CHAPTER V: TRANSPORTATION

A. GENERAL CHARACTERISTICS

Located at the junction of Interstate 91 and Interstate 95, as well as a key access point to the Northeast Corridor rail line, New Haven is the highway and rail gateway to New England. It is the **largest seaport in the state** and the region and also the first city in Connecticut to have joined the national complete streets movement in 2008 by adopting the City's *Complete Streets Design Manual*, balancing the needs of all roadway users including pedestrians, bicyclists, and motorists.

Aerial view of New Haven seaport: largest in the state and the region.

Journey to Work Data

For a U.S. city of its size, New Haven has substantial share (45 percent) of commuters who use a form of transportation other than driving alone. Approximately 15 percent of all commuters travel via carpool, close to 14 percent walk to work, while over 11 percent use a form of public transportation. Of the 10 largest cities in New England, only Boston has a higher percentage of residents who travel to work via non-motorized transportation. Also, out of this same group of cities, New Haven ranked highest in the percentage of people who walked to work.

View of the partially constructed Q bridge in New Haven overlooking Quinnipiac river. More than 150,000 vehicles cross this bridge per day (2006 ConnDOT data).

New Haven's Rock to Rock annual biking event drew more than 1,200 cyclists to city streets between East Rock and West Rock in April 2015. Picture above was taken at the East Rock summit.

Vehicular Circulation

There are 255 miles of roadway in the city, ranging from Interstate highways to purely local residential streets. Of these roadways, 88 percent are locally-maintained public roads and 12 percent are state-maintained roads and highways. There are 43 locally-maintained bridges in the city. By volume, average daily **traffic is highest on Interstate 95** (129,500 vehicles per day). The highest volumes on arterial roads are Whalley Avenue (19,300) and Ella T. Grasso Boulevard (18,100). Of the arterial roads, several are operating at or near capacity. These include State Street, Derby Avenue, Forest Road, and Quinnipiac Avenue.

Bicycle/Pedestrian Counts

New Haven has roughly **40 miles of bike lanes, bike paths, and sharrows** at present. According to 2011 U.S. Census American Community Survey (ACS) estimates, 31.3 percent of total occupied units in the city (nearly 15,300 occupied units) or 17.4 percent of workers (16 years and over) have no vehicle available. The ACS estimates indicate that at least 13 percent of workers (7,600 people) walk to work and 4 percent of workers (nearly 2,000 people) bike to work. The proportion of the total population who bike to work in New Haven increased from 0.5 percent in 1980 to 4 percent in 2011. Further, these figures do not represent city residents' walks to school and other errands, recreational rides or walks, walking or biking to reach mass transit, walking to and from parking lots, or occasional commutes done by biking and walking. (2012 Bike and Pedestrian Plan; Elm City Cycling, 2012). The City has also been conducting point-in-time counts of bicyclists and pedestrians at key intersections; cyclist and pedestrian volumes have increased by 95 percent and 45 percent respectively at specific key intersections in Downtown from 2009 to 2011

Congestion

Outside the Interstate network, the most significant roadway congestion is in areas of the city that serve as through travel corridors for suburb-to-city commuters, such as Whalley Avenue, Amity Road, and Ella T. Grasso Boulevard. Air quality impacts resulting from this congestion are substantial. As shown in detail in Chapter VII, the city is in non-compliance status for two criteria air pollutants: ozone and particulates. Traffic volumes and congestion on Interstates are a major focus of regional transportation planning. Of these new investments, the largest state-wide is the $1.6 billion reconstruction of Pearl Harbor Memorial Bridge.

Passenger Rail

New Haven has long been a center for rail transportation. Historic **Union Station is serviced by three distinct carriers**: Metro-North Railroad, Amtrak, and Shoreline East. These services provide a unique competitive advantage for New Haven, both for use by residents and for use by the business community. Reducing traffic congestion largely will be dependent on the future adequacy of the rail system and improvements to parking/connecting transit at the stations.

Amtrak: New Haven is situated along two lines of service for Amtrak: the Boston–Washington **"Northeast Corridor"** and the New Haven–Vermont inland New England route. On the latter, New Haven serves as the terminus for Amtrak's Vermonter Line that runs to Burlington, Vermont by way of Springfield, Massachusetts. New Haven is also a stop and service point for Amtrak's high-speed Acela Express service, which complements Northeast Regional service.

New Haven remains the 11th busiest Amtrak station in the country with a total ridership of 740,902. This represents 42.8 percent of all Amtrak riders in the state. Ridership in Connecticut increased by 95 percent from 1999 to 2011, whereas, ridership in New Haven alone has increased by 195 percent due to the implementation of Acela Express train service and other improvements to rail infrastructure.

Shore Line East: The Shore Line East (SLE) rail service is operated by Amtrak, under contract from the State of Connecticut, and operates between New London and New Haven on tracks owned by Amtrak. There are seven stations on the line, many of which have been upgraded within the last three years to provide increased parking and bi-directional operation via a second platform.

Significant to Shore Line East Service was the replacement of the Pearl Harbor Memorial (Q) Bridge. Due to the impacts on vehicular travel that were anticipated, in 2002, the Connecticut Department of Transportation (ConnDOT) (under the leadership of SCRCOG) built a new **commuter rail station on State Street to facilitate direct access to Downtown**. Additionally, there is increased service during the duration of the project. For example, service was extended south of New Haven to Stamford. Also, several of the stations servicing SLE have undergone renovations in association with the I-95 improvements. These changes have

Union Station is New Haven's primary rail passenger gateway, with long distance service from Amtrak, as well as Metro-North and Shoreline East commuter rail services. The Hartford Line commuter service scheduled to open in 2016 will also utilize this facility.

The electrified Northeast Corridor rail route between New York and Boston has experienced a doubling of ridership since 1999. With further investment in catenary modernization, bridge repair, and other infrastructure investment, it will continue to play a major role in the region's transportation future as Amtrak ridership is anticipated to grow by more than 50 percent due to these improvements.

State Street Station was opened in 2002 to provide easier access to downtown for Shoreline East riders and has limited service.

caused an increase in ridership by 107 percent from 2000 to 2010. Drops in service from 1997 to 1999 were due to construction along the line by Amtrak in preparation for Acela Express Service.

Metro-North Railroad: New Haven is the northerly terminus of Metro-North Railroad's New Haven Line. The Metropolitan Transportation Authority (MTA) operates the line under a service contract and subsidy from the State of Connecticut.

In 2011, annual ridership on the New Haven Line totaled 38.2 million, a 21.4 percent increase from 2000. Annual ridership, which includes commuters to New York City, reverse commuters to intermediate destinations, and non-commuter travel was projected to increase 37 percent between 1999 and 2020 as indicated in 2003 Comprehensive Plan (a 1.5 percent annual increase). The largest segment of growth was seen in intermediate-distance commuting to destinations other than New York City, such as Stamford. In 2011, intermediate commuters comprised 21 percent of total New Haven line ridership.

With 3,737 daily inbound weekday and 3,579 weekday outbound boardings, New Haven was one of the busiest stations along the New Haven Line in 2011. Of these boardings, nearly 45 percent were at peak hour and 55 percent were at off-peak hours. During weekends, inbound station boardings (8,400 for both days) were relatively higher than outbound station boardings (7,899 for both days).

Planned Hartford Line: Planned Hartford Line rail service will operate at speeds up to 110 mph, cutting travel time between Springfield and New Haven to as little as 73 minutes. Travelers at New Haven, Wallingford, Meriden, Berlin, Hartford, Windsor, Windsor Locks, and Springfield will be able to board trains approximately every 30 minutes during the peak morning and evening rush hour and hourly during the rest of day, with direct or connecting service to New York City and multiple frequencies to Boston or Vermont (via Springfield). New train stations also are planned at North Haven, Newington, West Hartford, and Enfield.

Bus transit accounts for roughly 11 percent of the commuter travel for New Haven residents. The New Haven Green is the main transfer point for much of the city's bus transit network, operated by CTTransit.

Public Bus System

The public bus system is operated by CTTRANSIT, under contract with ConnDOT. The New Haven Division is the **second largest bus transportation system in the state**. The service area covers 476 square miles, including New Haven and all or part of 19 surrounding towns. The 23 service routes cover 462 directional miles, largely

radiating from downtown New Haven across the major roadways to the outlying suburbs, as seen in the map on the following page.

On an average weekday, CTTRANSIT carries approximately 30,000 passengers. Highest daily ridership is seen on the D route (Dixwell Avenue and Grand Avenue) with a total of 7,535 riders and the B route (Whalley Avenue and West Haven) with a total of 5,771 riders. These were the busiest routes in the city in 2000 as well. Together, these routes carry 45 percent of the system's passenger load.

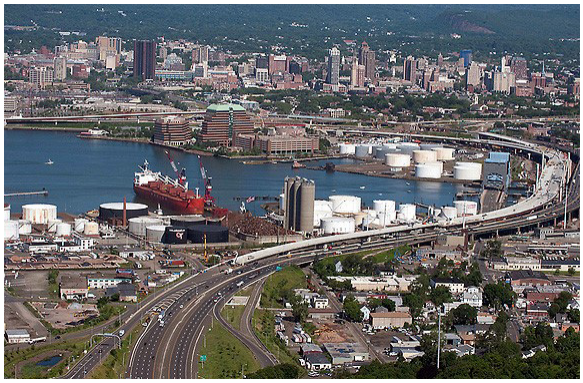
Connecticut Transit Shuttle System

The **CTTRANSIT Downtown to Union Station free shuttle service**, launched in September 2009, provides service to passengers traveling from Union Station to Downtown. Ridership on this service is growing fast with a nearly 430 percent increase in riders observed from 2009 (22,292 riders) to 2010 (118,636 riders) and another 40 percent increase in riders observed from 2010 (118,636 riders) to 2011 (166,076 riders) thus indicating the demand for this type of service connecting Downtown and Union Station. Besides this, private shuttle services are offered by Yale University and Yale–New Haven Hospital (YNHH) for their students and employees. (See Databook).

Downtown New Haven CTTRANSIT Shuttle route.

Waterborne Transportation

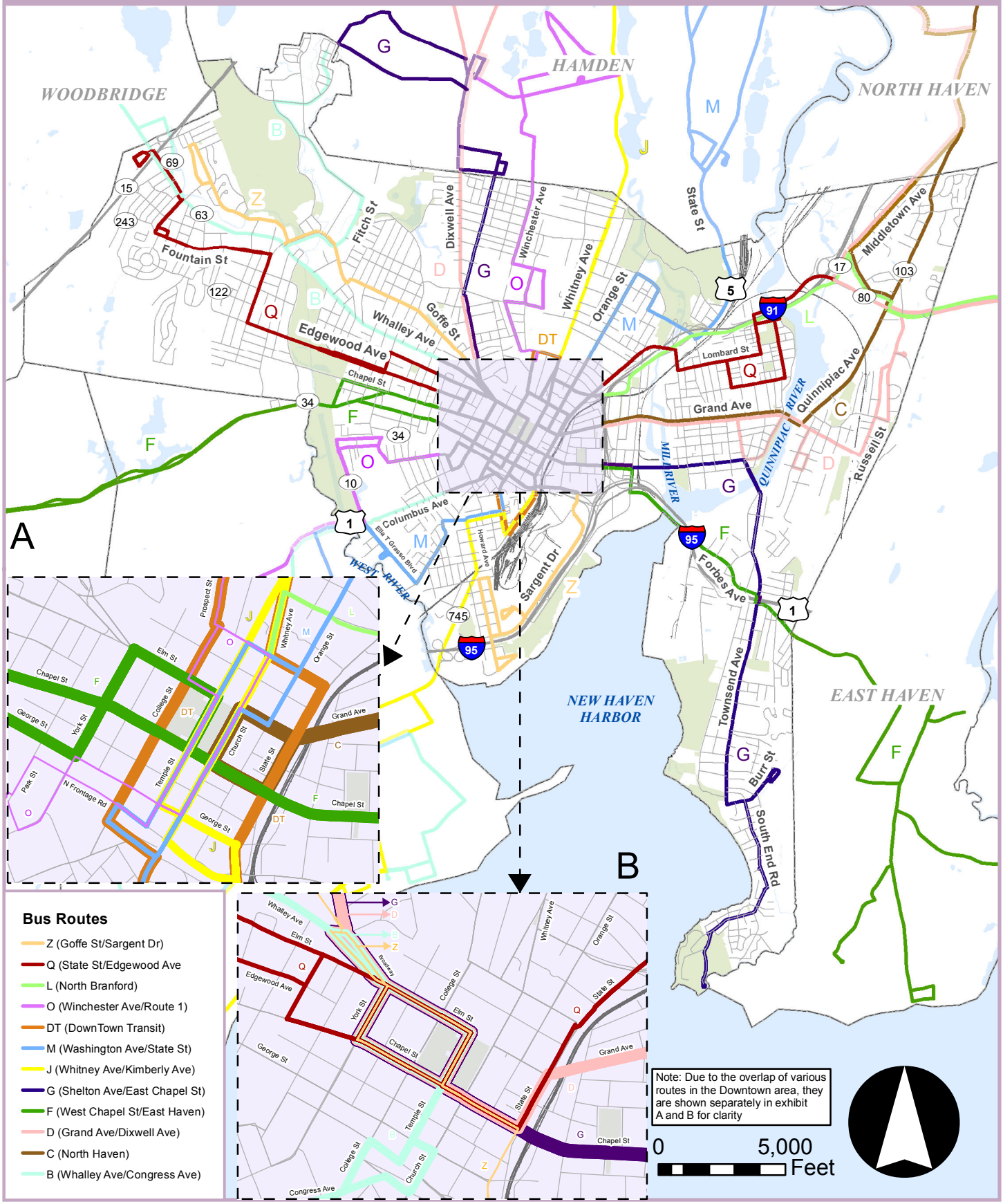
The **Port of New Haven is the largest in the state** by volume shipped. According to the 2012 Connecticut Deep Water Port Strategy Study conducted by Moffatt & Nichol for the Connecticut Department of Economic Development, "New Haven handled the fifth largest volume of domestic trade of gasoline and other distillates in 2010. This high ranking underscores the strong demand volume being served by these facilities. New Haven is the origin of the Buckeye Pipeline, which connects directly into Hartford and Springfield, Massachusetts and supplies aviation fuel to Bradley International Airport. Additionally, New Haven and New London host two of the three National Strategic Heating Oil Reserve sites."



New Haven harbor is a regional distribution center for petroleum products, as well as the export of scrap metal.

In contrast to the operations in the state's other two major ports, Bridgeport and New London, the port terminals in New Haven are entirely privately owned and operated, consisting primarily of petroleum storage, processing and distribution terminals on both the east and west sides of New Haven Harbor. Gateway Terminals, Inc., which is based on the east side of the harbor, is the largest

NEW HAVEN VISION 2025
EXISTING CT TRANSIT BUS ROUTES



port operator. Other major terminals include Magellan and Motiva. During the past decade, port traffic has become even more focused on petroleum and related products which currently account for over 80 percent of freight volume. Other major commodities moved through the port include manufactured goods and scrap materials, primarily scrap iron and steel for export to Asia.

Freight Railroads

Freight railroad service in New Haven is provided by the Providence and Worcester Railroad (P&W) and by CSX Corporation in neighboring North Haven. Service generally runs north (along a route to Hartford and West Springfield, Massachusetts) and north and east along the Northeast Corridor tracks. Freight activity between New Haven and New York City is more limited by the heavy volume of commuter rail service. Largely due to the expanded Gateway Terminal operations on Chapel Street, P&W's business has increased from a low baseline to a volume of several train loads per week.

New rail connections are planned for Waterfront Street via the Tomlinson Bridge. Port-area rail service has been dormant since structural damage occurred in the early 1990's. The new Tomlinson Bridge has rail tracks along its northern side. Planned extensions would run further east along Forbes Avenue and south along Waterfront Street.

Enhancing rail facilities is essential to the long-term development of the Port of New Haven. By linking the Waterfront Street area back to the rail grid, there is an **opportunity to reduce local truck movements and to make the port truly intermodal**. The success of the Gateway Terminal intermodal site on Chapel Street illustrates the potential at Waterfront Street and the North Yard.

Both waterborne and rail freight operations are crucial to relieving the traffic congestion of the region's local roads and Interstate highways.

Air Transportation

While many city residents utilize the major airports located in the New York, Hartford, and Boston areas, direct air transportation to New Haven is limited to the services provided at Tweed New Haven Airport, a regional facility straddling the border of New Haven and East Haven. Runway safety extensions of 1,000 feet were completed in 2009 giving Tweed an effective runway length of just under 5,200 feet. Currently, Tweed New Haven's passenger service consists of four daily American Airways flights to Philadelphia operated on DH-8 commuter aircraft. Scheduled passenger activity has increased on this route by nearly 20 percent

Tweed New Haven Airport's passenger terminal and parking area have the operational capacity to accommodate a substantial increase in scheduled airline service. Economic and runway length issues have so far hampered efforts to attract additional air carriers.

Both off-road facilities, such as the Farmington Canal Trail (above) and on-road shared lane bicycle routes (below) play a critical role in encouraging use of non-vehicular travel modes.

over the last five years, but still **the facility is substantially below its operational capacity** for scheduled services. The airport's primary role remains as a regional general aviation facility. The vision for the next decade is to attract commercial service to Florida and two to three hub cities. Efforts should be made to implement the capital improvement program in a manner that protects nearby residents from undue hardship.

Greenways and Trails

The proposed trail system provides opportunities both for recreation and for enhanced transportation/mobility. (See maps on following pages.) Non-motorized transportation is already established in New Haven. **Residents are engaged in walking and cycling to work**, largely by sharing the road with vehicles. Various planning efforts in recent years identify New Haven's greenways and cycling systems infrastructure as a tremendous untapped resource. Four trail systems are identified for their near-term potential as transportation elements:

- The Farmington Canal Greenway parallels much of Dixwell Avenue—one of the largest commuting routes into the city from the north.
- The proposed Harborside Trail parallels Interstate 95 and provides opportunities to reach the waterfront and Downtown.
- In Fair Haven, an existing linear park along Front Street can be expanded south through the River Street MDP and then north along the Mill River. Connections can be made across the railroad to East Rock and across Chapel Street to the Harborside Trail.
- Along the western border, existing trail systems in West Rock, Edgewood, and West River Parks can be connected through a series of easements and limited on-road crossings. In doing so, the project could connect Route 34 and the Harborside Trail.

In spite of these opportunities, an integrated system will depend on creative multi-modal transportation solutions. Generally speaking, these solutions will involve reduced on-street parking and/or careful striping of new cycling lanes. This is the case along Route 34, Howard Avenue, and in the East Rock area for example. As part of regular transportation planning programs, Street Smarts techniques can be incorporated in a systematic manner.

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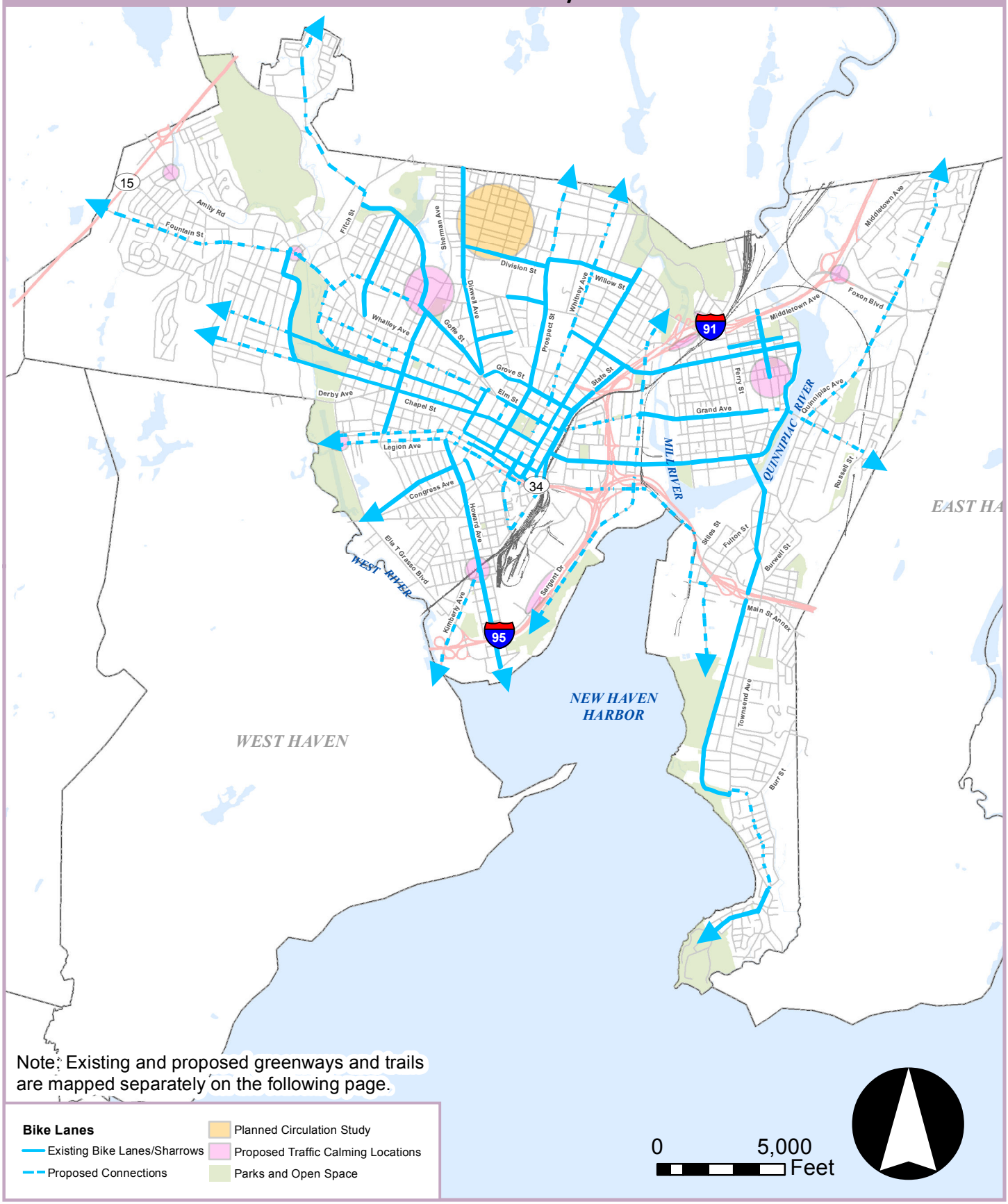
EXISTING & PROPOSED BIKE/PED NETWORK



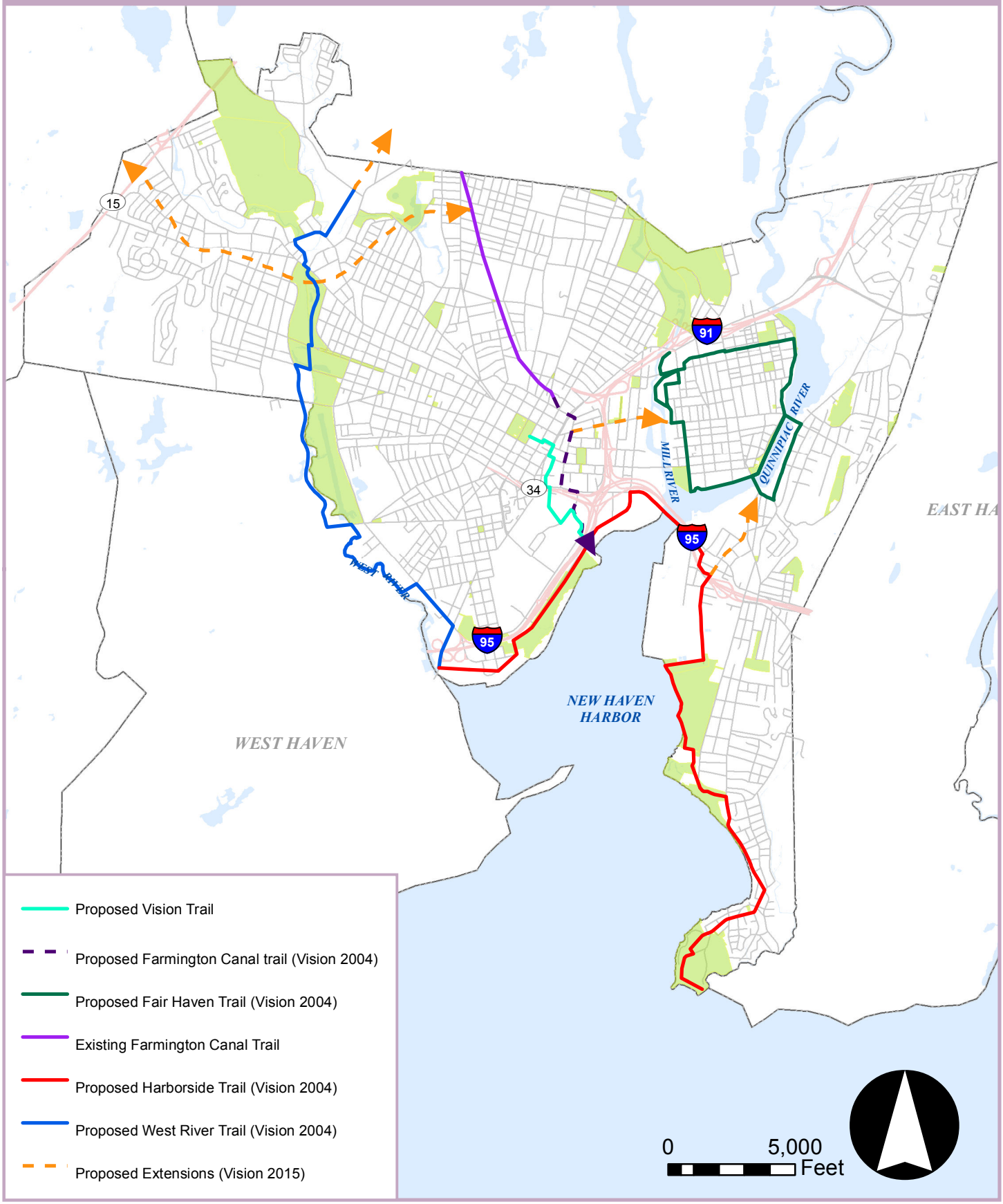
Note: Existing and proposed greenways and trails are mapped separately on the following page.

Bike Lanes

- Existing Bike Lanes/Sharrows
- Proposed Connections
- Planned Circulation Study
- Proposed Traffic Calming Locations
- Parks and Open Space

0 5,000 Feet

NEW HAVEN VISION 2025
EXISTING & PROPOSED GREENWAYS & TRAILS



B. PLANNING CONSIDERATIONS

- Mobility in New Haven is greatly enhanced by choice: vehicular transportation, public transit, passenger and freight rail, waterborne, and non-motorized options are all part of the system.
- While these options exist, there is limited complementary activity. For example, park and ride options are limited and intermodal connections at the port are restricted by infrastructure.
- While there has been a significant shift in the City's transportation policy over the past decade, from promoting automobile mobility to promoting multi-modal transportation, a still significant portion of the population continues to use automobiles for primary travel.
- CTTRANSIT, Metro-North and Shoreline East are integral to improving mobility. Headways and operation of service during off-peak hours in some key locations in the city remain the salient issue on both CTTRANSIT and Shoreline East. Over time, the failure to balance transportation investment will continue to have environmental and economic consequences.
- The Port of New Haven is an unparalleled transportation asset. Intermodal connectivity, including freight railroad connections, is essential to growing the port in a manner that protects surrounding neighborhoods and eases demand on the Interstates.
- Though not likely in the near term, the long-term promise of passenger and freight ferry service must be further explored and studied in detail.
- Tweed New Haven Airport is remarkably underused given the size of the local market. Efforts should be made to implement the capital program in a manner that protects nearby residents from undue hardship.
- Commuter rail to Hartford and Springfield represents a new opportunity to broaden mobility and to preserve capacity along Interstate 91. Consideration should be given to connecting with Bradley Airport for both passenger and freight purposes.

- The design and placement of transportation facilities is an important factor in New Haven's urban form. Incorporation of urban street design standards should be among the highest transportation considerations. Inappropriate truck routes, particularly when used as highway bypass routes, have a deleterious effect on the surrounding area and should be curtailed.
- This is certainly the case at Long Wharf, where increasing capacity must not surpass the City's prevailing interest in waterfront improvements—including Long Wharf Park, Canal Dock, and the Harborside Trail with connections back to Sargent Drive, Belle Dock, and Downtown.
- Similarly, the concept of transit-oriented development has not been fully developed in New Haven. The larger transportation facilities are bounded by incompatible land uses. State Street Station represents the first substantial connectivity among residential, office, and transportation land uses.
- An integrated and continuous network of trails, sidewalks, and bicycle facilities is integral to further encouraging modal shift within the city.
- Planning studies indicate that the lack of adequate transportation choices is one of the largest barriers to economic development in a city. A high-speed passenger rail service from New York to Boston with a travel stop at New Haven is therefore helpful in stabilizing the city's regional standing as an urban growth center.
- Community survey responses indicate that expanding public transportation opportunities along with improving public safety and enhancing bike/ped connectivity are rated as the top transportation priorities for the next decade by residents.

C. GUIDING PRINCIPLES FOR RECOMMENDATIONS

- Promote safe, efficient, reliable, and accessible public transit system throughout the city to connect residents to jobs, services, and their community.
- Consider placemaking as a strategy beyond traffic for transportation improvements.
- Adopt more progressive, multi-modal, and context-based design principles.

- Advocate for faster and more efficient regional transit connections.
- Promote a more sustainable transportation system within the city and the region.
- Improve mobility for people of all ages and abilities.
- Increase pedestrian and bicycle connectivity for all i.e., from ages eight to eighty.
- Encourage employers to raise public awareness of Street Smarts, bike-to-work, transit, and available parking options within the city.
- Enhance public safety, particularly for the city's most vulnerable users.
- Adopt multi-national Vision Zero policy, which aims to eliminate traffic fatalities.
- Maximize the assets and infrastructure with respect to the availability of parking on city streets.

D. RECOMMENDATIONS

General Transportation Planning

- Mitigate any transportation investments made in the city that would have severe environmental and economic consequences. Also, link these efforts with regional transportation improvements to mitigate congestion and manage future growth and development effectively.
- Encourage parallel investment in **alternative/intermodal transportation**, Street Smarts, and other congestion mitigation measures. Promote coordination among regional and state partners, major public and private employers, and local utility companies to enhance the existing transportation network within the city and effectively implement TDM strategies.
- Encourage high-quality, context-sensitive design of the city's transportation system. Ensure that plans for public streets, sidewalks, signage, and traffic control/intersection improvements are reviewed by the City Plan Commission to enhance the urban fabric and help mitigate adverse effects. Context-sensitive design based on urban street standards are further emphasized on Whalley Avenue, Chapel Street, Ella Grasso Boulevard, Kimberly Avenue, and Foxon Boulevard.

The primary transportation goal is to encourage a modal shift in the city, from a population largely dependent on single-occupant vehicles to a population with a wide range of options including public transit, bike, and pedestrian systems. In general, transit and bike/pedestrian improvements must complement each other and accommodate needs of people of all ages and abilities.

- Ensure adequate maintenance of existing transportation infrastructure within the city.
- Continue to raise public awareness of Street Smarts and existing public transit/bicycle/trail network within the city.
- Continue to raise public awareness on the transportation, public health, and environmental benefits of bicycling and walking within the city.
- Advocate for renewed discussion on inter-city transportation policy at the regional level given the inter-relatedness of large-scale transportation decisions.

Transportation and Land Use

- Promote a better alignment of economic development and City planning policies, reflecting a broader context for transportation resources.
- Promote transit and bike/ped connectivity to the eastern neighborhoods of the city (east of New Haven Harbor), which experienced a significant increase in population and housing over the past decade (See Databook for trends).
- Encourage north-south connectivity among neighborhoods adjacent to the Route 34 corridor, where large tracts of vacant land currently exist due to urban renewal programs of the 1950s.
- Advocate for increased mass transit service to the currently underserved areas of the city, such as the redeveloped West Rock neighborhood, where there is a demand for such service. To that end, prepare a **bus transit needs analysis** to analyze areas of critical transit need within the city based on demographics, existing service routes, and frequencies.
- Facilitate increased public transit use in the city through increased densities, reduced parking requirements, and integrated pedestrian and bicycle network, wherever appropriate. Foremost among the opportunities for transit-oriented development are Church Street South, the former New Haven Coliseum site, Route 34 corridor, Whalley/Boulevard area, and Union Street parcels in Wooster Square. The Commission encourages re-use of Church Street South in manner that reflects its positioning between downtown and Union Station. A mixture of uses compatible with this prime geographic setting is encouraged.

New York City Transit, New York City DOT, and New York State DOT jointly conducted a Bus Transit Needs Analysis in 2004 as part of Phase I to identify unmet transit service needs within the city. This study looked into demographic data, ridership data, and trip origin and destination data. Currently, they are exploring ways to implement selected new bus routes based on Phase I and Phase II study results. (http://www.nyc.gov/html/brt/html/about/choosing-routes.shtml)

- In areas of highway system preservation and expansion, aggressively seek noise pollution controls for the protection of residents, recreation facilities, schools and other sensitive locations.
- Advocate for sound regional land use policies to preserve capacity along Foxon Boulevard, Whalley Avenue, and in the Route 34 West area.
- Advance a more sound land use policy within the Port of New Haven by relocating and/or closing tank farms to appropriate areas.
- Increase opportunities for multi-purpose trips by promoting mixed-use developments on opportunity sites (as identified within the Opportunities Map), thereby reducing VMT and mitigating impacts on air quality.
- Prepare and adopt a **Transportation Master Plan** to develop strategies to implement a transportation network that supports the City's land use and development goals (as identified within the Capital Improvements Program) and will assist in identifying funding for transportation improvements needed and potential funding shortfalls, if any. Aim at improving system-wide transportation rather than individual locations.
- Encourage the design of transportation facilities in accordance with existing community characteristics and nearby land uses. Ensure that all handicap accessibility improvements made are zoning compliant by law.
- Continue to implement the vision of a **continuous and inter-linked trail network** within the city (*Plan for Greenways and Cycling Systems*, 2004). Update and adopt this plan to link the existing Farmington Canal trail with the proposed West River Greenway and to further extend to Woodbridge toward the west (see Existing and Proposed Trails map).
- Work with ConnDOT to implement the vision of **Union Station Transportation Center's Transit-oriented Development (TOD) Plan** prepared by W-ZHA and others in September, 2013.
- Encourage shared parking options within mixed-use developments to reduce the need for creating new parking facilities and shared driveways for parking in medium- and high-density residential areas.

A Transportation Master Plan guides a City's investments in transportation systems based on community vision and also assesses existing and potential funding streams for implementing this vision over a five to ten year time period.

Greenways and trails have social, economic, and environmental benefits. They promote non-vehicular mobility, ensures resource protection, and also meet recreational needs of residents.

The Union Station TOD consists of a re-merchandising strategy to enhance passenger experience and reinforce Union Station's role as a gateway to New Haven and recommends the development of a new parking garage north of Station's existing parking garage. This station is owned by ConnDOT and therefore, the implementation of this vision needs ConnDOT'S approval.

Community survey responses indicate that many employees in Downtown New Haven would be interested in taking the bus home if there were reduced headways during peak hours and extended hours of service in the evenings and weekends.

The current bus system within the city is owned and operated by CTTRANSIT, which operates throughout the state. Any recommendations to service improvements need regional input and consensus.

The recommendations of Parking and Transit Working Group (2013) include: (a) installation of a digital signage network at downtown bus stops with real time information on bus arrivals and departures (b) installation of a transit board at Union Station (c) marketing the Roadify app currently available on smart phones (d) promoting free shuttle service from Union Station to Medical District (e) promoting express shuttle service from neighboring towns and cities to New Haven by partnering with Yale New Haven Hospital (f) promoting Transit Check, which allows employers and commuters to use pre-tax dollars to pay for commuting and save on taxes and (g) marketing existing taxi services by promoting Metro Taxi's app available on smart phones and simplifying their use through zone pricing.

- Consider conducting health impact assessments when making transportation decisions on public infrastructure and land use to mitigate any adverse impacts.

Public Transit

Bus/Shuttle service improvements:

- Partner with neighboring municipalities to advocate for general service improvements within the region such as reduced headways (10 minute service on major lines during peak hours), **extended hours of service to meet employee needs**, extended weekend service, etc., thereby enhancing reliability and frequency of service.
- **Work with CTTRANSIT** in developing a transit bus needs analysis, as discussed in the previous section.
- Revive the proposed Cross Town West service linking West Haven to Hamden through west side of New Haven.
- Explore the feasibility of developing a local commuter option within the Downtown to mitigate traffic congestion and reduce VMT, such as bus rapid transit, light rail, etc.
- Educate public about available ride sharing (such as Dial-A-Ride, Zip Car, etc.) and paratransit services within the city.
- Work with CT Rides and local employers to develop more extensive carpooling and car sharing programs. To that end, expand the current car sharing program in New Haven.
- Implement the **recommendations outlined within Parking and Transit Working Group report** (Greater New Haven Chamber of Commerce, July 2013) and Mobility Study report (See Housing chapter).
- Improve coordination among CTTRANSIT bus service, Greater New Haven Transit District (GNHTD), and all public (CTTRANSIT) and private shuttle services (YNHH and Yale University) operating within the city. To that end, foster partnership between CTTRANSIT and Yale University to combine some of the existing shuttle services and routes for faster, efficient, and open door (public use) service.
- **Expand U-pass** (low cost transportation options) beyond GCC to also include students at Yale, SCSU, and Albertus Magnus.

- Promote upgrades to the existing bus shelters and bus stops within the city to promote safety and accessibility (including American with Disabilities Act [ADA] accessible features) thereby further enhancing transit usage.
- Explore the feasibility of creating a local transit district to operate public transit service within the city.

Passenger Rail Service Improvements:

- Advocate for a faster rail service from New Haven to New York and Boston to enhance the economy of the region and to further stabilize the city's positioning as a regional growth center.
- Advocate for additional train service at State Street Station by improving operating headways and service times, especially for reverse commuters.
- Continue to participate in the **planning for the future Northeast Corridor service** and advocate strongly for upgrades to the existing mainline between Boston and New York City and strongly oppose so called in-land routes that would skip New Haven and, in turn, pivot economic growth away from coastal cities.

Airport Improvements:

- Promote safety and service improvements at Tweed New Haven airport as identified within their Master Plan Update (Connecticut Center for Economic Analysis, 1999) and within the Freight Cargo Study (SCRCOG, 2014).
- Enhance air transportation by implementing limited hub service in a manner that protects nearby residents from undue hardship.
- Attract commercial service to Florida and two to three hub cities.

Para-Transit service Improvements:

- Partner with GNHTD to raise awareness on currently available paratransit services within the city and to identify and remove any limitations to benefit all of the special needs population living in the city.

Freight

- Pay attention to neighborhood preservation, environmental protection, and traffic congestion when planning for freight movements so as to minimize any adverse impacts to city neighborhoods.

GCC Students can avail a special transportation pass (U-Pass) that is valid for unlimited trips during a 31-day period on all local CTTRANSIT buses for a low cost.

North East Corridor (NEC) Future—Federal Railway Administration's Rail Investment Plan—recommends a $38 billion capital investment (in 2010 dollars) in Amtrak owned and operated infrastructure between Boston and Washington. This will allow for more frequent in-state service and faster regional service to major cities (e.g., Philadelphia and Washington).

New Haven's geographic position and transportation connections are a competitive advantage benefitting both economic development and mobility. Enhancing access to the city's freight railroads would help curtail some of the existing truck traffic on local streets.

- Encourage the growth and development of the Port of New Haven within the district of the New Haven Port Authority.
- Establish intra-coastal and cross-sound ferry services at Belle Dock. To that end, promote the expansion of existing freight rail connections as planned within the I-95 New Haven Harbor Crossing Corridor Improvement Project.
- Encourage **full access between freight railroads and the port district**, in particular by extending rail service along Waterfront Street and to the North Yard.
- Establish a truck routing system that curtails truck traffic on local streets and promotes the use of designated arterial connections. As a parallel effort, work with the Department of Motor Vehicles and local police to better enforce existing truck regulations.
- Revise the Zoning Ordinance to restrict the locations of high turnover storage and warehousing uses to areas with adequate access to highways and/or freight railroads.
- Implement the transportation recommendations of the *Port of New Haven Strategic Land Use Plan* (PB Americans & FHI, Inc., 2007). These include: analyzing the internal public street network to better accommodate truck operations and improving access to staging sites, working with terminal operators to provide efficient land side connections for Feeder Barge service, improving traffic flow within the Port area (truck routing and off-street waiting facilities), providing adequate loading space in and around Waterfront Street, and promoting the use of existing railroad service and access for a future north side rail connection.

Source: Metro Hartford Region Bike Share Plan

A Divvy bike sharing station in Chicago. Bike sharing systems have been built in hundreds of cities around the world in the past decade, and allow visitors, workers, and residents to inexpensively use bicycles for transportation needs .

Bicycle and Pedestrian Network

- Promote a comprehensive and integrated bicycle and pedestrian network within the city by identifying and prioritizing the missing links and implementing solutions accordingly.
- Encourage the appropriate placement of pedestrian and bicycle facilities, including dedicated bike racks, bike lanes, bump-outs/refuge islands, and signage within on-going and proposed street improvements.
- Encourage private owners to locate publicly available **bicycle sharing system** throughout the city.

- Identify locations where frequent pedestrian- and bike-related accidents or collisions occur and develop targeted solutions.
- Improve the quality of existing sidewalks and implement new sidewalks on city's collector streets e.g., Russell Street, Quinnipiac Avenue, lower Valley Street, and Foxon Boulevard. The Commission further recommends special focus on promoting pedestrian access to the parks. Ensure that adequate lighting is provided on existing sidewalks within the Hill, Newhallville, and Dixwell neighborhoods.
- Continue to monitor and update bicycle/pedestrian counts at key intersections in Downtown and set a target of increasing bicycle ridership.
- Work with CTTRANSIT to continue to allow bicycle infrastructure on transit facilities and to provide bicycle parking racks at transit stops.
- Collaborate with neighboring towns in SCRCOG and cities in the state to promote bicycle and pedestrian connectivity beyond the city limits.
- Advocate for the amendment of CGS 14-286b to allow the establishment of two-way protected bicycle lanes within the city.
- Implement the last phase of Farmington Canal Trail and secure funding to update the vision and officially adopt and implement the other proposed greenway routes identified within the ***Plan for Greenways & Cycling Systems*** (City of New Haven, 2004).
- Promote bicycle connectivity from Downtown to the eastern neighborhoods of the city, which experienced significant population and housing growth over the past decade.
- Implement dedicated and/or separated bicycle facilities on major arterials of the city e.g., Whalley Avenue, Edgewood Avenue, MLK Boulevard, Whitney Avenue, Grand Avenue, Congress Avenue, Forbes Avenue, and Water Street.
- Explore new ways of seeking community visibility as a bike/ped friendly community such as obtaining a **Walk Friendly Communities** designation by the League of American Bicyclists.

The Plan for *Greenways & Cycling Systems* (2004) recommended:
official designation and completion of West River Greenway Trail;
design and subsequent construction of the Harborside Trail;
re-construction and enhancement of the Vision Trail; and
completion of Fair Haven and Quinnipiac River Trail system with waterfront connections to Willow Street (via the Conrail pedestrian bridge) and to the Harborside Trail (via Chapel Street).

Walk Friendly Communities designation is awarded to "communities that have demonstrated a commitment to improving and sustaining walkability and pedestrian safety through comprehensive programs, plans, and policies." (www.walkfriendly.org)
Example: Seattle, Washington

Hillhouse Avenue, an example of a Green Street.

- Transform the City's significant transportation corridors into **"Green Streets"** through implementation of adequate landscaping, pedestrian- and bicycle-oriented features, traffic calming devices, and other green infrastructure.
- Continue to raise public awareness on Street Smarts and Share the Streets initiatives of the City to promote bicycling and walking in New Haven.
- Partner with local advocacy organizations such as Elm City Cycling to raise public awareness on existing bicycling routes within the city and further expand the existing bike-to-work program to include all major employers of the city.
- Encourage public pedestrian connectivity within all new developments, especially with block lengths greater than 250 feet.
- Transform Route 34 corridor into an urban boulevard with more pedestrian-friendly connections across the highway. Continue implementation of Phases II and III of Downtown Crossing.

The creation of ground floor retail spaces as "liners" for parking structures, such as the Temple Street Garage (above), allows the continuation of the pedestrian-oriented street frontage.

Parking

- Allow parking reductions and shared parking options within new/infill developments proposed in high-density areas of the city.
- Encourage public-private partnerships to develop structured parking facilities, wherever appropriate.
- Continue to monitor parking utilization rates of City-owned garages (operated by Park New Haven), to efficiently manage parking supply based on demand.
- Discourage stand alone surface parking lots, and if approved, ensure they are time restricted and adequately screened with landscaping from public right-of-way.
- In order to meet the parking demand within Downtown, encourage short-term expansions of parking capacity, focused on remote parking sites and medium- to long-term opportunities to build appropriately-sized, **mixed-use parking facilities** in line with the new models of parking facilities suggested in the *Hill-to-Downtown Community Plan* vision.
- Promote **bicycle parking within all public/private parking** lots in the city and on-street, at key locations within Downtown.

A secure indoor bicycle parking area was included in the construction program of the new downtown campus for Gateway Community College.

- Manage short-term and long-term street parking effectively, to improve access to local businesses.
- Educate the public on available parking options within the city, including parking for the disabled in the Downtown. As a first step, develop a publicly accessible interactive parking map for the city with information on parking locations and associated costs.
- Identify and designate short-term loading zones and passenger drop-off locations within Downtown New Haven. Also, work with local businesses and property owners to stage deliveries during off-peak hours to mitigate traffic congestion during peak hours.
- Enforce traffic and parking laws stringently to enhance the efficiency of the existing transportation and parking system within the city.
- Partner with local employers to promote TDM strategies, such as offering incentives for car pooling, transit use, etc., that reduce the demand for parking.
- Work with events organizers to plan ahead and inform the public in advance on special parking arrangements and rates within Downtown during specific events.

Complete Streets

- Continue to **implement Complete Streets projects** within the city to promote active living and independent mobility, encourage healthy lifestyles, increase community safety, mitigate air quality impacts, and promote civic interaction.
- Streamline the process for reviewing Complete Streets applications and identify new funding sources and implementation strategies.
- Encourage coordination among various City Departments (e.g., Transportation, Engineering, Public Works, and City Plan) and other private agencies such as the utility companies to share resources, prioritize, and implement Complete Streets projects.
- Establish performance standards in terms of VMT reduction or miles of bicycle lanes or sidewalks created to meet Complete Streets goals, and periodically monitor and update these standards. To that end, update the existing manual (adopted in 2010) to include urban street design standards (based on traffic speeds, roadway types, and volumes) and construction standards for bike/ped facilities.

The City of New Haven adopted the *Complete Streets Design Manual* for the city in 2010. Since then, several improvements have been made on city streets to balance the needs of all roadway users. Some of these include designation of sharrows and bike lanes on city streets.

- Promote transparency in decision making and implementation of Complete Streets projects by creating an online web page where general public can track their requests and know the status.

A steady flow of vehicular and non-vehicular traffic would enhance vibrancy, promote economic growth, and help improve the air quality within the city.

Access and Safety

- **Synchronization of existing traffic lights,** especially within the Downtown where major employers are located, is recommended. Signal upgrades are needed on the east side of Downtown and Route 34 corridor. Signal studies are recommended on Whalley Avenue, Whitney Avenue, and the Dixwell corridor, all of which currently serve as regional transportation corridors.

While considerable attention and study has been paid to the complexities of the one-way system, the need for on-street parking and the considerable volume of traffic on arterial roads leaves few opportunities to modify the system.

- **Two-way systems** may be possible (subject to more detailed study) on York Street, College Street, Church Street, George Street, Crown Street, Dwight Street, Howe Street, Tower Parkway, and Grove Street.
- Promote accessibility for all roadway users, including persons with special needs and/or disabilities, by implementing universal design standards for all transportation projects.
- Promote safe, continuous, and direct bike/pedestrian access to local schools, parks, elderly and low-income housing developments, employment and shopping centers, and other recreational/community facilities.
- Ensure pedestrian safety by implementing traffic calming solutions at poorly designed, high volume, and/or accident prone locations of the city. These include (but are not limited to) traffic calming on: Ella Grasso Boulevard (at the intersection with Route 34); upper Whalley Avenue (at the intersection with Amity Road); Whalley Avenue (at the intersection with Fountain Street and Amity Road); near James Hillhouse and King Robinson Schools; Kimberly Avenue (at the intersection with Howard Avenue and Plymouth Street); upper State Street (at the Willow Street exit); Clinton Avenue (in Fair Haven); Foxon Boulevard (off of Interstate 91 north); and Sargent Drive (near Church Street South extension).

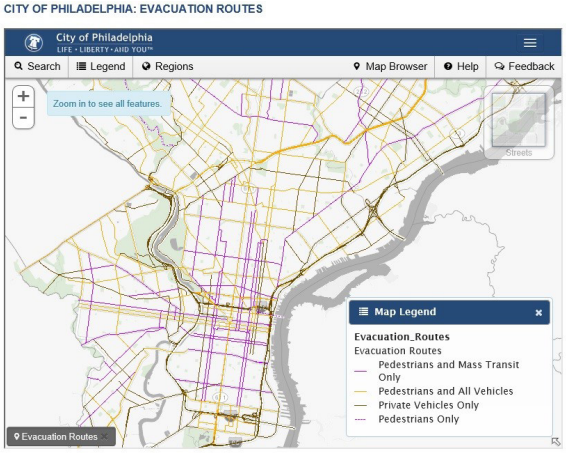
Community survey responses and meetings with residents indicate that adequate street lighting is particularly needed within the Hill, Newhallville, and Dixwell neighborhoods to enhance safety and further encourage walking and biking and prevent health-related illnesses.

- Develop and promote walking and bicycling infrastructure to improve access to food stores that sell fresh food and other healthy produce. To that end, provide **adequate street lighting** on existing sidewalks and walking routes/ trails.

- Encourage connections between food processing and food production operations and local composting operations (or other waste minimization technologies) to reduce long-distance transport of food waste.
- Advocate for a new exit 59A off the Wilbur Cross Parkway, thereby enhancing access to West Rock and SCSU, and new interchange connections at Route 34 and Long Wharf, supporting a new local road and Harbor Access project.
- Establish north-to-south and east-to-west access connections among all neighborhoods of the city while also addressing concerns on public safety and cut-through traffic. Particular attention must be paid to connect neighborhoods surrounding Route 34 corridor that were separated due to Urban Renewal programs of the 50s.
- Transform the Route 34 corridor, which is currently designated as a route for carrying hazardous materials, into an urban boulevard with more pedestrian connections. The Commission encourages re-directing the hazardous materials route toward Ella Grasso Boulevard.
- New access connections are recommended to connect the Long Wharf neighborhood to Vietnam Veterans Long Wharf Park, Sargent Drive to the waterfront; Downtown to Wooster Square through the extension of 'Fair Street', and the East Rock neighborhood to Cedar Hill area.
- Ensure that the proposed improvements to the Interstate 95 and Route 34 corridor occur in a timely manner with minimal disruption to nearby residents. Also, ensure that residents as well as employees working in New Haven are well-informed on any traffic impacts (such as lane closures and diversions) affecting their access to jobs and housing during peak hours.
- Develop and implement Phase II of wayfinding signage to enhance visitor experience by promoting access to neighborhood gateways and other key destinations within city neighborhoods.

Transportation and Emergency Planning

- Ensure that transportation planning efforts are consistent with the hazard mitigation planning and other emergency planning (fire/ambulance services) efforts.



Philadelphia has an online, interactive emergency evacuation route map for all users.

Nearly 57 percent of people living in New Haven are employed outside New Haven and nearly 77 percent of people employed in New Haven live outside New Haven (based on Databook results). Planning studies indicate that the lack of adequate transportation choices is a barrier to promoting economic development in a region.

- Coordinate with the Office of Emergency Management to identify, prioritize, and publish **emergency evacuation routes** within the city, on a scenario-based approach, as part of pre-hazard mitigation planning.
- Ensure that the design of complete streets takes into consideration the requirements for access of emergency vehicles.

Regional Transportation

- Promote continued coordination and partnership with the regional planning agency to implement a sustainable transportation network within the city, as well as the region.
- Advocate for a more direct and frequent bus service within the city and a faster (one-hour), more efficient rail service connecting New Haven to New York and Boston. This would help connect New Haven's neighborhoods to the Downtown (where major employers are located) and the Downtown to the region thus strengthening the city's positioning as a regional growth center.
- Support the implementation of **Cross Town West** transit link to connect the west side of the city to Hamden and West Haven.
- Coordinate with CTTRANSIT and the region to address gaps in existing transit routes within the region to better connect residents, jobs, and housing.
- Advocate for implementing new park and ride facilities across the region.
- Advocate for transit supportive capital investments within the regional Transportation Improvement Program (TIP).
- Continue to advocate for the implementation of intelligent transportation systems within the region to enhance the reliability and efficient of the system and manage traffic congestion effectively.
- Advocate for the construction of a second garage at Union Station to support the city's transit-oriented development initiatives.

Sustainable Transportation Network

- Encourage the development of transit-oriented, mixed-use developments to reduce VMT and mitigate air quality impacts.

- Promote multi-modal transportation through enhanced transit, bike, and pedestrian network. To that end, support the implementation of the proposed West River, Fair Haven, and Harbor Side Trails and the completion of Phase IV of Farmington Canal trail. Also, update the City's *Complete Streets Design Manual* to include new construction standards and new signal plans for bicycles.
- Support the implementation of a frequent and dedicated transit service (such as bus rapid transit or light rail) between the Downtown and Union Station for local commuting.
- Promote direct street connectivity to key employment and business centers to reduce VMT.
- Encourage the transformation of existing streets into "green streets" (based on roadway type) through adequate landscaping, more tree planting, installation of previous surfaces, installation of pavements with reduced heat reflectivity, and implementation of other green infrastructure.
- Reduce vehicle emissions at signals through improved signal timing and coordination. To that end, perform signal studies for major arterials within the city and the entire Downtown.
- Continue to promote the use of electric and hybrid vehicles to conserve energy and reduce vehicle emissions.
- Continue to implement electric charging stations and other related technologies (like the station implemented in the port area) to conserve energy and reduce green-house gas emissions by encouraging the use of compressed natural gas (CNG) and bio-diesel fuels.
- Continue to implement energy-efficient street lighting devices.
- Partner with local employers and businesses to implement an effective travel demand management program, which includes options such as telecommuting, Transit Check, encouraging travel during off-peak hours, etc.
- Encourage the use of alternative trip generation methodologies for transit-oriented developments as opposed to the traditional trip generation forecasts, which primarily depend on the number of automobile trips.

E. SUMMARY OF RECOMMENDATIONS

Build...

- ...multi-modal transportation network within the city by developing a transportation master plan that supports the City's land use and development goals and will assist in assessing funding for needed improvements and potential shortfalls, if any.
- ...a continuous and inter-connected trail network within the city by updating the vision outlined in the *Plan for Greenways & Cycling Systems* (2004) and completing Phase IV of the Farmington Canal Trail.
- …a comprehensive and integrated bicycle and pedestrian network with the city by identifying and prioritizing the missing links and implementing solutions accordingly. Improve the quality of existing sidewalks within the Hill, Newhallville, and Dixwell neighborhoods and implement new sidewalks on city's collector streets i.e., Russell Street, Quinnipiac Avenue, lower Valley Street, and Foxon Boulevard.
- …appropriately sized, mixed-use parking facility at Union Station to support transit-oriented development and job growth
- ...bicycle parking facilities within all public/private parking lots in the city, and on street at key locations within Downtown.
- …dedicated and/or separated bike facilities on major arterials of the city i.e., Whalley Avenue, Edgewood Avenue, MLK Boulevard, Grand Avenue, Congress Avenue, Forbes Avenue, and Water Street.
- …complete streets based on urban street design standards by updating the *Complete Streets Design Manual*, streamlining the process for accepting applications, and promoting transparency in decision making and implementation.
- …two-way street systems on York Street, College Street, Church Street, George Street, Crown Street, Dwight Street, Howe Street, Tower Parkway, and Grove Street.
- …a truck routing system that curtails traffic on local streets and promotes the use of designated arterial connections.
- ...the West River Greenway Trail by identifying funding sources as a first step to building new trails over the next decade.

- ...wayfinding signage systems (Phase I) in Downtown and develop Phase II study for implementing wayfinding signs that connect to key neighborhood destinations.

Connect...

- …residents to jobs, housing, and other support services through enhanced transit service that reduces headways; extends weekday and weekend service; and provides real time information on transit arrivals, delays, and departures.
- …employees on the west side of the city who work in Hamden and West Haven through the promotion and subsequent implementation of the proposed Cross Town West route.
- … New Haven to New York and Boston and enhance regional economic competitiveness by advocating for a faster rail service to these destinations.
- …residents/employees/students to local existing shuttle routes by exploring opportunities to combine Yale and CTTRANSIT shuttle routes and by encouraging U-Pass options for students at Yale, SCSU, and Albertus Magnus.
- …New Haven's commercial air service to Florida and two to three hub cities.
- …existing port district with freight railroads by extending rail service along Waterfront Street and to the North Yard.
- …residents in the eastern neighborhoods to Downtown through enhanced bike/ped network.
- …neighborhoods surrounding Route 34 corridor currently separated by large tracts of vacant land and the Medical District to Union Station and Downtown.

Preserve...

- …the quality of natural environment by reducing vehicle emissions at signals through the synchronization of existing traffic lights, especially within Downtown where major employers are located (signal studies recommended on Whalley, Whitney, and Dixwell Avenues;
- ...the quality of the natural environment by transforming existing streets into "green streets."
- ...the quality of the natural environment by promoting the use of electric and hybrid vehicles and by implementing an effective travel demand management program.

Adapt...

- … to sea level rise and other coastal/inland flooding events by ensuring that the design of complete streets considers the requirements for emergency vehicle access a
- ...to sea level rise and other coastal/inland flooding events by working with the Office of Emergency Management to identify, prioritize, and publish evacuation routes within the city on a scenario-based approach.

Grow...

- …the reliability, frequency, and efficiency of existing transit service within the city by partnering with CTTRANSIT to develop a bus transit needs analysis to identify and prioritize underserved routes and develop strategies accordingly and by implementing the recommendations of Parking and Transit Working Group (2013).
- …paratransit service and ride share options within the city by partnering with Greater New Haven Transit District and CT Rides to expand current programs and services.
- …public safety by implementing traffic calming solutions at poorly designed, high volume, and/or accident prone locations of the city including, Ella Grasso Boulevard, upper Whalley Avenue, upper State Street, Clinton Avenue, Foxon Boulevard, Sargent Drive, and at James Hillhouse and King Robinson Schools;
- ...public safety by promoting adequate lighting of sidewalks and parking lots and by promoting upgrades to the existing bus stops and bus shelters.
- …a sustainable transportation system to conserve energy and reduce greenhouse gas emissions by encouraging the use of natural gas and bio-diesel fuels.