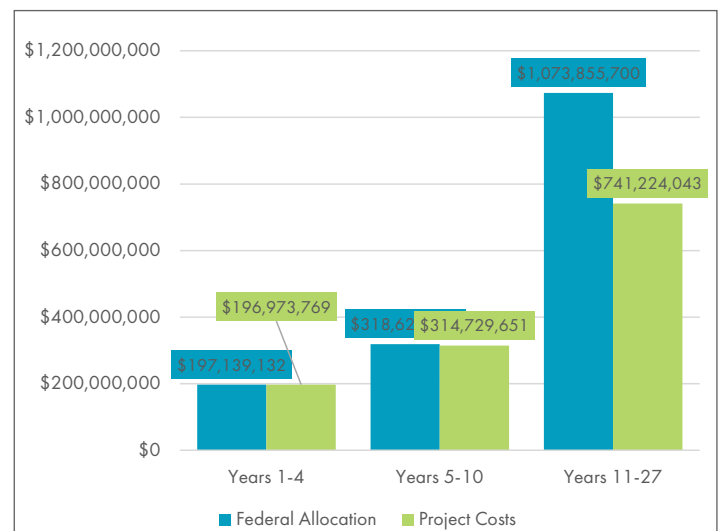


Table 11: Anticipated Transit Project Costs

MODE	YEARS 1-4	YEARS 5-10	YEARS 11-27	TOTAL
Bus	\$36,476,852	\$52,727,778	\$138,132,870	\$227,337,500
Rail	\$2,133,722,222	\$1,628,833,333	\$1,046,444,444	\$4,809,000,000
Commuter	\$28,367,000	\$28,367,000		\$56,734,000
Total	\$2,198,566,074	\$1,709,928,111	\$1,184,577,315	\$5,093,071,500

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GREATER BRIDGEPORT & VALLEY METROPOLITAN PLANNING ORGANIZATION

Ansonia	Mayor David Cassetti	Monroe	First Selectman Kenneth Kellogg
Bridgeport	Mayor Joseph P. Ganim	Seymour	First Selectwoman Annmarie Drugonis
Derby	Mayor Richard Dziekan	Shelton	Mayor Mark Lauretti, Vice-Chair
Easton	First Selectman David Bindelglass	Stratford	Mayor Laura Hoydick, Chair
Fairfield	First Selectwoman Brenda L. Kupchick	Trumbull	First Selectman Vicky Tesoro
Greater Bridgeport Transit	Doug Sutherland	Valley Transit District	Mayor Mark Lauretti



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