CHELSEA HARBOR / DOWNTOWN NORWICH Mobility Study

https://www.downtownnorwichmobilitystudy.com/

Existing Conditions

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January 3, 2024

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Introduction

This Transportation and Mobility Study, commissioned by the City of Norwich and Southeastern Connecticut Council of Governments (SCCOG), is primarily centered on downtown Norwich. Downtown Norwich is the focal point of historic Norwich, while also being the confluence of several state routes and bordering three rivers, with resultant water related activities by the Chelsea Harbor, at Howard T. Brown Park.

1.1 Project Purpose and Study Area

The Chelsea Harbor/Downtown Norwich Mobility Study is a key component in the City of Norwich's efforts to provide streets that are safe and accessible for all users, including pedestrians, bicyclists, motorists, and transit users of all ages and abilities. The Study goals include improvements to livability, mobility, access to essential services, safe routes to the waterfront and Howard T. Brown Park, the Intermodal Transportation Center, the Norwich Marina, and other downtown destinations. This will be accomplished through expanded bicycle facilities, sidewalk network improvements, and the reconfiguration of multi-lane, high-speed through streets that currently exist as a barrier between downtown proper and the City's waterfront area, East, and West Side neighborhoods. The Study will develop alternatives to the current configuration and traffic flows of the study area with the above goals in mind.

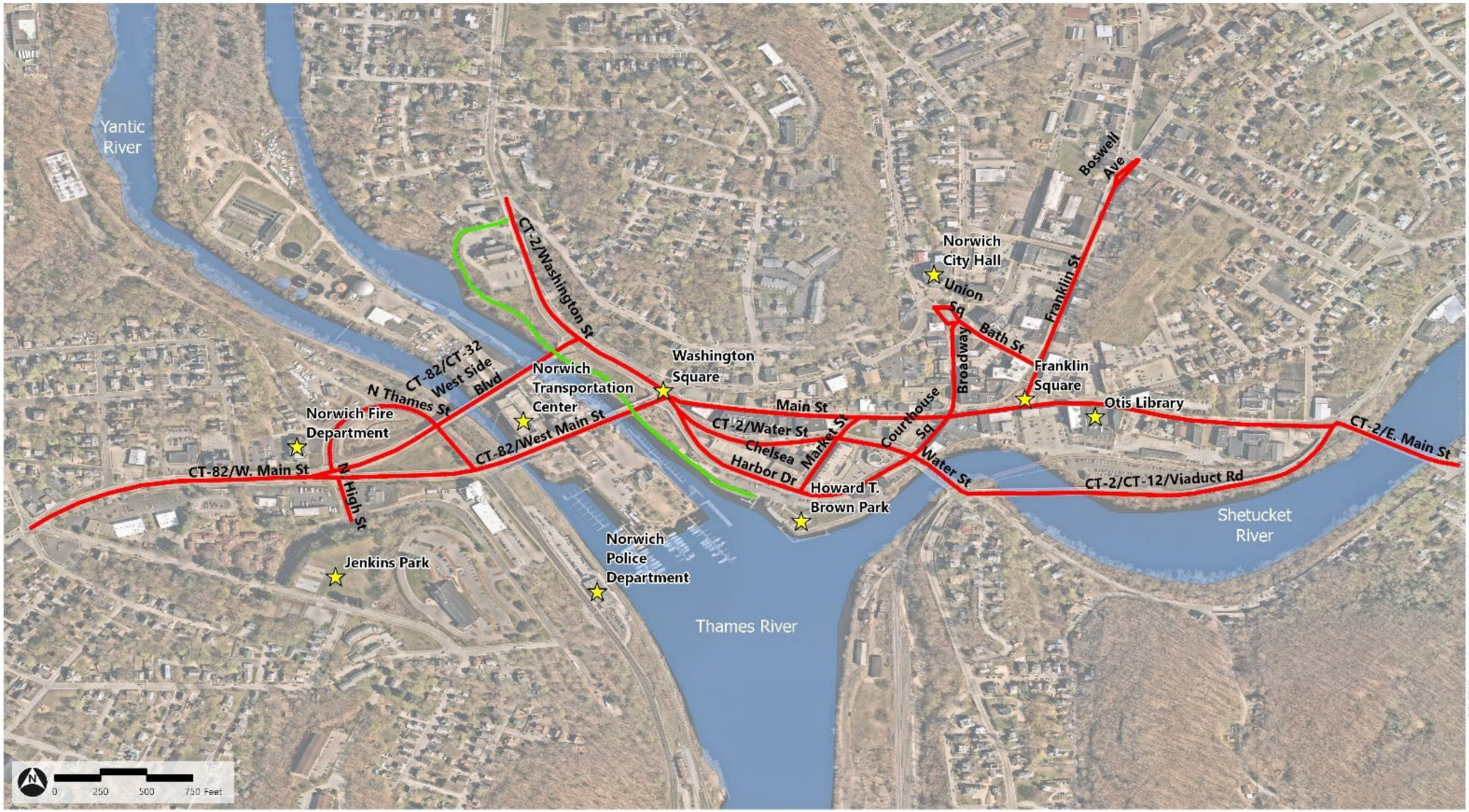
The Study area roadways include Main Street, Water Street, Chelsea Harbor Drive, Washington Street, Viaduct Road, Broadway, and Franklin Street. See Figure 1 for a map of the study area. The Study will provide the groundwork for improved mobility along these corridors. The need for improved pedestrian, bicycle, motorist, and transit accessibility in the downtown, for residents coming from the east and west side neighborhoods, and the waterfront area adjacent to the Intermodal Transportation Hub, is essential to local regional traffic flows, safety, and economic development efforts in the City of Norwich.

1.2 Report Overview

This Existing Conditions Report covers transportation-related data and infrastructure, as well as land use and development information that can impact the demand for transportation services and potentially support alternative modes of transportation. Chapter 2 is split into the following sections:

- Historical Context
- Transportation Data and Analysis of Traffic Movements
- Crash/Safety Data
- Bicycle, Pedestrian, and Vulnerable Road User conditions
- Public Transportation
- Parking
- Public Engagement
- Land Use, Zoning, and Development
- Previous and Current Plans and Studies

Figure 1 Map of the Chelsea Harbor/Downtown Norwich Mobility Study Area



Source: VHB, Near Map

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Existing Conditions

This chapter presents a summary of the existing conditions in the Downtown Norwich area based upon accumulation of City data, field observations, collection of traffic data, previous plans and studies, and public engagement efforts.

2.1 Historical Context

Having a firm background of the historical and geographic context of Norwich and its place within the transportation system is critical to understanding transportation issues within the city today. The City of Norwich was founded in 1659 and incorporated as a city in 1784, one of the first five Connecticut cities. Downtown Norwich, at the confluence of the Yantic and Shetucket Rivers at the head of where they flow into the Thames, was a critical piece of the city becoming the commercial, transportation, and manufacturing hub of the region in the 19th century. It remains the heart of the city and serves as a crossroad of commercial, recreational, and institutional activity, as well as employment. The narrow streets, with mixed-use buildings connected in a central row, and historic architecture, are all indicative of its early urban development prior to the advent of the automobile.

In the mid-20th century, as automobiles became the dominant mode of transportation and residential and commercial development grew at the fringes of the city, the primary transportation goal in the region was to carry through traffic through the downtown, easterly to the Connecticut and Rhode Island shoreline and beaches. The automobile transportation mode resulted in the development of high-speed expressways around Norwich, including the Connecticut Turnpike (I-395) as well as several state routes through the City and downtown, including Routes 2, 12, 32, and 82. A fifth state route, Route 165, is just outside of the study area across the Main Street bridge. These routes follow the topography and bordering rivers of Norwich, with Route 2 being the only major travelway on the west side of downtown due to topographical constraints on north-south travel. With the rivers, topography converging with four state routes, the downtown is a frequent bottleneck for people trying to go east and west. Hilly terrain and rivers limit the ability to circumvent downtown.

In 1970 a proposal to extend the freeway portion of Route 2 north of Downtown Norwich and continue east was rejected by the City. Instead, the TOPICS program (Traffic Operation to Increase Capacity and Safety) was instituted in the 1970s with new traffic signals and new traffic flow along one-

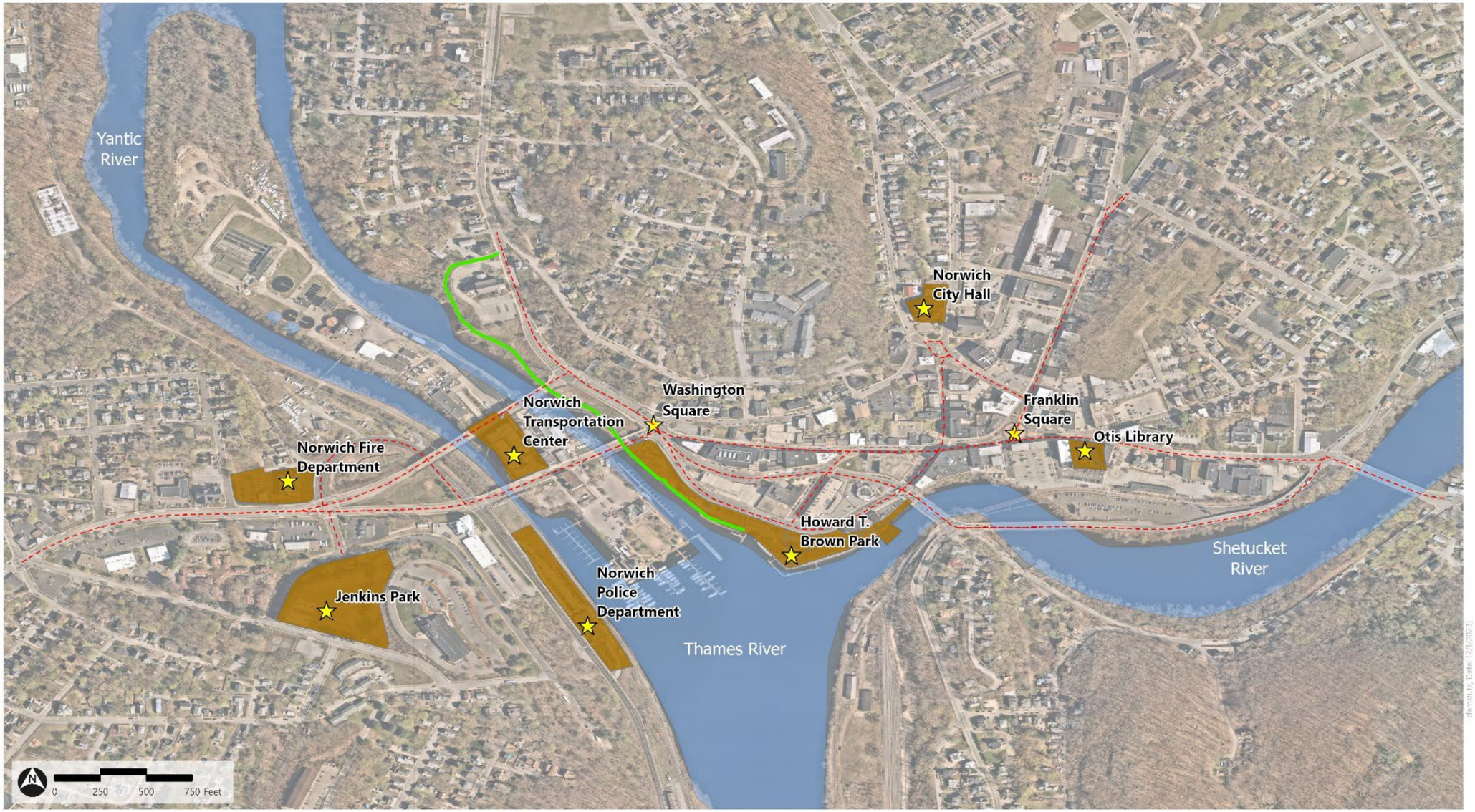
way streets, but it was widely unpopular with travelers and residents. Other proposals to push traffic south across the Thames River Bridge never materialized. The tension of providing fast and convenient travel for automobile through traffic versus the needs of local residents and businesses continues to characterize the challenge of transportation planning in Downtown Norwich.

More recently, the City adopted a Complete Streets Policy in 2022 and has shifted its focus to planning for other transportation modes including walking, bicycling, and public transit. Revitalizing downtown with people-focused transportation and public space improvements is now a key goal of the City. This Mobility Study effort will assist that City to reach their goals for the transportation system and will encourage investment in low-carbon transportation modes.

2.1.1 Notable Community Facilities

Within the study area there are many community facilities that are important destinations for residents and visitors alike as they navigate around the downtown. These facilities include: Norwich City Hall, Otis Library, Howard T. Brown Park, the Norwich Transportation Center, the Norwich Police and Fire Departments, and Jenkins Park. Their locations around the study area are shown on Figure 2.

Figure 2 Notable Community Facilities in the Chelsea Harbor/Downtown Norwich Mobility Study Area



Source: VHB, Near Map

2.2 Traffic Volumes, Speeds, and Vehicle Classification

Routes 2 and 12, both classified as Principal Arterials, along with Route 82 (Minor Arterial) and Franklin Street (Major Collector), all converge downtown. All other streets in the study area are local streets.

2.2.1 Observations

Typical Route 2 traffic was observed on field review days in June. There appeared to be higher speeds along Chelsea Harbor Drive and Water Street due to the wide lanes and lack of geometric conditions that would slow drivers down. It was apparent that the timing of some traffic signals was causing queuing and delays at some key intersections. This includes queuing observed at Water Street and Chelsea Harbor Drive/Courthouse Square, going eastbound on Route 2. Traffic queued back into the right-turn lane on Chelsea Harbor Drive, primarily due to the congested and unusual intersection of Water Street at Viaduct Road/Talman Street/Laurel Hill Avenue and New Wharf Road. This intersection has six approaches which cannot all be adequately served in one signal cycle without causing congestion on at least one approach. This number of approaches results in Water Street backing up across the bridge over the Shetucket River and blocking the right turns from Chelsea Harbor Drive from turning right, with a subsequent spillover of queued vehicles.

The other end of Viaduct Road, intersecting with East Main Street/North Main Street, at another bridge crossing of the Shetucket River, also experiences congested operations from the heavy right turning eastbound traffic and conversely the westbound left turning traffic onto Viaduct Road.

Overall, the observations during the field work confirmed many of the previously discussed and known operations in the downtown apart from Washington Square. This intersection actually operates fairly well, primarily due to the numerous approaches through and exclusive turning lanes on the main approaches, resulting in the largest intersection in the downtown area. This large intersection presents a significant challenge to pedestrian mobility and connectivity due to crosswalks across the intersection at nearly 70 feet to cross five lanes of vehicular traffic flow on the north leg and nearly 90 feet on the south leg with six lanes. This pedestrian crossing under an exclusive pedestrian phase results in over 30 seconds of time and when actuated during a peak hour can cause significant backups for several signal cycles. These crossing distances present significant concerns for vulnerable road users being exposed across 5-6 lanes.

All of the study area intersections were reviewed to confirm number of lanes, turning lanes, storage lengths, crosswalks, No Turn On Red, traffic patterns, operations, traffic signal phasing and timing.

In the Broadway area, and just west of the roundabout, there was also westbound queuing at Main Street and Courthouse Square/Broadway intersection which spilled back into the Franklin Square roundabout at times during the day. This can be addressed with simple retiming of the traffic signal.

2.2.2 Traffic Volumes

To identify current traffic flow characteristics along the study corridor, traffic data was collected in early June 2023 in the form of Turning Movement Counts (TMCs) at the 12 project study intersections and at 9 Automated Traffic Recorder counts (ATRs) along road segments. The TMCs were counted on June 8 and 10, 2023 and the ATRs recorded traffic data from June 7 through June 13, 2023.

The traffic data reviewed in this study includes intersection turning movement traffic counts, roadway daily traffic volumes, vehicle speeds and classification. The following section summarizes this traffic data collection process and documents the results. All traffic count data is provided in the Appendix.

At the intersection of Chelsea Harbor Drive/Water Street/Courthouse Square, there are between 500 and 800 vehicles across all three peak periods turning right from Chelsea Harbor Drive onto Water Street. The high volume causes queuing to build up from the next intersection at Water Street/Viaduct Road/Laurel Hill Ave/Summer Street/Talman Street into the right turn lane on Chelsea Harbor Drive. The bridge between these two intersections does not allow enough room for queuing, and the later intersection has more legs resulting in a longer cycle length than the prior intersection. High volume queueing was also observed in the westbound and northeast directions of the later intersection, and in the northbound and westbound directions at Viaduct Road/Main Street/N. Main Street. At the intersection of Courthouse Square/Main Street/Broadway, westbound traffic has too short of a green time causing queuing into the roundabout at Franklin Street/Main Street. Though the model shows Franklin Street/Boswell Ave/Oak Street as having a normal cycle, upon field inspection it was found that this intersection is flashing. Despite this, no queuing was observed.

2.2.2.1 Daily Traffic Volumes

Automatic Traffic Recorders (ATRs) were installed at eight locations in and around downtown Norwich in June 2023 to collect data on traffic volumes and speeds by direction over a minimum 48-hour period. Table 1 identifies the approximate ATR count locations and the average daily traffic in both directions.

Table 1 2023 Existing Weekday Average Daily Traffic Volume Summary

Location	Weekday Average Daily Traffic (ADT)
Route 82 East of Thames Street (eastbound)	12,590
Broadway North of Main Street	3,594
Main Street between Franklin St/E. Main Street	7,015
Franklin Street North of Bath Street	4,912
Route 2 (Water Street) westbound in Downtown	10,268
Route 2 between bridges	11,205
Route 2/12 (Viaduct Road)	13,459
Route 2 (East Main Street)	15,607

Source: ATR counts conducted in June 2023.

Traffic counts conducted by CTDOT in the downtown area we last completed in 2020. Copies of the CTDOT traffic counts are included in the Appendix to supplement the June 2023 traffic counts for this study.

As shown in Table 1, based upon the June 2023 traffic counts, the highest traffic volumes recorded in the study area were located on Route 2 (East Main Street) with an Average Daily Traffic (ADT) of 15,607 vehicles per day. Route 2 through the heart of downtown also has high traffic volumes relative to the rest of the roadways studied, with ADT between 10,000-15,000. Outside of the immediate downtown, traffic on Franklin Street and local roads is much lower.

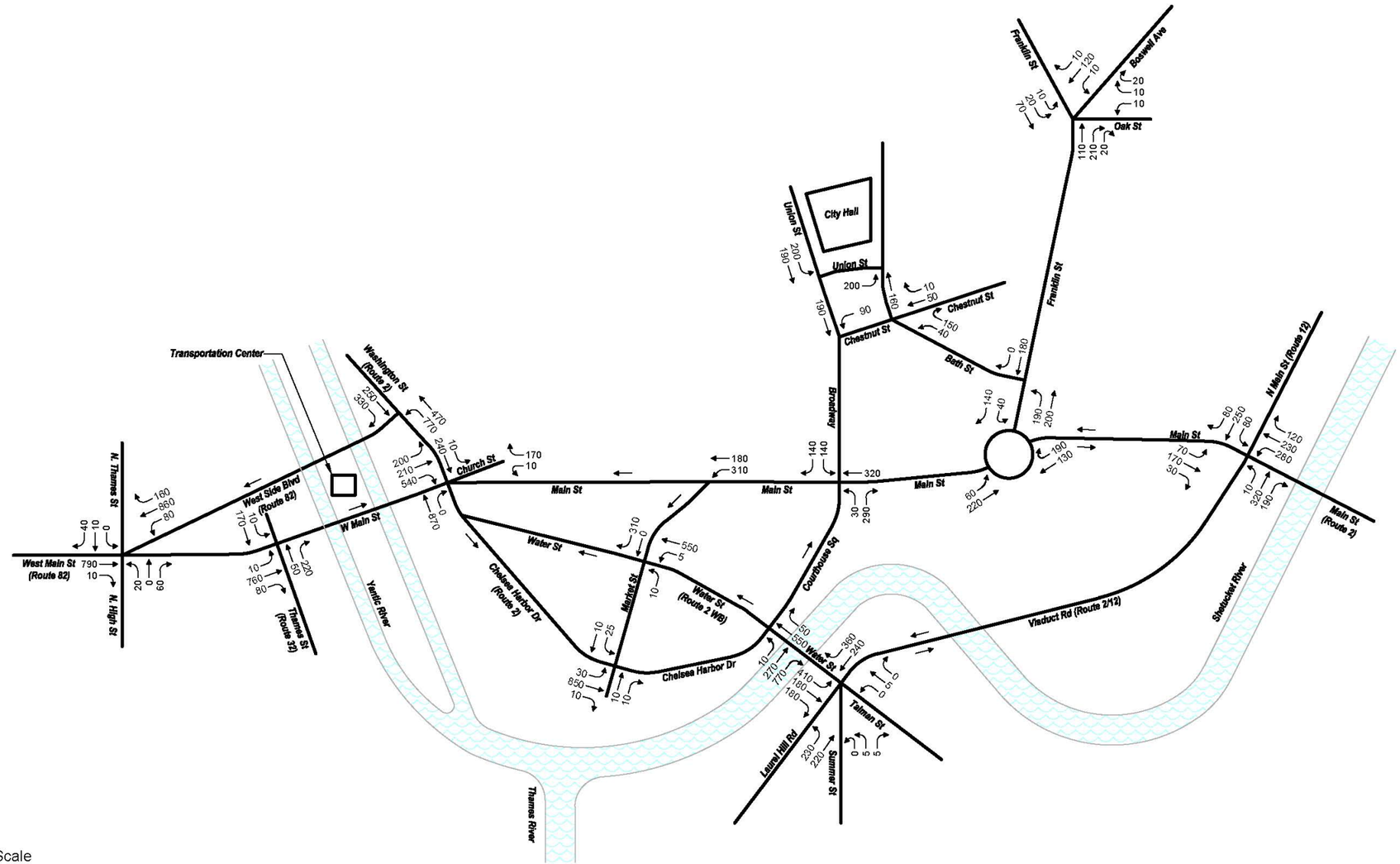
The 2023 traffic counts collected in June were found to be similar to numbers reported by CTDOT in previous years. Traffic volumes were compared between the 2014 and 2020 CTDOT counts as well as

the 2023 counts collected for this study. Traffic volumes have been steady, with not much change over the years, although the 2023 volumes collected are higher than the 2020 CTDOT volumes. The CTDOT traffic counts are also included in the Appendix. There is a high variability in traffic volumes throughout the day with traffic spread out over the day. There are some non-traditional peak hours showing up in the data, with weekday mid-day peaks and 3 pm afternoon peak hours, likely due to school and summertime traffic. See Figures 3, 4, and 5 which show existing peak hour traffic volumes at intersections in the study area, for morning, evening, and weekend mid-day peaks, respectively.

Figure 3 Existing Weekday AM Peak Traffic Volumes

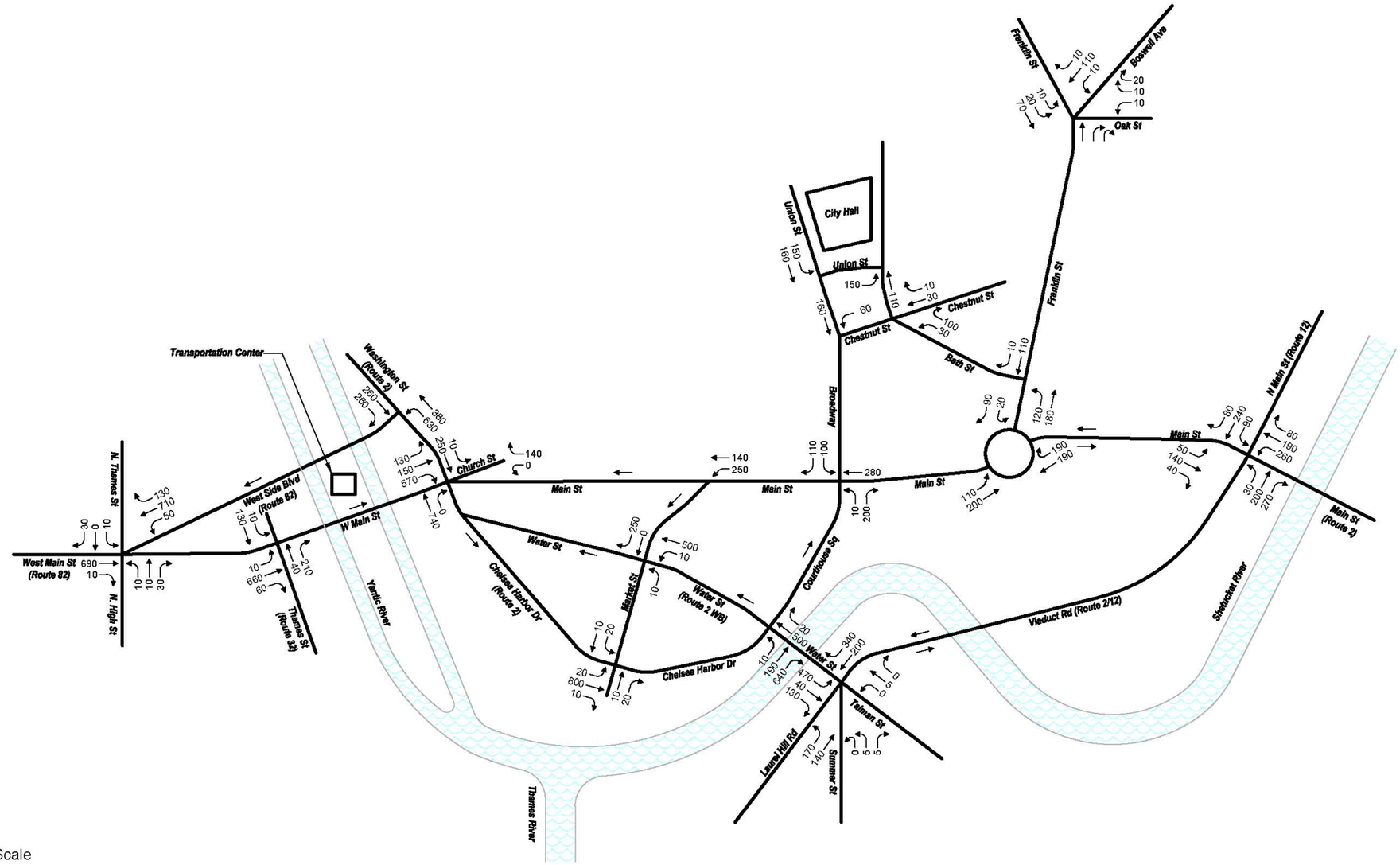
Not to Scale

Figure 4 Existing Weekday PM Peak Traffic Volumes



Not to Scale

Figure 5 Existing Saturday Midday Peak Traffic Volumes



Not to Scale

2.2.3 Vehicle Speeds

In terms of speeds within Downtown Norwich, the 85th percentile speeds are not unusually high – there are not many instances of speeds being 10 mph over the speed limit or higher. However, there are higher speeds along Chelsea Harbor Drive and Water Street due to these roads being wider.

The vehicle speed data was reviewed to determine the average speed and 85th percentile speed at each location where data was collected. The 85th percentile speed is the speed at which 85-percent of vehicles travel at or below, and transportation agencies typically use it to establish speed limits. These data were compared to the posted speed limit to understand whether there is excessive speeding in the project area and beyond the posted speed limit which is understood to be 25 miles per hour throughout.

The most recent data collected show that the 85th percentile speeds were above the speed limit (in any amount) at six out of seven data collection locations. Two locations showed the 85th percentile speeds of drivers at 9-11 miles per hour over the speed limit – considered excessive speeding – at these areas of the corridor: Route 82 east of Thames Street and Route 2/Viaduct Road. Average speeds were typically about 5 miles over the posted speed limit in most of the locations.

The ATR data provided traffic speeds for each of the count locations for each vehicle recorded over the course of each day.

Some examples of the speed data collected include the following locations:

Table 2 Speed Data for Downtown Norwich Study Area

Location	Posted Speed	85th%	50th%
Route 82 East of Thames	25	36	31
Broadway	25	22	17
Route 2 Viaduct Road (E/W)	25	38/39	33/34
Route 2 between bridges (S/N)	25	29/32	25/27
Route 2 Water Street	25	28	24
Route 2 East Main Street (W/E)	25	33/32	29/27
Franklin Street (S/N)	25	26/24	21/20

As shown in Table 2, every ATR recorded speeds higher than the posted speeds except Broadway, which is expected given the narrow roadway, on street parking and limited section of roadway to gain speed even with a green traffic signal.

The highest speeds were recorded on the straightest roadway sections, Route 82, and the Route 2 Viaduct Road section. The Route 82 speeds are likely the result of drivers seeing the traffic signal at the Chelsea Harbor Drive intersection and accelerating to make the green on the downhill section of the roadway through the Transportation Center intersection.

Viaduct Road speeds are understandable because there is limited development along the roadside and a long section of roadway between signals. The Viaduct Road section has the highest speeds recorded in the downtown area.

It should be noted that speeds higher than these recorded speeds have been observed at certain times during the field work, specifically along Chelsea Harbor Drive when drivers accelerate leaving the intersection with Route 82 and along the Harbor.

The data show that, more recently, some speeding over the posted limit is occurring, while in other locations it is below the posted speed limit. Overall, speeds are higher in the long straights of the road corridor such as Viaduct Road, and Route 82 crossing the Yantic River. Higher speeds were also observed on the wider stretches of the road corridor at Chelsea Harbor Drive and Water Street in the downtown area. These high speeds are areas of concern for people biking and walking through the corridor.

2.2.4 Vehicle Classification

In addition to the traffic volume and speed data collected, vehicle classifications were also recorded at each ATR location. The vehicle classifications included motorcycles, cars, buses, single unit box trucks, and semi-trailer trucks across a total of 14 classification categories.

The lowest percentage total of automobiles was 66 percent of the traffic along Route 2 in the section between the bridges, with a substantial percent of non-automobile traffic recorded, including motorcycles, buses, trucks, and semi-trailer trucks accounting for 34% of the total traffic.

Viaduct Road was next lowest with just over 80 percent of the traffic being automobiles and 20 percent other vehicles including motorcycles, box trucks, buses, and semitrailers.

All other ATR locations recorded 84 percent or higher for automobiles and some locations with 89 percent of traffic as automobiles.

2.2.5 Intersection Sight Distances

As part of the field inspection, each intersection was checked for intersection sight distances. The required sight distances were calculated using the daily traffic volume and speed data collected for the project. The following intersections and directions had insufficient sight distances in accordance with the CTDOT Highway Design manual: Main Street EB&WB/N. Main Street SB, Water Street WB at Chelsea Harbor Drive/Courthouse Square, Route 82 WB/N. Thames Street SB, Water Street/Laurel Hill Ave/Summer Street/Talman Street/Viaduct Road all directions, and Route 82 EB at Church Street/Chelsea Harbor Drive/Water Street. Table 3 illustrates.

Table 3 Intersections in Study Area with Insufficient Sight Distances

Intersection	Required Sight Distance	Actual Sight Distances
Main St EB/N. Main St SB	357 ft	EB: 285 ft SB: 95 ft
Water St WB at Chelsea Harbor/Courthouse	313 ft	120 ft
Route 82 WB/N. Thames SB	379 ft	WB: 195 ft SB: 160 ft
Water/Laurel Hill/Summer/Talman/Viaduct all directions	434 ft	SB: 155 ft EB: 180 ft NB (Summer): 100 ft

Intersection	Required Sight Distance	Actual Sight Distances
		NB (Talman): 90 ft WB: 140 ft
Route 82 EB at Church/Chelsea Harbor/Water St	247 ft	126 ft

2.2.6 Intersection Capacity Analysis

To develop an understanding of the operation of the study area intersections during the study peak periods, a traffic model was developed in Synchro for the three peak traffic periods using the data from Turning Movement Counts (TMCs) at the study area intersections. The traffic model was developed using the traffic volumes, the existing traffic control signal plans as well as CTDOT provide timings for coordinated traffic signals. The traffic model development was based upon the existing study area intersection approach geometries including lane widths, on street parking, storage lengths, pedestrian crosswalks, pedestrian signal timing, vehicle signal phasing and timing as well as observations of the traffic operations of the intersections.

The evaluation criteria used to analyze area intersections in this traffic study are based on the 2000 Highway Capacity Manual (HCM). The term 'Level of service' (LOS) is used to denote the different operating conditions that occur on a given roadway segment under various traffic volume loads. It is a qualitative measure that considers several factors including roadway geometry, speed, travel delay and freedom to maneuver. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level-of-service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions.

In addition to LOS, two other measures of effectiveness (MOEs) are typically used to quantify the traffic operations at intersections; volume-to-capacity ratio (v/c) and delay (expressed in seconds per vehicle). For example, an existing v/c ratio of 0.9 for an intersection indicates that the intersection is operating at 90 percent of its available capacity. A delay of 15 seconds for a particular vehicular movement or approach indicates that vehicles on the movement or approach will experience an average additional travel time of 15 seconds. It should be noted that v/c and delay could have a range of values for a given LOS letter designation. Comparison of intersection capacity results therefore requires that, in addition to the LOS, the other MOEs should also be considered.

The level-of-service designations, which are based on delay, are reported differently for signalized and unsignalized intersections. For signalized intersections, the analysis considers the operation of all traffic entering the intersection and the LOS designation is for overall conditions at the intersection. For unsignalized intersections, however, the analysis assumes that traffic on the mainline is not affected by traffic on the side streets. Thus, the LOS designation is for the critical movement exiting the side street, which is the left turn out of the side street or site driveway. Table 4 shows the level of service criteria for both signalized intersections and unsignalized intersections.

It should be noted that the analytical methodologies typically used for the analysis of unsignalized intersections use conservative analysis parameters, such as long critical gaps. Actual field observations indicate that drivers on minor streets accept shorter gaps in traffic than those used in the analysis procedures and therefore experience less delay than reported by the analysis software. The analysis methodologies also do not fully consider the beneficial grouping effects caused by nearby signalized intersections. The net effect of these analysis procedures is the over-estimation of calculated delays at

unsignalized intersections in the study area. Cautious judgment should therefore be exercised when interpreting the capacity analysis results at unsignalized intersections.

The criteria for determining Levels of Service are presented in Table 4 and based upon the 2000 Highway Capacity Manual.

Table 4 Level of Service Criteria for Signalized and Unsignalized Intersections

Level of Service	Signalized Intersection	Unsignalized Intersection
A	0 to 10 seconds	0 to 10 seconds
B	10 to 20 seconds	10 to 15 seconds
C	20 to 35 seconds	15 to 25 seconds
D	35 to 55 seconds	25 to 35 seconds
E	55 to 80 seconds	35 to 50 seconds
F	Greater than 80 seconds	Greater than 50 seconds

The results of the intersection capacity analyses are presented in the following tables utilizing the above criteria for all project intersections and all three peak hours. Vehicle queueing is also provided for the critical 95th percentile queues (design queue) and the 50th percentile queueing which is typically the average queueing at any point in the peak hour.

As shown, most project study intersections are operating at level of service (LOS) C or better. Two intersections have poor LOS: the intersection of Route 2/12 at Viaduct Road/Laurel Hill Ave/Summer Street/Talman Street, and Route 2 at Route 12 (Viaduct Road at North Main Street). Both ends of Viaduct Road have poorly operating intersections during the peak hours.

The Route 2/12 intersection operates at a failing condition partly because there are too many approaches, with a long signal cycle.

The other intersection of Routes 2 and 12 at Viaduct Road and North Main Street operates at LOS E and F and there are very long queues.

While the Broadway intersection operates at good LOS during the peak hours, vehicle queuing was observed to back up into the roundabout intersection at several times during the peak hours including midday. The timing at the intersection can be adjusted to reduce the queuing.

The unsignalized intersections analyzed for the project do not have any capacity issues.

See Tables 5 and 6 for the existing capacity analysis summaries.

Table 5 Signalized Intersection Capacity Analysis Summary – Existing Conditions

		Morning Peak Hour					Midday Peak Hour					Evening Peak Hour				
Location	**Mov't**	**v/c[1]**	**Del[2]**	**LOS[3]**	**Q50[4]**	**Q95[5]**	**v/c**	**Del**	**LOS**	**Q50**	**Q95**	**v/c**	**Del**	**LOS**	**Q50**	**Q95**
Route 82 at West Side Blvd. & N. Thames St/ N. High St.	EB T/R	0.40	16	B	77	203	0.44	17	B	94	279	0.58	20	C	132	#362
	WB L	0.43	48	D	50	91	0.26	44	D	31	69	0.52	44	D	64	100
	WB T	0.30	7	A	42	180	0.31	8	A	45	207	0.47	9	A	76	270
	WB R	0.15	7	A	0	31	0.09	6	A	0	31	0.13	7	A	0	21
	NB L/T/R	0.04	43	D	0	0	0.04	43	D	0	0	0.06	42	D	0	17
	SB L/T/R	0.21	44	D	14	46	0.03	43	D	0	0	0.13	42	D	10	23
	Overall	**0.33**	**15**	**B**			**0.33**	**15**	**B**			**0.44**	**17**	**B**		
Route 82 at N. Thames St / Thames St.	EB L/T	0.24	9	A	36	119	0.32	10	A	48	170	0.46	15	B	60	222
	EB R	0.05	11	B	0	30	0.04	13	B	0	30	0.06	20	B	0	m34
	NB T	0.10	33	C	20	38	0.15	36	D	25	50	0.13	32	C	28	53
	NB R	0.17	34	C	0	39	0.15	36	D	0	52	0.14	32	C	0	53
	SB L	0.09	33	C	12	29	0.06	35	D	7	18	0.05	31	C	7	16
	SB T	0.66	42	D	124	178	0.62	43	D	103	128	0.70	42	D	146	146
	Overall	**0.32**	**23**	**C**			**0.36**	**21**	**C**			**0.47**	**23**	**C**		
Route 2 at West Side Blvd.	SE T/R	0.62	31	C	94	152	0.46	28	C	64	114	0.51	29	C	66	105
	NW L	0.34	12	B	63	177	0.39	13	B	77	212	0.49	14	B	104	#278
	NW T	0.31	4	A	0	148	0.30	4	A	0	146	0.38	4	A	0	191
	Overall	**0.40**	**18**	**B**			**0.39**	**16**	**B**			**0.47**	**17**	**B**		
Route 2 (Water St) at Route 82 & Church St. & Main St.	WB L/R	0.49	32	C	20	61	0.51	32	C	28	90	0.74	51	D	33	#112
	WB R	0.53	33	C	21	65	0.53	33	C	28	94	0.79	62	E	35	#126
	NB T/R	0.60	21	C	86	215	0.60	22	C	92	212	0.69	26	C	99	#257
	SB L/T	0.54	21	C	65	134	0.33	20	C	43	115	0.33	22	C	40	114
	NE L	0.32	20	C	41	140	0.30	21	C	43	131	0.46	26	C	61	192
	NE T/R	0.45	23	C	45	#208	0.74	32	C	102	#377	0.70	34	C	86	#367
	NE R	0.20	19	B	0	70	0.28	20	C	0	71	0.27	23	C	0	86
	Overall	**0.49**	**22**	**C**			**0.60**	**24**	**C**			**0.61**	**29**	**C**		
Chelsea Harbor Dr. at Market Street	EB L/T/R	0.18	1	A	21	34	0.22	2	A	29	47	0.23	2	A	33	53
	NB T/R	0.12	37	D	5	26	0.12	36	D	5	30	0.10	36	D	5	26
	SB L/T	0.26	38	D	10	32	0.38	39	D	16	41	0.41	39	D	18	45
	Overall	**0.19**	**3**	**A**			**0.23**	**4**	**A**			**0.25**	**4**	**A**		
Route 2 (Water St) at Courthouse Sq. & Chelsea Harbor	NW T/R	0.33	7	A	27	184	0.35	8	A	32	170	0.39	9	A	43	207
	NE L/T	0.22	22	C	10	42	0.29	22	C	16	60	0.44	22	C	32	87
	NE R	0.42	4	A	0	30	0.45	4	A	0	41	0.60	5	A	0	21
	Overall	**0.39**	**8**	**A**			**0.42**	**8**	**A**			**0.56**	**9**	**A**		

Source: VHB, Inc. using Synchro 11 software.

Table 5 Signalized Intersection Capacity Analysis Summary – Existing Conditions (Continued)

		Morning Peak Hour					Midday Peak Hour					Evening Peak Hour				
Location	**Mov't**	**v/c[1]**	**Del[2]**	**LOS[3]**	**Q50[4]**	**Q95[5]**	**v/c**	**Del**	**LOS**	**Q50**	**Q95**	**v/c**	**Del**	**LOS**	**Q50**	**Q95**
Main St at Broadway & Courthouse Sq.	WB T	0.39	17	B	115	183	0.39	17	B	120	218	0.43	18	B	132	#276
	NB L	0.01	34	C	0	0	0.01	34	C	0	0	0.02	34	C	0	0
	NB R	0.11	8	A	0	34	0.13	8	A	0	36	0.20	9	A	0	30
	SB L	0.49	31	C	60	99	0.48	33	C	59	99	0.49	32	C	67	113
	SB R	0.40	31	C	43	77	0.48	33	C	54	92	0.55	33	C	68	116
	Overall	**0.32**	**20**	**B**			**0.32**	**19**	**B**			**0.37**	**20**	**B**		
Route 2 at Viaduct Rd./Laurel Hill Rd/Summer St/Talman St	WB L	1.06	100	F	~188	#305	0.82	47	D	117	#192	0.83	49	D	122	#240
	WB R	0.55	18	B	58	108	0.63	20	B	70	127	0.56	18	B	62	#136
	NB L/T/R	0.42	43	D	5	11	0.49	41	D	11	16	0.61	67	E	7	19
	SE L/T	1.01	79	E	150	#411	>1.20	>120	F	226	#647	>1.20	>120	F	307	#758
	SE R	0.41	16	B	51	150	0.20	13	B	24	91	0.29	14	B	36	125
	NW L/T/R	0.42	41	D	10	8	0.30	42	D	3	13	0.52	49	D	6	10
	NE L/R	>1.20	>120	F	~191	#213	0.89	56	E	89	#162	>1.20	>120	F	~155	#247
	Overall	**1.07**	**104**	**F**			**1.00**	**82**	**F**			**1.20**	**>120**	**F**		
Franklin St at Boswell St/Oak St	WB L/R	0.50	31	C	7	42	0.44	29	C	15	47	0.44	31	C	14	57
	NB T	0.20	18	B	15	65	0.28	23	C	24	86	0.32	22	**C**	35	118
	NB R	0.14	6	A	8	59	0.20	8	A	30	109	0.30	9	**A**	49	160
	SB L	0.21	24	C	5	33	0.29	27	C	9	44	0.32	27	**C**	11	49
	SB T	0.17	12	B	10	70	0.15	16	B	14	60	0.14	13	**B**	15	63
	SW L/R	0.48	19	B	29	116	0.32	18	B	38	111	0.46	22	**C**	49	141
	Overall	**0.33**	**16**	**B**			**0.29**	**17**	**B**			**0.36**	**17**	**B**		
Route 2 at Route 12 (Viaduct Rd & N. Main St)	EB L	0.16	29	C	12	43	0.22	29	C	18	65	0.43	29	C	27	86
	EB T/R	0.61	39	D	97	200	0.61	39	D	94	#231	0.71	43	D	121	#325
	WB L	0.86	44	D	128	#315	0.76	34	C	110	#291	0.94	61	E	130	#374
	WB T/R	0.64	34	C	149	#392	0.66	36	D	138	#406	0.90	57	E	211	#574
	NB L/T/R	0.96	69	E	196	#587	>1.20	>120	F	~384	#816	>1.20	>120	F	~373	#872
	SB L	0.40	22	C	35	115	0.37	22	C	26	98	0.36	23	C	29	86
	SB T/R	0.60	22	C	154	416	0.45	19	B	104	320	0.52	21	C	138	324
	Overall	**0.86**	**40**	**D**			**0.94**	**89**	**F**			**0.99**	**78**	**E**		

Source: VHB, Inc. using Synchro 11 software.

Table 6 Unsignalized Intersection Capacity Analysis Summary – Existing Conditions

		Morning Peak Hour				Midday Peak Hour				Evening Peak Hour			
Location	Mov't	v/c[1]	Del[2]	LOS[3]	Q95[4]	v/c	Del	LOS	Q95	v/c	Del	LOS	Q95
Bath St at Chestnut St	WB T/R	0.06	8	A	0.2	0.06	8	A	0.2	0.06	8	A	0.2
	NW L	0.17	7	A	0.6	0.14	7	A	0.5	0.14	7	A	0.5
	NW T	0.06	8	A	0.2	0.06	8	A	0.2	0.06	8	A	0.2
Chestnut St at Broadway	WB L	0.1	8	A	0.3	0.09	8	A	0.3	0.09	8	A	0.3
	SB T	0.07	6	A	0.2	0.1	6	A	0.4	0.1	6	A	0.4
Main St at Franklin St	EB L/T	0.32	6	A	1	0.27	5	A	1	0.38	7	A	2
	WB T/R	0.34	6	A	1	0.39	7	A	2	0.40	7	A	2
	SB L/R	0.20	5	A	1	0.12	4	A	0	0.19	5	A	1

Source: VHB, Inc. using Synchro 11 software

2.2.7 Roadway System Impact on Downtown

As noted in the Historical Context section of this report, the main concern of traffic planners and engineers in the middle of the 20th century was to move vehicles through the downtown as quickly as possible via Route 2 and the other state routes that converge in downtown. Due to the resistance of the City of Norwich to support the proposed bypass alignment for Route 2 north of downtown (which would have displaced a significant number of homes and businesses), widening and changing the circulation of the downtown area was the next option that was chosen. Downtown buildings were removed for the widening and traffic flows were changed to accommodate a greater amount of fast-moving traffic to pass through the city, and additional bridges were constructed to bypass narrow urban streets and potential congestion from grid-locked streets. As a result, much of downtown Norwich became an obstacle for traffic to get around to reach somewhere else as opposed to a place in and of itself where people would be encouraged to stay and enjoy downtown businesses.

It is difficult to directly assess how downtown businesses have been impacted by the changes to the roadway system that have been in place for over fifty years, but the configuration of traffic that skirts downtown and attempts to move traffic like a separated highway does not give much opportunity for drivers to even see what downtown Norwich has to offer and provides little visibility for businesses. The one-way traffic flow configuration also makes it difficult for customers to find their way around the city to reach businesses that they may want to visit. High-volume and high-speed traffic also make it more difficult for people walking: once someone parks their car, it is an uncomfortable environment to attempt to navigate the downtown area on foot. The perception of downtown as dominated by car traffic is perceived to create an unappealing visual and environment for potential visitors, and thus businesses that otherwise would have thrived in a different roadway network in Downtown may not have in the existing network.

2.3 Safety Data and Crash Analysis

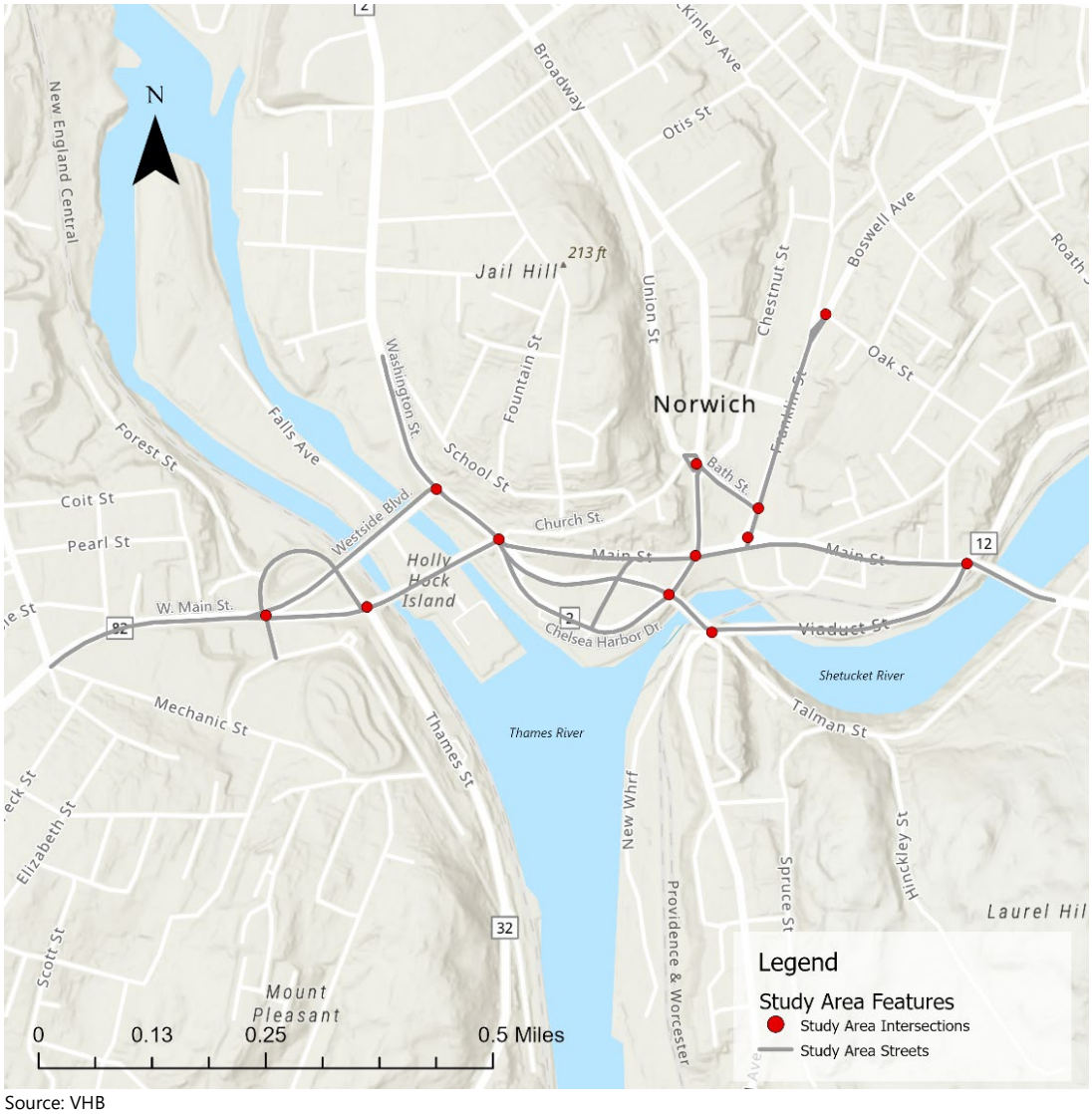
To assess traffic safety conditions within the study area, crash data was collected from the University of Connecticut, Connecticut Crash Data Repository (CTCDR) for the 2018-2022 period (January 1, 2018, through December 31, 2022), the most recent period of five full years of data. It should be noted that only collisions that result in death, injury, or property damage more than $1,000 are required to be

reported. The collision data were reviewed for the downtown Norwich study area, with particular focus given to the 12 study area intersections.

For this period, there were 938 crashes total. Seventeen percent of these crashes resulted in injuries. One fatality occurred during this period. The most common crash types were front to rear (rear-end) crashes at 43%, sideswipe same direction at 20%, and angle crashes at 18%. December accounted for the highest proportion of crashes by month (10%), and Friday accounts for the highest proportion of crashes by day of the week (17%). There were also 20 pedestrian crashes and 4 bicycle crashes.

Crash emphasis areas were queried from the CTCDR database as identified in the 2022-2026 Connecticut Strategic Highway Safety Plan. Several emphasis areas may be involved in a single crash, for example a roadway departure crash involving an impaired driver. The study area is highlighted in Figure 6 below. The extent of the analysis is shown with roads of interest in grey, and key intersections shown as red dots. Crashes that occurred within 300ft of the extent of the study area are included in this analysis.

Figure 6 Study Area Intersections for Crash Analysis



Source: VHB

2.3.1 Overall Norwich Crash Summary

Table 7 below shows an overall breakdown of all the crashes analyzed in the study area. It includes 5 years' worth of crash data, from 2018 to 2022, separated by year, and describes the manner of the collision, the time of day it occurred, the lighting conditions of the crash, the weather conditions, and the crash severity.

Table 7 Overall Norwich Crash Summary

	Front to Rear	Sideswipe, Same Direction	Angle	Sideswipe, Opposite Direction	Other	Front to Front	Rear to Side	Rear to Rear	Unknown	Not Applicable	AM Peak (7am – 10am)	PM Peak (4pm – 7pm)	Off-Peak	Daylight	Dawn/ Dusk	Darkness	Cloudy/Clear	Fog/Mist	Rain	Snow	Other	Dry	Wet	Snowy	Icy	Other	K: Fatal	A: Suspected Serious Injury	B: Suspected Minor Injury	C: Possible Injury	O: No Apparent Injury	
2018	81	39	38	7	5	2	2	1	4	16	30	54	111	142	8	45	173		18	3	1	150	39	4		2		1	15	14	165	**195**
2019	91	42	27	5	5	1			1	25	41	54	102	157	1	39	168	2	27			159	36		2			1	11	18	167	**197**
2020	67	35	33	1	2	3	2		1	17	20	45	96	108	5	48	137		18	6		129	23	9			1		11	18	131	**161**
2021	87	27	36	6	5	3	1		4	19	27	53	108	130	4	54	159		23	6		144	33	8	2	1		3	17	13	155	**188**
2022	98	40	32	4	4	5	1		4	29	35	59	103	150	3	44	176		21			164	31		1	1		5	18	14	160	**197**
Total	**404**	**183**	**166**	**23**	**21**	**14**	**6**	**1**	**14**	**106**	**153**	**265**	**520**	**687**	**21**	**230**	**813**	**2**	**107**	**15**	**1**	**746**	**162**	**21**	**5**	**4**	**1**	**10**	**72**	**77**	**778**	**938**

As shown in this table, the years with the greatest number of crashes were 2019 and 2022 (tied for 197 crashes) and 2018 (195 crashes). The lowest number of crashes occurred in 2020, the year when the COVID-19 pandemic began. 2020 was also the year of the only fatality that occurred during this period. One quarter of crashes occurred in darkness or low-light conditions. Thirteen percent of crashes occurred during precipitation or other weather. Sixteen percent of crashes occurred during the AM peak period while 28% occurred during the PM peak period.

2.3.2 Collision Summary

Table 8 below shows a summary of the manner of collision for the crashes from 2018-2022 that were studied for this project. As noted earlier, the most common crash types were front to rear (rear-end) crashes at 43%, sideswipe same direction at 20%, and angle crashes at 18%, for a total of 81% of crashes being these types. All other collisions (which include front to front [head-on], rear-to-rear, rear-to-side, and not applicable) accounted for about 18% of crashes collectively (percentages do not add up to 100% due to rounding). Seventeen percent of all crashes resulted in injuries, and 9% of all crashes were the most severe injuries types of K, A, or B. Collisions with animals and those involving pedestrians or bicyclists each accounted for about 3% of the total collisions reported in the study area.

Table 8 Collison Summary

Crash Severity	Number of Crashes	*Percent of Total*
Fatal Injury(K)	1	*0%*
Suspected Serious Injury (A)	10	*1%*
Suspected Minor Injury (B)	72	*8%*
Possible Injury (C)	77	*8%*
No Apparent Injury (O)	778	*83%*
Total	**938**	***100%***
KAB Crashes	***83***	***9%***

				K	A	B	C	O	Total
Manner of Collision	Front to Rear	404	*43%*			25	40	339	***404***
	Sideswipe, Same Direction	183	*20%*			4	2	177	***183***
	Angle	166	*18%*		3	21	19	123	***166***
	Sideswipe, Opposite Direction	23	*2%*			2	3	18	***23***
	Other	21	*2%*			3	2	16	***21***
	Front to Front	14	*1%*	*1*		1	2	10	***14***
	Rear to Side	6	*1%*					6	***6***
	Rear to Rear	1	*0%*					1	***1***
	Unknown	14	*1%*					14	***14***
	Not Applicable*	106	*11%*		7	16	9	74	***106***

Note: *The First Harmful Event in 67 of the 106 crashes coded as Not Applicable meet the criteria for a roadway departure crash. Roadway Departure is not listed as a crash type in Manner of Collision. 6 of the 106 involved striking an animal, 24 involved a pedestrian or bicyclist, and 13 had an unknown or other non-collision First Harmful Event.

Source: UConn Connecticut Crash Data Repository

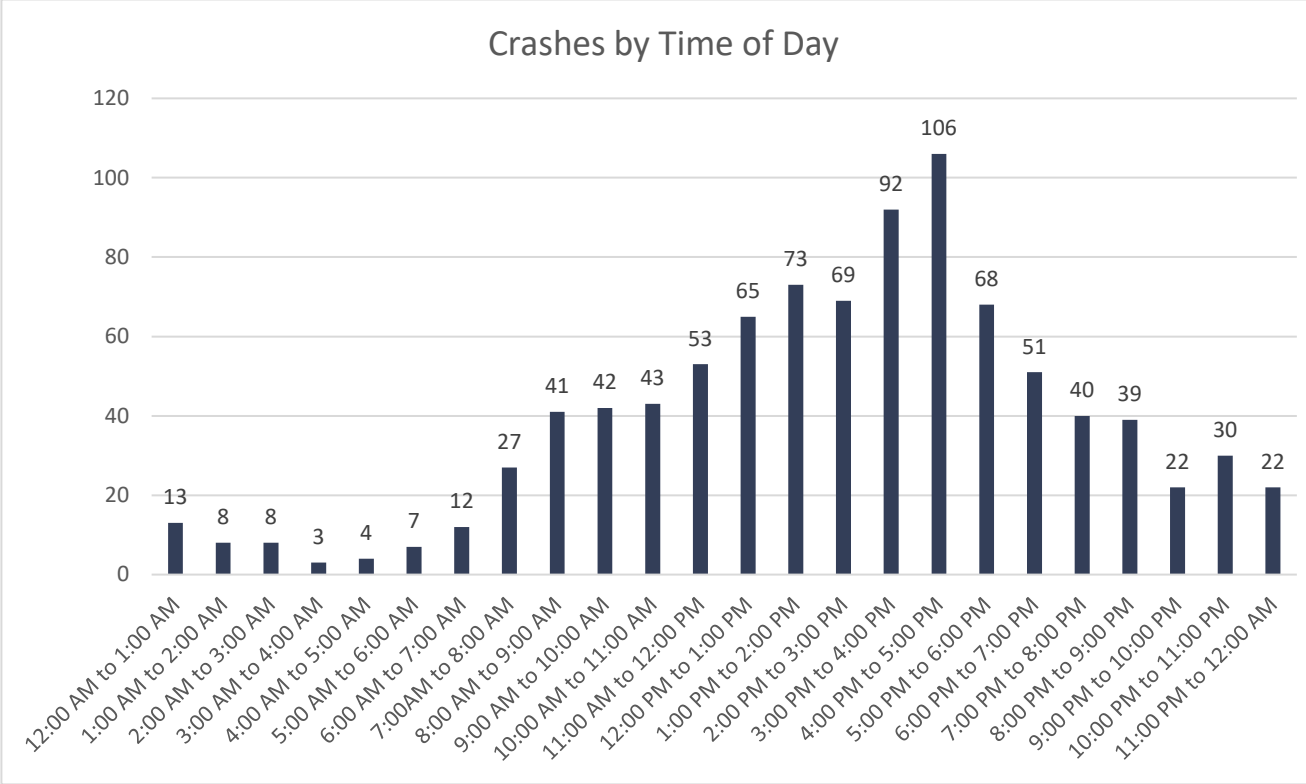
2.3.3 Crashes by Time of Day

During the 2018-2022 period, the hours of 4:00PM to 5:00PM, 8:00PM to 9:00PM, and 2:00PM to 3:00PM account for the highest proportion of KAB level injuries at 12%, 11%, and 10% respectively. The hours of 2:00PM to 5:00PM account for the highest proportion of KAB injuries for a three-hour consecutive period, at 29%. Table 9 shows all crashes and KAB crashes by hour of day for the five-year period. Figure 7 shows this same information in a bar chart format.

Table 9 Crashes by Time of Day

Crash Hour	Number of KAB Crashes	Percent of Total KAB Crashes	Number of Crashes	Percent of Total
12:00 AM to 1:00 AM	1	1%	13	*1%*
1:00 AM to 2:00 AM	3	4%	8	*1%*
2:00 AM to 3:00 AM	0	0%	8	*1%*
3:00 AM to 4:00 AM	1	1%	3	*0%*
4:00 AM to 5:00 AM	0	0%	4	*0%*
5:00 AM to 6:00 AM	2	2%	7	*1%*
6:00 AM to 7:00 AM	1	1%	12	*1%*
7:00AM to 8:00 AM	1	1%	27	*3%*
8:00 AM to 9:00 AM	3	4%	41	*4%*
9:00 AM to 10:00 AM	2	2%	42	*4%*
10:00 AM to 11:00 AM	3	4%	43	*5%*
11:00 AM to 12:00 PM	6	7%	53	*6%*
12:00 PM to 1:00 PM	4	5%	65	*7%*
1:00 PM to 2:00 PM	4	5%	73	*8%*
2:00 PM to 3:00 PM	8	10%	69	*7%*
3:00 PM to 4:00 PM	6	7%	92	*10%*
4:00 PM to 5:00 PM	10	12%	106	*11%*
5:00 PM to 6:00 PM	3	4%	68	*7%*
6:00 PM to 7:00 PM	4	5%	51	*5%*
7:00 PM to 8:00 PM	2	2%	40	*4%*
8:00 PM to 9:00 PM	9	11%	39	*4%*
9:00 PM to 10:00 PM	4	5%	22	*2%*
10:00 PM to 11:00 PM	4	5%	30	*3%*
11:00 PM to 12:00 AM	2	2%	22	*2%*
Total	**83**	**100%**	**938**	***100%***

Figure 7 Crashes by Time of Day



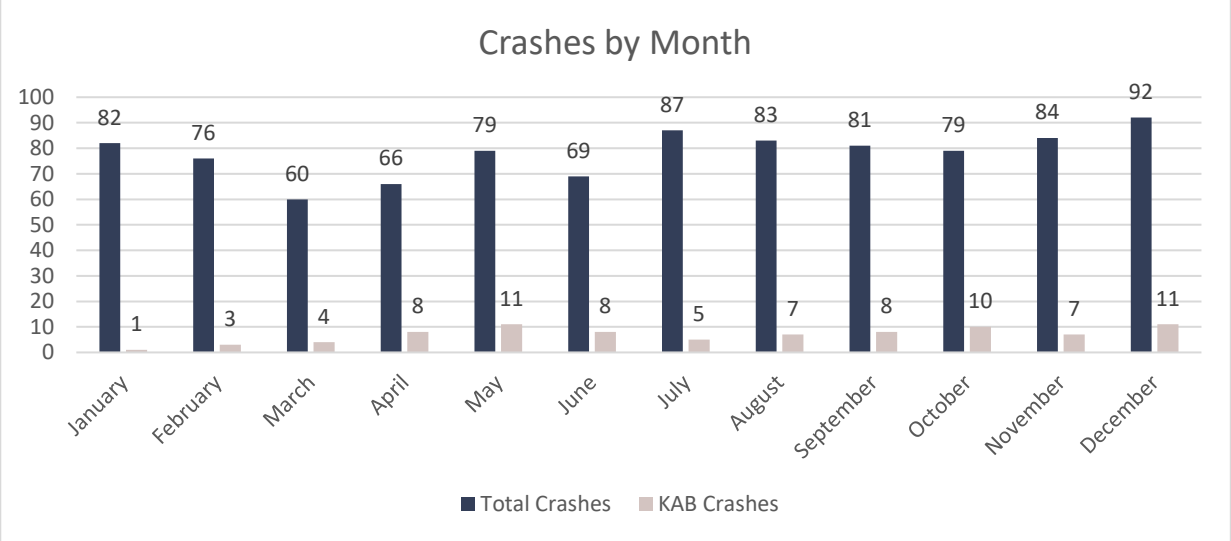
2.3.4 Crashes by Month

Table 10 and Figure 8 show crashes by month of the year. December accounts for the highest proportion of crashes by month (10%). The greatest number of KAB crashes occurred in December and May (13% each) and October (12%).

Table 10 Crashes by Month

Crash Month	Number of KAB Crashes	Percent of Total KAB Crashes	Number of Crashes	Percent of Total
January	1	1%	82	*9%*
February	3	4%	76	*8%*
March	4	5%	60	*6%*
April	8	10%	66	*7%*
May	11	13%	79	*8%*
June	8	10%	69	*7%*
July	5	6%	87	*9%*
August	7	8%	83	*9%*
September	8	10%	81	*9%*
October	10	12%	79	*8%*
November	7	8%	84	*9%*
December	11	13%	92	*10%*
Total	**83**	**100%**	**938**	***100%***

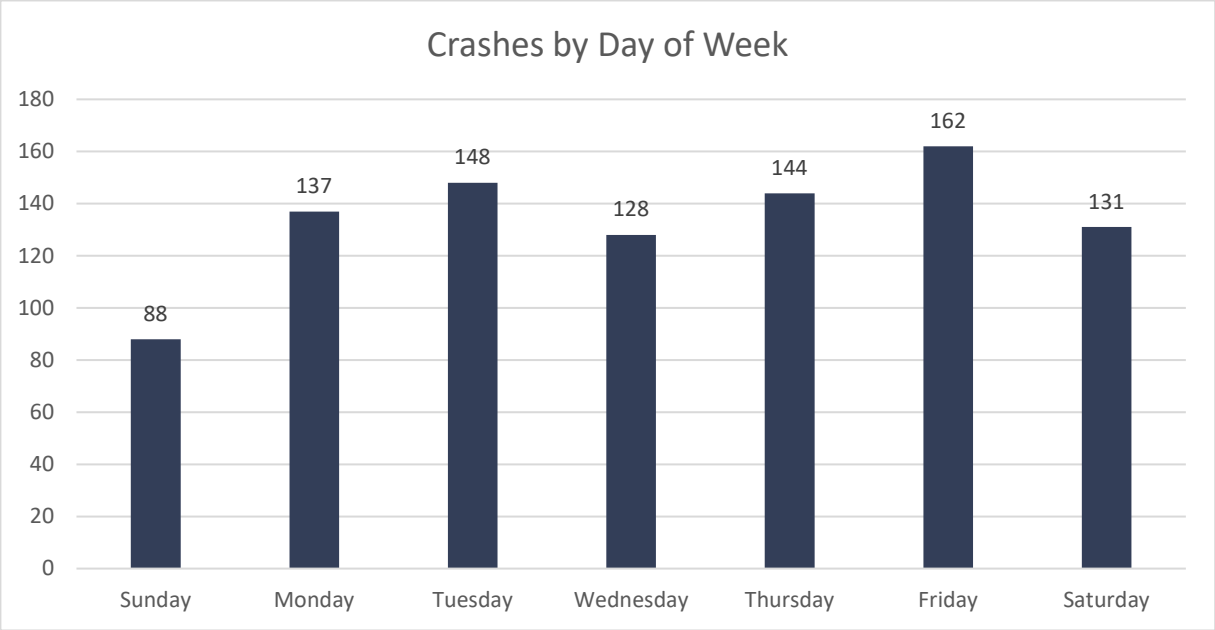
Figure 8 Crashes by Month



2.3.5 Crashes by Day of Week

Friday accounts for the highest proportion of crashes by day of week (17%) in the City of Norwich during the 2018-2022 period. Figure 9 shows this information for the whole week period.

Figure 9 Crashes by Day of Week



2.3.6 Emphasis Area Crashes

As noted earlier, crashes that match specific emphasis areas identified in the 2022-2026 Connecticut Strategic Highway Safety Plan were queried from the CTCDR database. Emphasis area crashes include roadway departure, intersection, impaired driver, aggressive driver, unrestrained occupants, motorcycle, distracted driving, and pedestrians. Table 11 shows the number of crashes in each emphasis area by crash severity. Additional emphasis areas noted include bicyclists, young drivers, and older drivers. Though not core emphasis areas in the Strategic Highway Safety Plan, bicyclists are included given their relevance to the project, and young drivers and older drivers are considered Additional Safety Areas in the plan.

In should be noted that motorcycle-involved crashes resulted in the second highest proportion of KAB level injuries. 50% of motorcycle crashes resulted in a KAB injury. The highest proportion of KAB level injuries were pedestrians at 70%.

Table 11 Emphasis Area Crashes

Emphasis Area	Fatal Injury (K)	Suspected Serious Injury (A)	Suspected Minor Injury (B)	Possible Injury (C)	No Apparent Injury (O)	Total
Roadway Departure	1	2	10	12	90	115
Intersection	1	6	43	40	318	408
Impaired Driving			3	4	25	32
Aggressive Driver			26	34	274	334
Unrestrained Occupants		1	1	3	34	39
Motorcycle		1	10	3	8	22
Distracted Driving			6	10	35	51
Pedestrians		5	9	4	2	20
Bicyclists				3	1	4
Young Drivers (15-20)			18	27	130	175
Older Drivers (65+)	1	2	20	21	148	192

Table 12 Intersection Crashes

Intersection	Fatal Injury (K)	Suspected Serious Injury (A)	Suspected Minor Injury (B)	Possible Injury (C)	No Apparent Injury (O)	Total
W. Main St. and N. Thames St. (westbound)	1		2	1	10	*14*
W. Main St. and N. Thames St. (eastbound)		1	6	3	9	*19*
Washington St. and Westside Blvd.					24	*24*
Washington St. and Main St.			6	8	82	*96*
Chelsea Harbor Dr./Courthouse Sq. and Water St.		1	7	8	15	*31*
Water St. and Viaduct St.			2	2	15	*19*
Viaduct St. and Main St.		2	3	3	30	*38*
Main St. and Franklin St.		1	1		9	*11*
Franklin St. and Bath St.					8	*8*
Main St. and Broadway/Courthouse Sq.			3	1	7	*11*
Broadway and Union St./Chestnut St.			1	1	4	*6*
Franklin St. and Boswell St.		1		1	12	*14*
TOTAL	**1**	**6**	**31**	**28**	**225**	**291***

2.3.7 Intersection Crashes

Intersection crashes are identified as directed in the 2022-2026 Connecticut Strategic Highway Safety Plan. Two hundred ninety-one of the 408 total intersection crashes occurred at the twelve key intersections listed in Table 12. For all crashes, the location with the highest number of crashes was Washington Street and W. Main Street/Water Street/Church Street/Chelsea Harbor Drive (Washington Square) with 96 crashes total. For crashes of high severity (fatality [K], serious injury [A], and minor injury [B]), several intersections had high densities of these crashes, including Washington Square, Water Street/Chelsea Harbor Drive, W. Main Street/Thames Street, and Main Street/Viaduct Road. Figure 10, the "KABCO Heatmap", shows the density of all crashes in the study area from 2018-2022, including injury and non-injury crashes ("O" crashes are those with no apparent injury, also called "property damage only" crashes). Therefore, this map represents the density of all types of crashes in the study area. Figure 11, titled the "KAB Heatmap" shows the density of only the highest severity crashes – KAB, as noted above – in the study area. This map helps to pinpoint the locations and intersections where people are being injured in crashes, which are a higher priority to address due to the risk to human health.

Figure 10 KABCO Heatmap

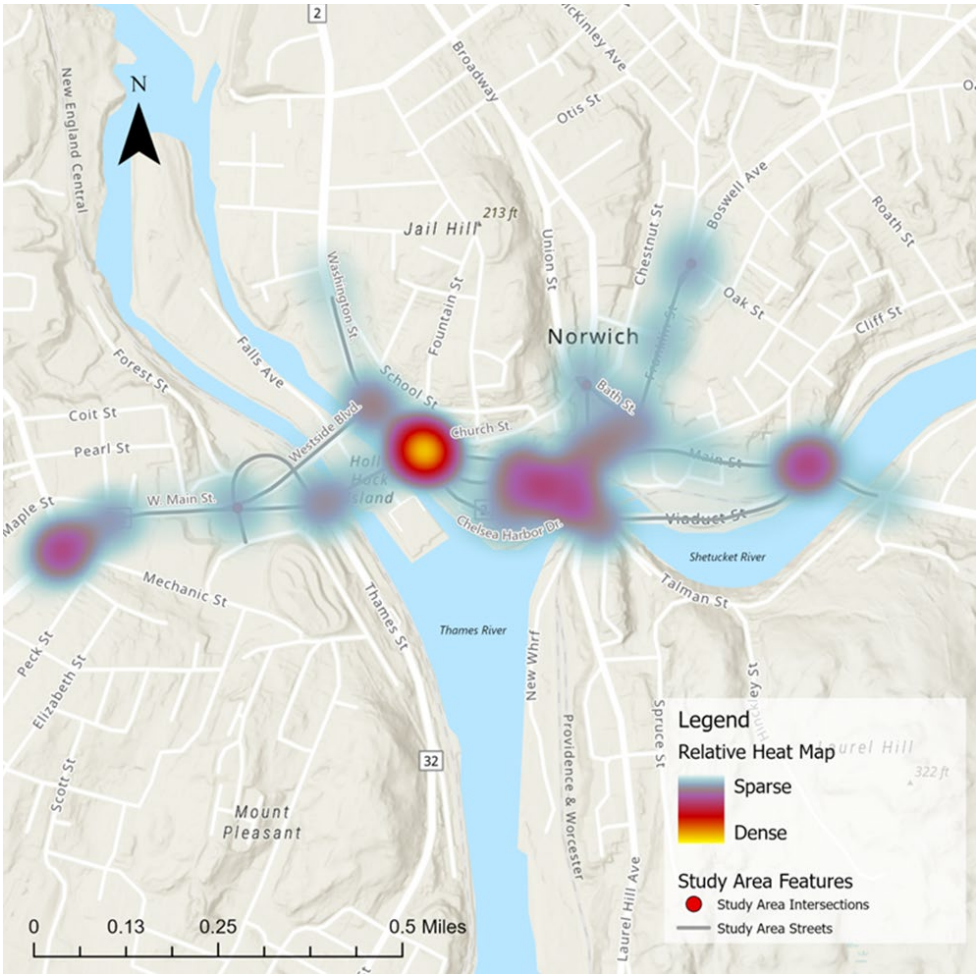
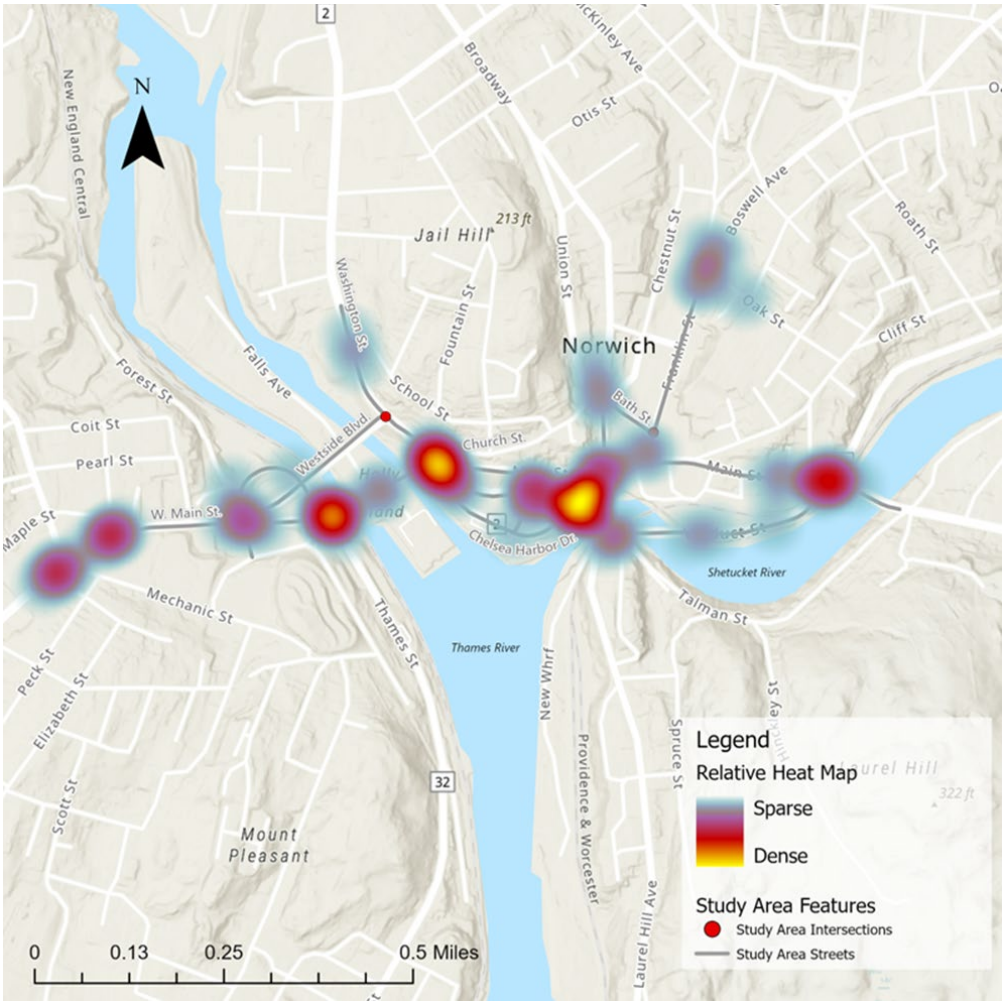


Figure 11 KAB Heatmap



Source: VHB

2.3.8 Pedestrian Involved Crashes

There were 20 pedestrian crashes during the 2018-2022 period. However, pedestrians had the highest KAB injury proportion of all emphasis areas. Seventy percent of pedestrian involved in crashes resulted in a KAB level injury, while the overall proportion of emphasis area crashes resulting in KAB injuries is 9%. In New London County, approximately 2.4% of people commute to work by walking according to the 2021 American Community Survey. Pedestrians also represent only 2% of total crashes in the area. However, pedestrians account for 17% of all KAB level injuries. The number of KAB injuries for pedestrians is highly disproportionate given the small number of pedestrian crashes. Figure 13 shows the locations of pedestrian crashes in the study area. Pedestrian crashes were concentrated in the center and east parts of the study area.

Figure 12 below shows pedestrian involved crashes by light condition. Seventy percent of the pedestrian crashes occurred in low-light or dark conditions.

Figure 12 Pedestrian Crashes by Light Condition

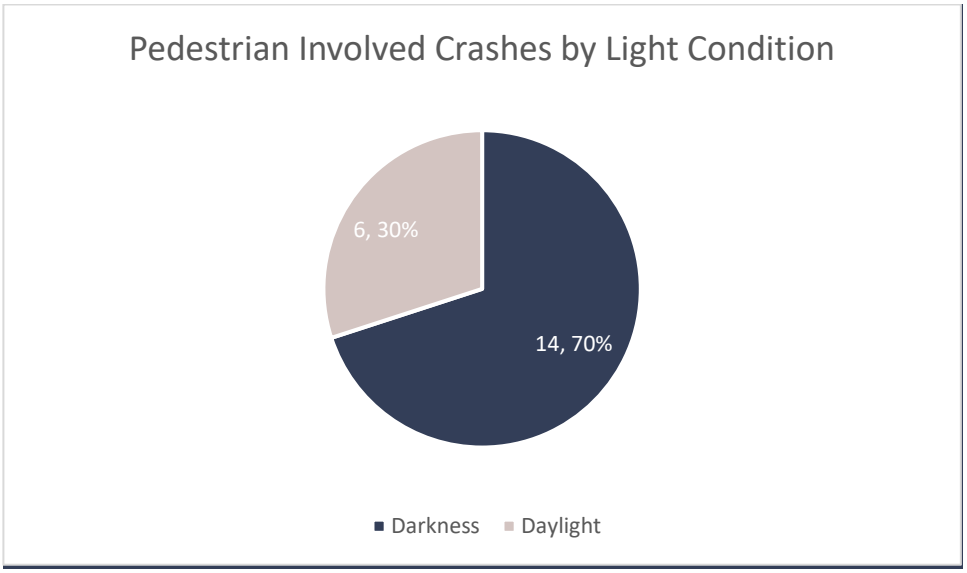
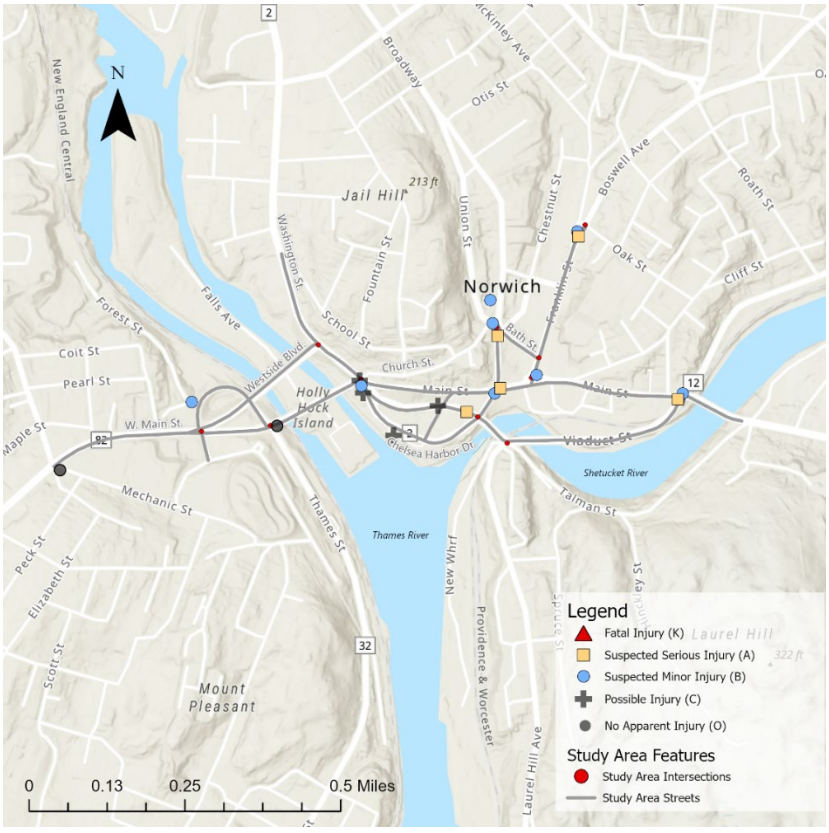


Figure 13 Pedestrian Crash Location Map



Source: VHB

2.3.8.1 Pedestrian Involved Crashes at Key Intersections

Table 13 displays the locations of pedestrian-involved crashes relative to the twelve key intersections. Seventy-five percent of the pedestrian crashes occurred at one of the 12 key intersections. The intersections with the highest number of pedestrian crashes, with three each, were Washington Street at Main Street (Washington Square) and Viaduct Road at Main Street. Four intersections did not have any pedestrian crashes.

Table 13 Pedestrian Involved Crashes at Key Intersections

Key Intersections	Fatal Injury (K)	Suspected Serious Injury (A)	Suspected Minor Injury (B)	Possible Injury (C)	No Apparent Injury (O)	Total
W. Main St. and N. Thames St. (westbound)						0
W. Main St. and N. Thames St. (eastbound)					1	1
Washington St. and Westside Blvd.						0
Washington St. and Main St.			1	2		3
Chelsea Harbor Dr./Courthouse Sq. and Water St.		1				1
Water St. and Viaduct Rd.						0
Viaduct Rd. and Main St.		1	2			3
Main St. and Franklin St.			1			1
Franklin St. and Bath St.						0
Main St. and Broadway/Courthouse Sq.		1	1			2
Broadway and Union St./Chestnut St.		1	1			2
Franklin St. and Boswell St.		1	1			2
Crashes not at a key intersection			2	2	1	5
TOTAL	**0**	**5**	**9**	**4**	**2**	**20**

2.3.9 Bicycle Crash Summary

During the 2018-2022 period, four bicycle crashes were reported in the study area. Three of the crashes resulted in minor injuries, while the fourth had no injury. The crashes occurred at the following locations:

- 1 Minor Injury at W. Main St. and N. Thames St.
- 1 Minor Injury at Washington St. and Main St.
- 1 Minor Injury at W. Main St. and Ann St.

› 1 No Injury crash at W. Main St. and American Way

All four bicycle crashes occurred in daylight. See Figure 14 for a map of the locations of the bicycle crashes in the study area.

Figure 14 Bicycle Crashes in Study Area

Source: VHB

2.4 Bicyclists, Pedestrians, and Vulnerable Users

2.4.1 Pedestrians

Creating a safe and walkable downtown, where people can make fewer trips by car to visit businesses in the area, is very important to the City of Norwich. The VHB Team visited downtown Norwich on several occasions to review pedestrian infrastructure and make observations on safety, connectivity, ADA accessibility, and comfort.

2.4.1.1 Curb Ramps and Crosswalks

Visual inspections of curb ramps were conducted. Widths, slopes, and other measurements were not included as part of the project scope. Curb ramps were noted as being "observed compliant" or "observed non-compliant" based on the visual inspection, with curb ramps that did not have detectable warning strips or landing pads considered "non-compliant." Other observable issues such as crumbling concrete or severe drainage issues were also factors in determining whether the curb ramps could be considered compliant. Figure 15 shows a map of the study area with observed compliant and observed non-compliant curb ramps.

Some intersections did not have compliant curb ramps at all, some appeared fully compliant, and others had a mix of compliant and non-compliant ramps. It was unclear why some curb ramps were upgraded at some intersections while others were left non-compliant. All crosswalks in the study area appeared to include some kind of curb ramp to provide a degree of accessibility. Figure 16 shows the locations of crosswalks in the study area.

Crosswalk locations were identified as part of the project data collection. Although most crosswalks were located at signalized intersections, several crosswalks were at uncontrolled locations (with no signal or stop sign/traffic control present). These uncontrolled locations include:

- Across Route 82/W. Main Street at Falls Ave (by the Transportation Center)
- Across Main Street at 55 Main Street (Social Security Administration building)
- Across Water Street/Route 2 at 82 Water Street
- Across Water Street/Route 2 at its intersection with Market Street
- Main Street at Market Street
- Across Union Street at City Hall
- Across Union Street/Church Street at City Hall
- Across Main Street at 340 Main Street (U.S. Postal Service Building)

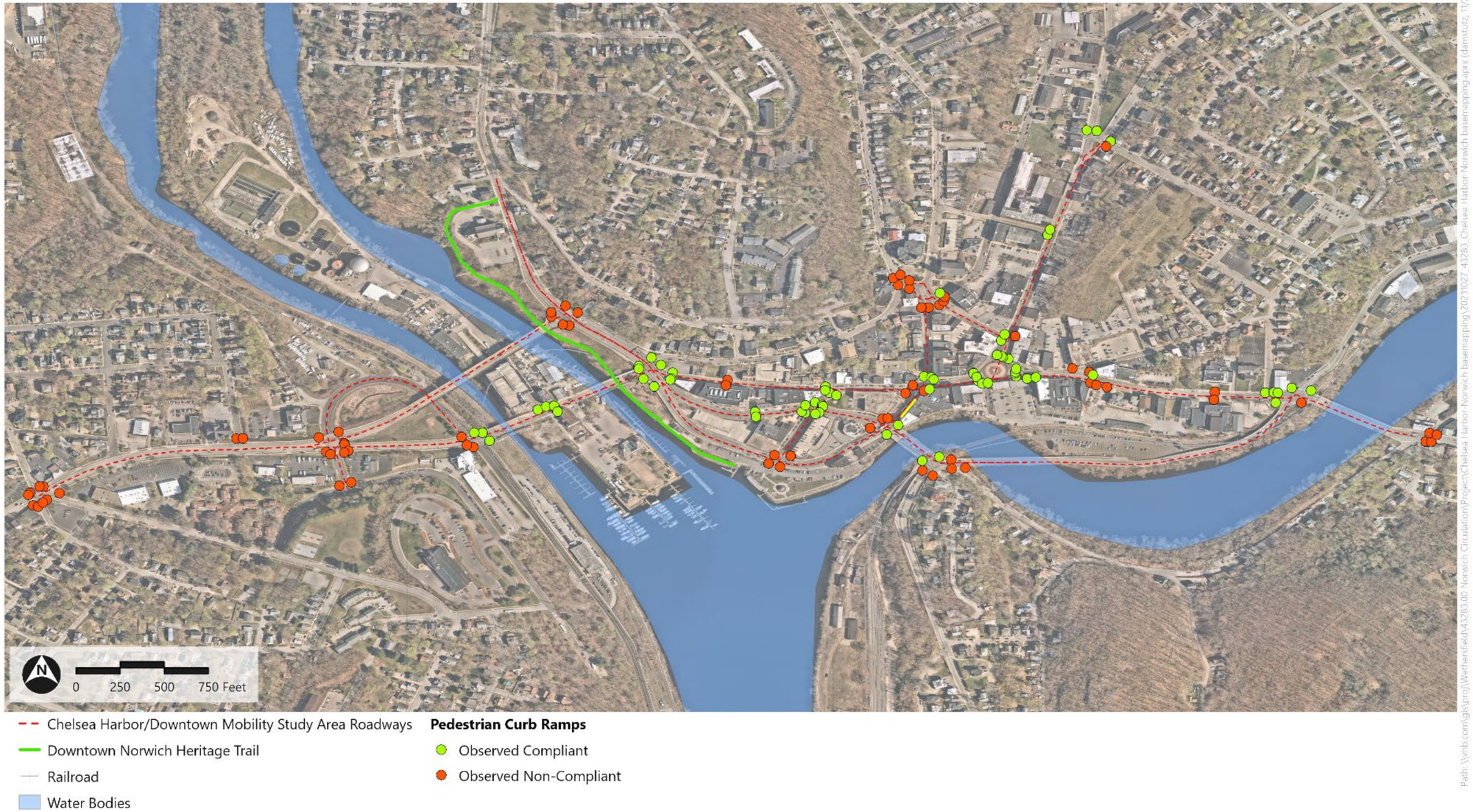
On central downtown streets where traffic speeds are lower, there are more frequent crossing opportunities for pedestrians in the form of crosswalks, either controlled or uncontrolled. Outside of the immediate downtown area, on many of the state roads with higher speeds and higher traffic, crossings are less dense and pedestrians need to travel farther to find an appropriate crossing.

The lack of driver yielding for pedestrians at uncontrolled crosswalks was observed in a few instances. Of special note are the crosswalks across Route 82/W. Main Street at the Transportation Center and the crosswalks across Water Street/Route 2 at Market Street. On one of the field review days, two pedestrians were observed waiting to cross Water Street at Market Street; they waited at the edge of the curb ramp for a driver to stop for them. At least a dozen cars passed by without stopping or slowing before the traffic had cleared and the pedestrians could cross. At the Transportation Center, drivers were observed going eastbound down the hill from N. Thames Street at high speeds (from a pedestrian perspective) and not slowing down for the crosswalk or flashing pedestrian beacon. Finding a gap in traffic to cross the street felt uncomfortable and unsafe.

Aggressive driving was also noted, with drivers pulling past stop bars and into crosswalks in ways that would block pedestrians from crossing, or force pedestrians to go around a car, potentially

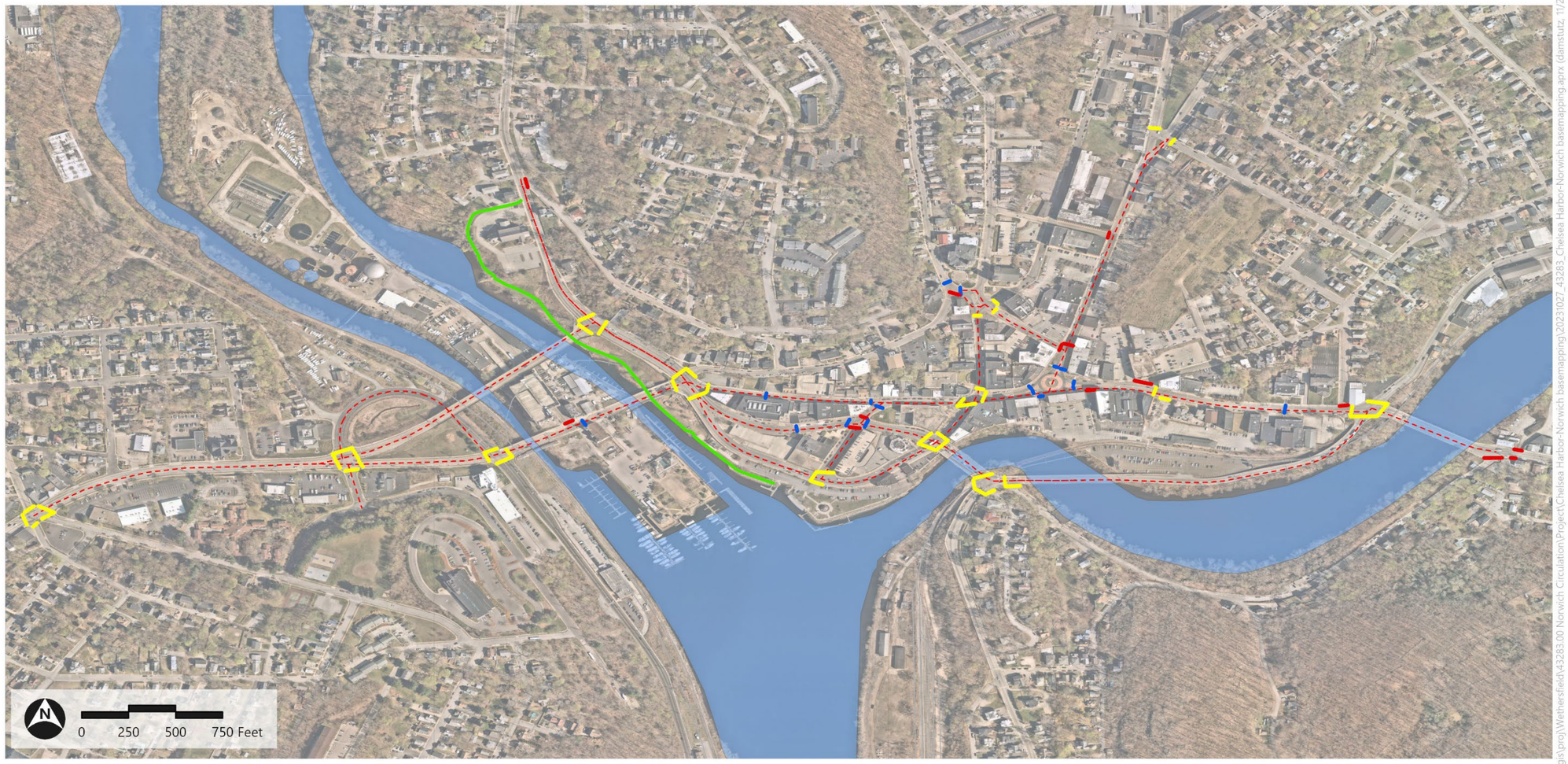
into other traffic lanes or in driver blind spots. This was especially evident at the Chelsea Harbor Drive/Water Street/Courthouse Square intersection, where Route 2 turns right from Chelsea Harbor Drive onto Water Street. This right turn is usually green, allowing drivers to turn freely, and permits right turns on red, setting up an expectation that drivers can roll through the intersection and make this turn with little slowdown. In addition, queuing from the left turn from Water Street to Viaduct Road spills back into the intersection, creating situations where drivers block the crosswalks while waiting for the next intersection to clear.

Figure 15 Curb Ramps in Study Area



Source: VHB

Figure 16 Crosswalks in Study Area



Source: VHB

2.4.1.2 Sidewalks

The sidewalk network in the Downtown Norwich area is nearly complete, with many dense, walkable areas befitting an older urban New England city center. Sidewalks along Main Street are typically wider and more comfortable for walking than other areas of the downtown, with street trees, benches, and other streetscape amenities. Additionally, the narrower streets and on-street parking makes for a physically and visually constrained corridor where drivers must go slower. Other streets, particularly on state routes, have less welcoming pedestrian accommodations. These include narrower sidewalks, no street trees for shade, faster-moving traffic with limited buffers, and long distances between crossings (as noted in the last section). Sidewalks are also missing from some roadways or there are no sidewalks in some sections.

Street sections in the study area without sidewalks include:

- N. Thames Street between Forest Street and W. Main Street/Route 82
- Viaduct Road/Route 12 between the Viaduct Road parking lot and Main Street/Route 12

Street sections with sidewalks on only one side include:

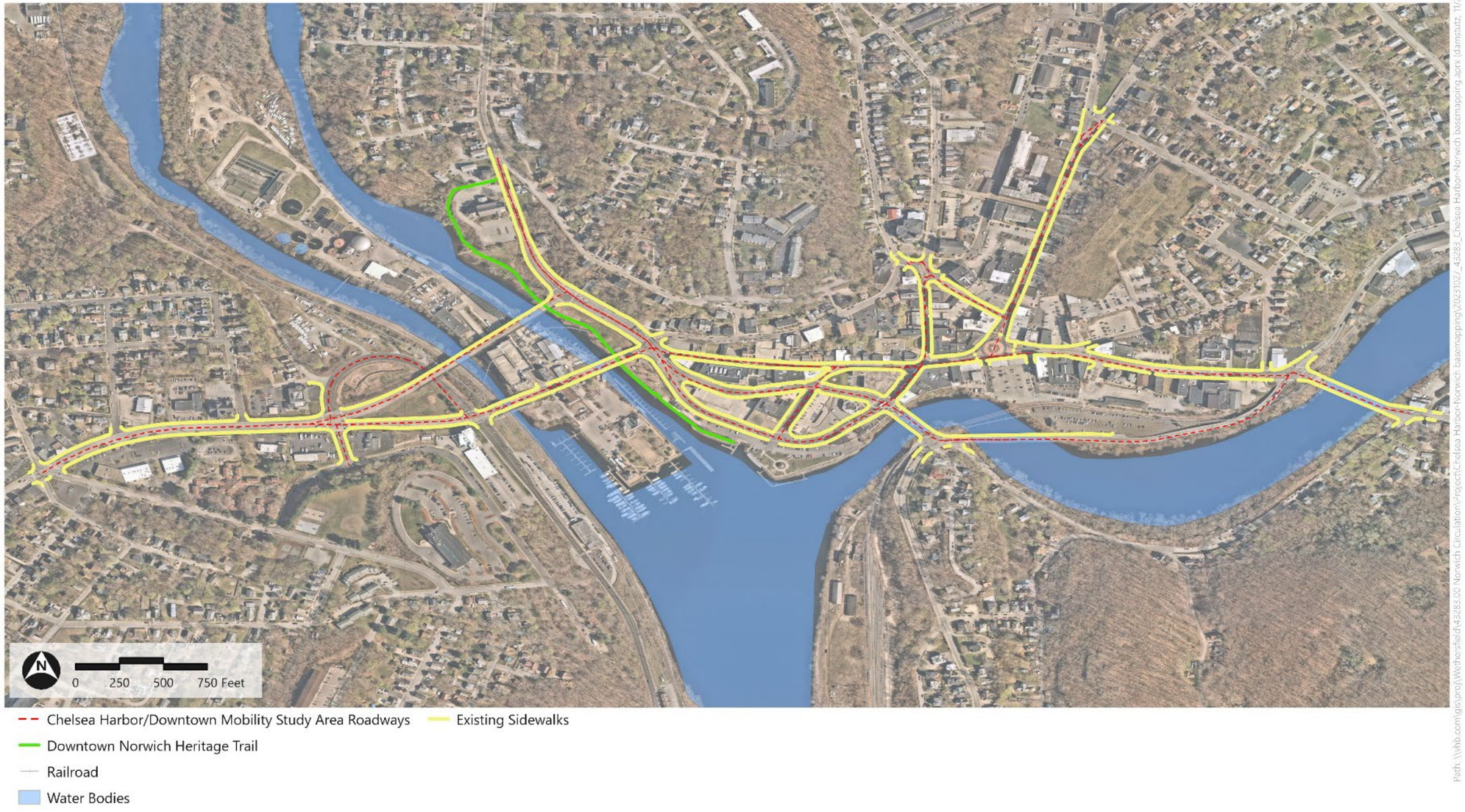
- West Side Boulevard/Route 82 between Washington Street/Route 2 and W. Main Street/N. High Street/N. Thames Street/Route 82; sidewalk is on north side with no sidewalk on south side
- N. Thames Street between W. Main Street/N. High Street/West Side Boulevard/Route 82 and Forest Street; sidewalk is on west side with no sidewalk on east side
- Viaduct Road between Talman Street and the Viaduct Road parking lot; sidewalk is on north side with no sidewalk on south side

In addition, field review observations found that the sidewalk on the east side of W. Main Street/Route 82 between Falls Ave and Washington Square was blocked due to an ongoing water/sewer project that requires the use of the sidewalk during construction. Despite the presence of the crosswalk at Falls Ave for pedestrians to cross to the west side of the street to continue into downtown, and signage directing them to cross, several pedestrians were observed (during multiple field visits) to be walking in the traffic lane on the east side of the street, ignoring the signage saying that the sidewalk was closed. This may be partly due to the difficulty of crossing the street at Falls Ave, as noted in the previous section, and general pedestrian desire lines that are not tolerant of out-of-direction travel.

See Figure 17 for a map of existing sidewalks in the study area.

In addition as noted in the traffic observations, there are a couple of exceedingly long crosswalks (over 75 feet) at the Washington Square intersection. These crosswalks require nearly 30 seconds of crossing time while exposing the pedestrians to 5-6 lanes of stopped traffic. This intersection can be a significant challenge to pedestrians crossing, especially those walking slower than 3.5 feet per second to cross. This is the typical walking speed used to calculate the time required for pedestrians to cross. Slower walkers will need more time and be exposed to the green signal of vehicles.

Figure 17 Existing Sidewalks on Study Area Roadways



Source: VHB

2.4.2 Bicycling

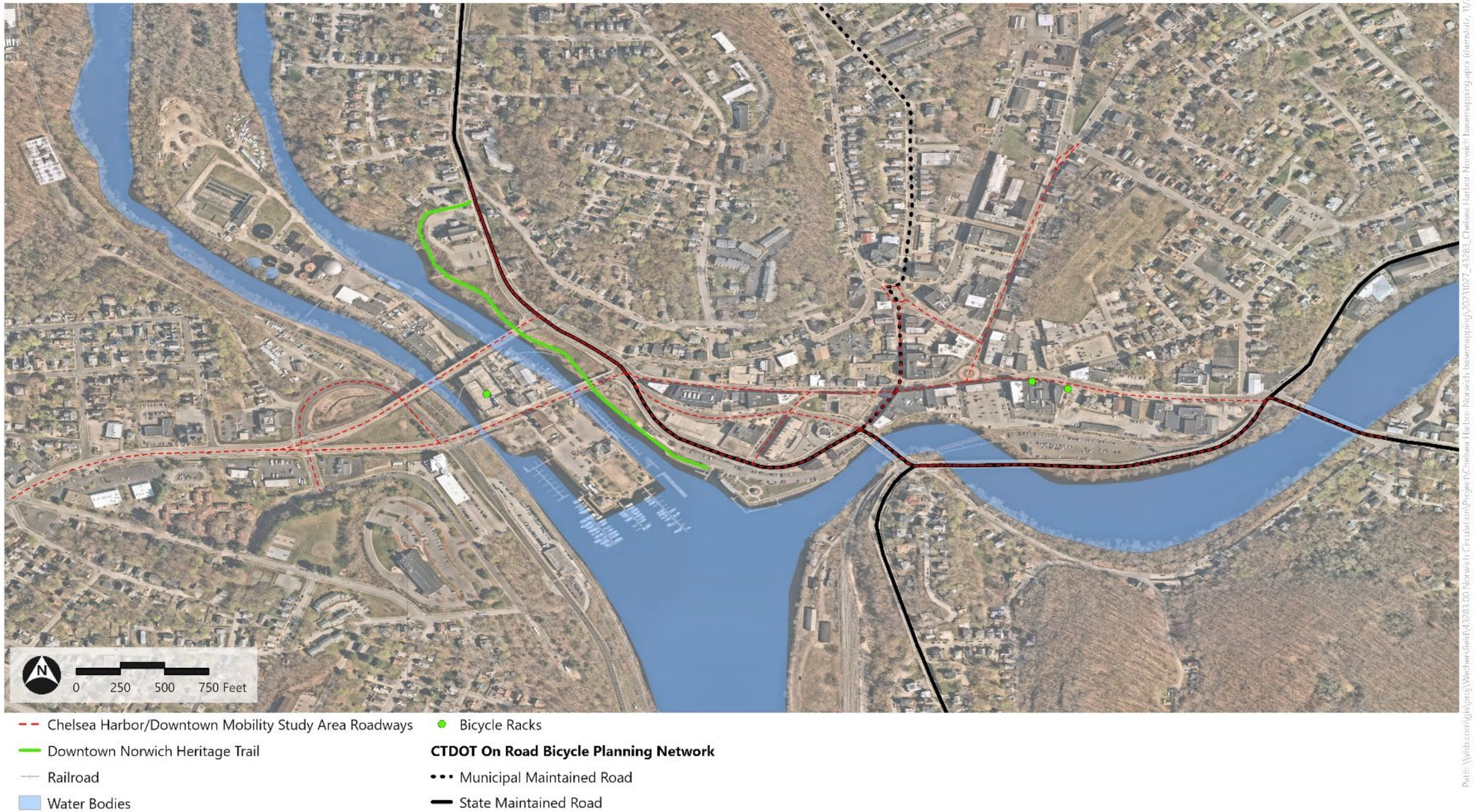
Bicycling is an important part of the transportation system, and it is the goal of the City of Norwich to increase cycling as a healthy, low-carbon, economical and space-efficient way to travel around the city. At the present time, there are few bicycle accommodations in the downtown and surrounding study area. There are no bicycle lanes or designated shared-use roads for bicyclists, although some roads have wide street shoulders and some of the central streets downtown have lower-speed traffic. The Heritage Walk Trail is the only off-road facility in the area, but it has limited connectivity and is oriented to pedestrians. It is unclear if bikes are allowed on the trail. Bike racks were observed near the Otis Library and at the Transportation Center. During field visits, some people bicycling were observed, including on Main Street and around Howard T. Brown Park.

The 2019 SCCOG Regional Bicycle and Pedestrian Plan includes several bicycling-related recommendations for downtown Norwich and on the fringes of downtown:

- Provide bike lanes, sharrows, and "Bikes May Use Full Lane" signs downtown.
- Bicycle accommodations are needed for Boswell Avenue and Talman Street.
- Route 12 from Water Street to the Preston Border: widen roadway for bike-safe shoulders.
- Add short-term and long-term bike parking.
- Add a signed bike route along Norwich Ave from the Town Green in Colchester to downtown Norwich.

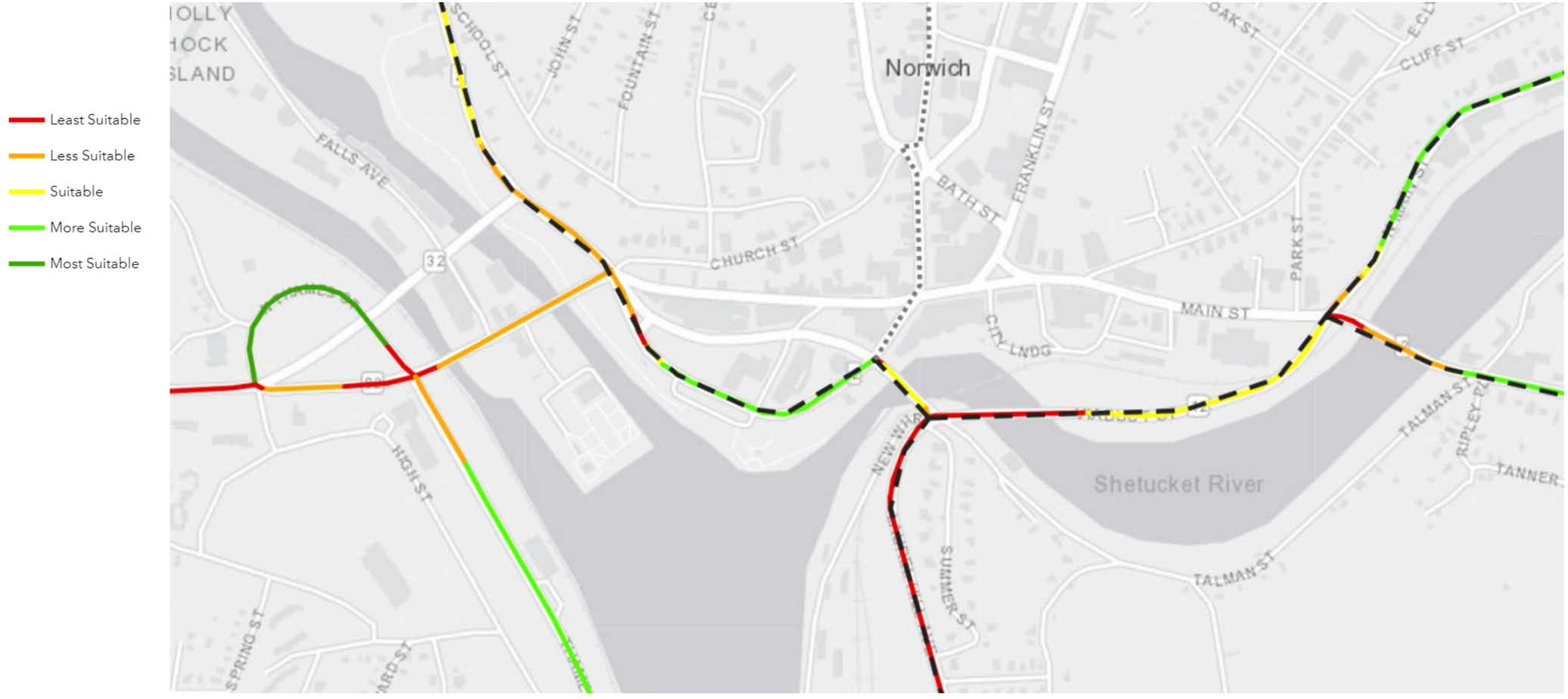
The CTDOT Active Transportation Plan, as discussed in section 2.9, includes a map of state routes that are part of CTDOT's On Road Bicycle Planning Network to indicate priority and desire for improved bicycling conditions on the routes that are part of the Network. As shown on Figure 18, Route 2 and Route 12 are part of the CTDOT On Road Bicycle Planning Network, indicating that improvements to these roadways will receive higher priority for bicycle accommodations. Courthouse Square and Broadway, as city-maintained streets, are also suggested as primary improvement areas for bicycling. The CTDOT Active Transportation Plan included a review of suitability of roads for bicycling, as well as priority implementation tiers for the bicycle planning network on state routes. The roads in the study area have lower suitability for bicycling, including Washington Street, Route 82, and Viaduct Road. These roads have planned Bicycle Facility Implementation Tiers which are in the higher ranges (Tier II-1 to Tier II-5 and Tier II-6 to Tier II-8). See Figure 19 and Figure 20 which are taken from the CTDOT Active Transportation Plan and show the bicycle suitability ratings and the implementation tiers, respectively.

Figure 18 Bicycling along Study Area Roadways



Source: VHB

Figure 19 CTDOT Active Transportation Plan Bicycle Suitability Map



Source: CTDOT Active Transportation Plan

Figure 20 CTDOT Active Transportation Plan Bicycle Facility Implementation Tiers

Source: CTDOT Active Transportation Plan

2.5 Public Transportation

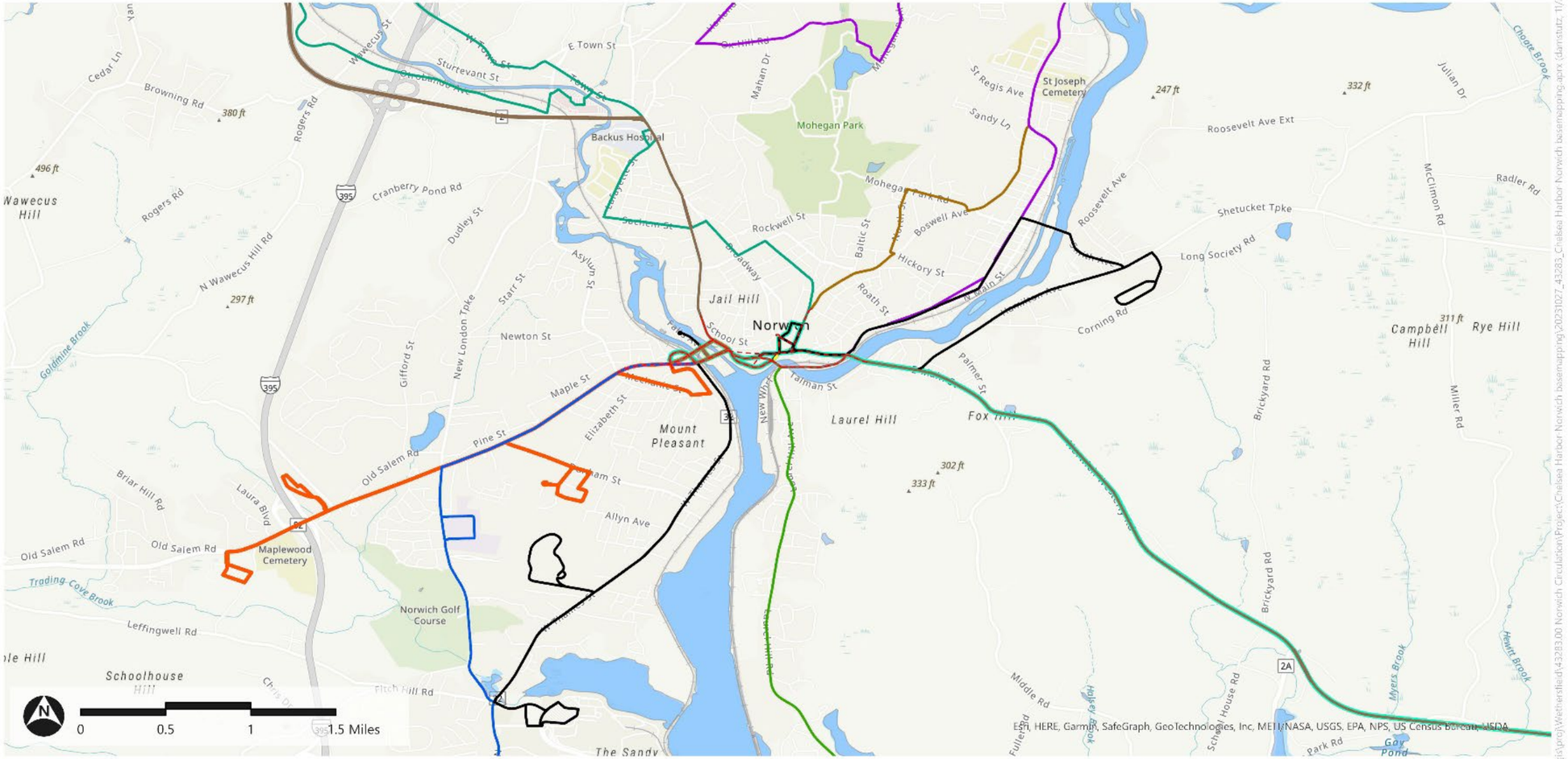
2.5.1 Bus Routes

Public transportation service to the study area includes the Southeast Area Transit District (SEAT) and the Windham Regional Transit District (WRTD) bus routes. There are eight SEAT transit routes that run through downtown Norwich and one WRTD route. The SEAT routes are:

- Route 1 – Norwich/New London via Route 32
- Route 2 – Norwich/New London via Route 12 & Groton
- Route 4 – Norwich to Occum/Taftville
- Route 5 – Norwich to Norwich Business Park via Backus Hospital
- Route 6 – Norwich to Norwich Wal-Mart via Marcus Plaza
- Route 7 – Norwich to Hamilton Ave, Mohegan Sun, and Uncas-On-Thames
- Route 9 – Norwich to Lisbon Landing via Route 12
- Route 982 – Norwich-Foxwoods

The WRTD route is the Willimantic-Norwich route. See Figure 21 for a regional view of the public transit system around the study area.

Figure 21 Regional Public Transportation Around Study Area



Chelsea Harbor/Downtown Norwich Mobility Study Area Roadways
Railroad
Water Bodies

WRTD - Willimantic - Norwich

SEAT Bus Routes

Route 1 - Norwich / New London Via Rt 32
Route 2 - Norwich / New London Via Rt 12 & Groton
Route 4 Norwich To Occum / Taftville
Route 5 - Norwich To Norwich Business Park Via Backus Hospital
Route 6 - Norwich To Norwich Wal-Mart Via Marcus Plaza
Route 7 - Norwich To Hamilton Ave, Mohegan Sun & Uncas-On-Thames
Route 9 - Norwich To Lisbon Landing Via Rt 12
Route 982 - Norwich-Foxwoods

Source: VHB, SEAT

2.5.2 Stops and Shelters

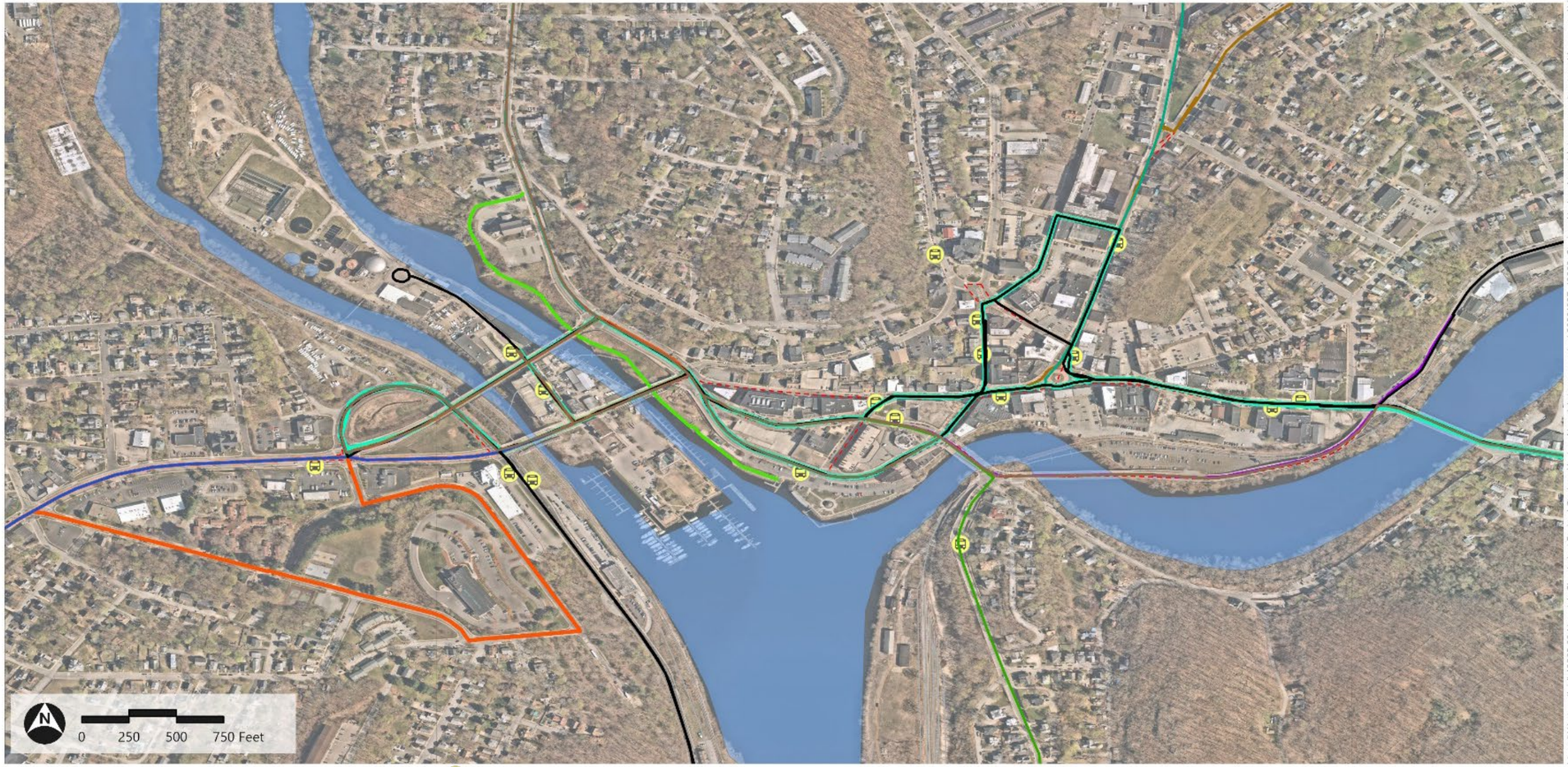
The Southeast Area Transit Service (SEAT) is a "flag-down service" meaning that the bus can be flagged down and boarded at any point, and riders may also stop the bus at any point to get off. However, Google Map and GIS data show bus stops, and there are bus stop signs in certain locations around the study area. On Franklin Street next to the Roundabout, a bus stop area has been designated with pavement markings and a bus stop sign. It is unclear if transit users are expected to use these locations as bus stops, since they are not universally placed around the study area (see Figure 22). The bus stop signs themselves are often affixed to posts that have other signs on them, instead of on independent posts. While this may reduce the number of signposts along the street, it has the effect of cluttering up the signpost with many different signs which may not be directly related to one another.

Three bus shelters were noted in the area:

- Chelsea Harbor Drive at Market Street/Howard T. Brown Park
- W. Main Street/Route 82 at N. Thames Street/N. High Street
- Union Street across from Norwich City Hall (just outside the study area)

None of the shelters had route information or bus service information to assist public transit riders. In addition, only the shelter on Chelsea Harbor Drive appeared to be in use by the Transit District. The shelter at W. Main Street/Route 82 had a printed notice taped to the inside of the shelter that said it was not in use and that riders would need to go to Oaktree Plaza, approximately 700' west and up a hill, to catch the bus. Field review did not clearly locate where the bus would stop, as the notice stated only that the stop would be at a tree near the Plaza. The bus shelter at Union Street appeared well-maintained and included a bike rack. However, this location is not on any bus routes currently.

Figure 22 Bus Routes and Bus Stops in Study Area



Source: VHB

2.6 Parking

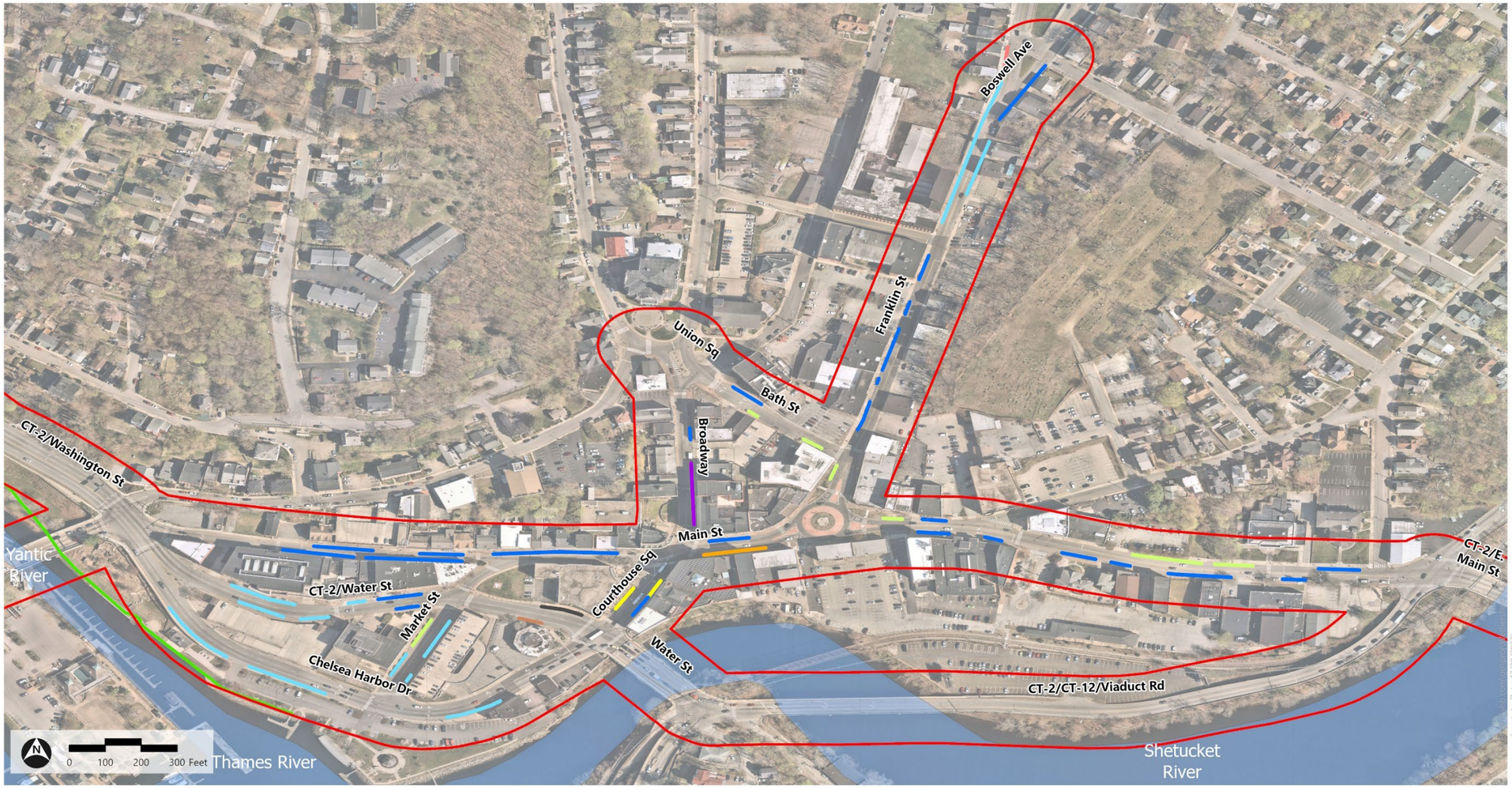
Parking around downtown Norwich includes on-street parking, off-street surface parking lots, and parking garages. Some surface lots and parking garages are owned by the City, while others are owned privately. A recent parking study drafted by the Norwich Community Development Corporation (NCDC) calculated that there are more than 3,000 parking spaces in Downtown Norwich. Many of these spaces are reserved for specific companies or organizations, both on-street and off-street. Main Street, Broadway, and Courthouse Square had the heaviest on-street parking occupancy observed. All on-street parking is unmetered.

2.6.1 On-Street Parking and Loading

A review of on-street parking regulations during the field work noted that there are many different context-specific regulations in place, making it difficult for a downtown visitor to determine where they can and cannot park. See Figure 23 for a map of on-street parking regulations in downtown Norwich. On-street parking next to certain properties are limited to employees of those properties, such as police vehicles (on a section of Water Street) and DCF State Vehicles (on the block of Courthouse Square). Time-limited restrictions were the most common type of parking regulation, typically allowing for up to two hours of parking time, with some areas allowing only 20 or as little as 10 minutes of parking time. Unusually, there were two different times of day for the most common two-hour parking windows, with some signs noting the restriction was from 8 AM to 6 PM, while other signs had the restriction from 7 AM to 4 PM. Time-limited restrictions can also vary block to block, and in one case in the same block: on Water Street/Route 2 between Washington Square and Market Street, the west end of the block allows on-street parking for a maximum of two hours, from 8 am – 6 pm, Monday through Friday. At the east end of the block, signage notes that on-street parking is allowed for two hours, but from 7 am – 4 pm, also Monday through Friday. These different regulations are also evident on Franklin Street. Some on-street parking is unsigned, making it unclear whether any time-limited or other regulations apply.

Except for one location near the Franklin Square Roundabout, no dedicated on-street business loading spaces were observed in the study area. Although many buildings and properties have dedicated off-street parking or a loading alley for taking deliveries, it was clear that most of the older urban properties developed prior to the automobile did not. As a result, deliveries would need to be made from on-street locations. Along Broadway and near the Franklin Square Roundabout, there are sections of parking which are 15-minute “express zones” meant to provide space for quick stopping and loading by customers, likely to pick up food or items ordered online or by phone, which proliferated during the height of the COVID-19 pandemic. However, these are oriented to customers and not business deliveries. If no curbside space is dedicated to loading, business deliveries may be unable to park and deliver their goods, or they are forced to double-park in the street, causing congestion and unsafe conditions for other users. Given the high occupancy of parking observed in some of the densest areas of the study area, it is likely that this is a common occurrence.

Figure 23 On-Street Parking Regulations in Study Area



Source: VHB, Near Map

2.6.2 Parking Garages and Lots

Observations of parking garages and lots was completed during field review in August and September 2023. A more thorough review of off-street parking was completed the afternoon of Tuesday, September 19. This included visiting public and private lots in the study area, principally in the downtown, and determining occupancy by counting actual number of vehicles parked or by visually estimating occupancy. Staff used the parking report completed by the NCDC to determine the number of total parking spaces at each facility and divided the observed occupancy by the total number of parking spaces to come to an occupancy percentage.

The off-street parking facilities reviewed included:

- Transportation Center Garage
- Main Street Garage
- Market Street Garage
- Viaduct Lot off Viaduct Road
- Cliff Street Lot
- Howard T. Brown Park Lot
- Private garage at 43-51 Water Street
- 82 Franklin Street parking lot (Zierler Lot)
- ArtSpace Lot at 113 Franklin Street

The Market Street Garage, which is public, was estimated to be about two-thirds full, the highest occupancy rate of all the parking facilities reviewed. The remaining parking facilities were found to be 40% occupied or less, with several locations found to be around just one quarter full. The Transportation Center garage was about 10% full, while the Main Street garage was 19% full, the Howard T. Brown Park lot was 23% full, and the Cliff Street Lot was about 21% full. Among private lots and garages, the Viaduct Lot was about 36% full and the private garage at 43-51 Water Street was estimated to be less than one quarter full.

The condition and layout of parking garages was also observed, particularly for the public garages and lots. The Transportation Center Garage was observed to be clean, comfortable, and well-lit. Access to the garage and parking within the garage was easy to navigate. The Main Street garage is difficult to locate due to lack of signage and appeared poorly maintained, with unsanitary stairwells and garage areas. The Market Street Garage was confusing to navigate due to the separation between the first-floor garage area and the upper floor garage. The first floor could be accessed from Market Street or Water Street, while the upper floors could only be accessed from an entrance off Chelsea Harbor Drive. The garage stairwells were narrow and uncomfortable, and showed severe signs of maintenance issues, particularly doors that would not open or close properly and one door that would not close all the way because the door frame was heavily damaged.

To add to the confusion of the Main Street and Market Street garages, reserved spaces were found on the first floors, while public parking was on the upper floors, making it unclear to the public where they could park and how far they would need to travel back down to street level. Combined with the issues with the stairwells made for an unpleasant experience.

The parking garages did not appear to have any cost for the public to park, and so were free like the on-street parking spaces.

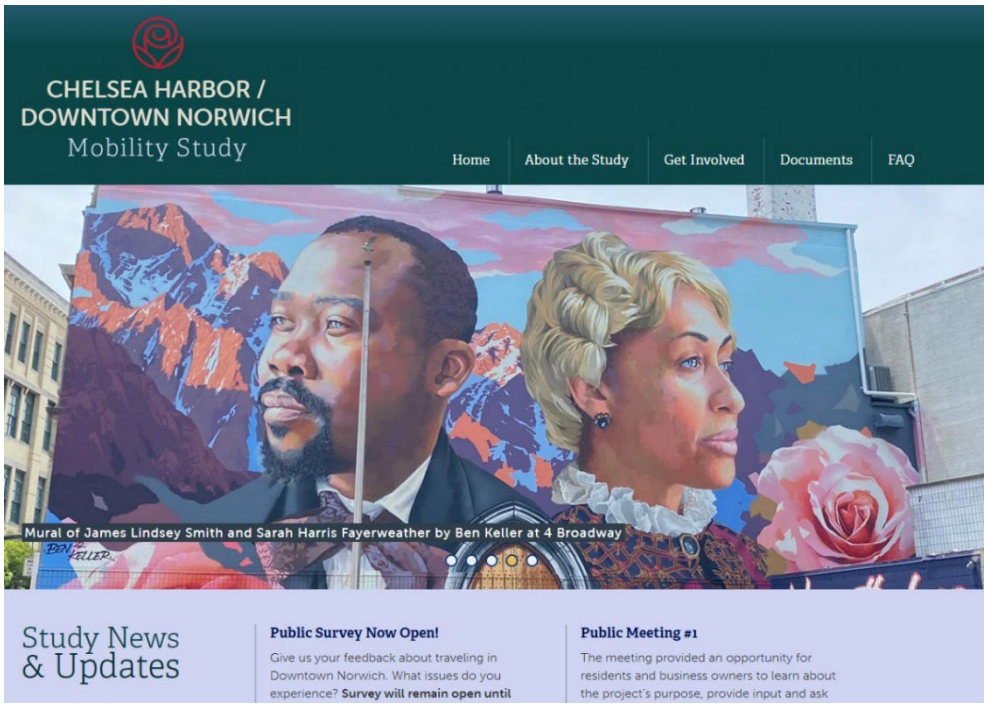
2.7 Public Involvement

Public Involvement has been at the forefront of efforts for this Mobility Study. The VHB Team has developed and maintained a vibrant website, produced and distributed multilingual public surveys online and in paper, attended two community events, and hosted the study's first public information meeting on October 25th, 2023.

The following sections delve into more detail regarding each of the outreach components completed to date.

2.7.1 Project Website

The project has a stand-alone website, **www.downtownnorwichmobilitystudy.com**, that serves as the platform for project information. The website has five main tabs: Home, About the Study, Get Involved, Documents, and a FAQ page. The Home page provides details on the project purpose and provides a high-resolution study map for viewers to understand the exact limits of the project area. The About the Study page explains the schedule of work and goes into more detail about the study background purpose and goals. The Get Involved page highlights all the past and upcoming events and provided links to the project survey in three languages -- English, Chinese, and Spanish. There is also a form for people to subscribe to an email contact list. The Documents page will provide the public with access to the study documents and their supplemental findings. Finally, the FAQ page provides answers to the most common inquiries about the project.



The development of the project website also allowed for the creation of a logo to brand the project. An artistic emblem of a red rose – in honor of Norwich being the Rose City – was created to help identify the project and make it recognizable to the public.

2.7.2 Public Survey

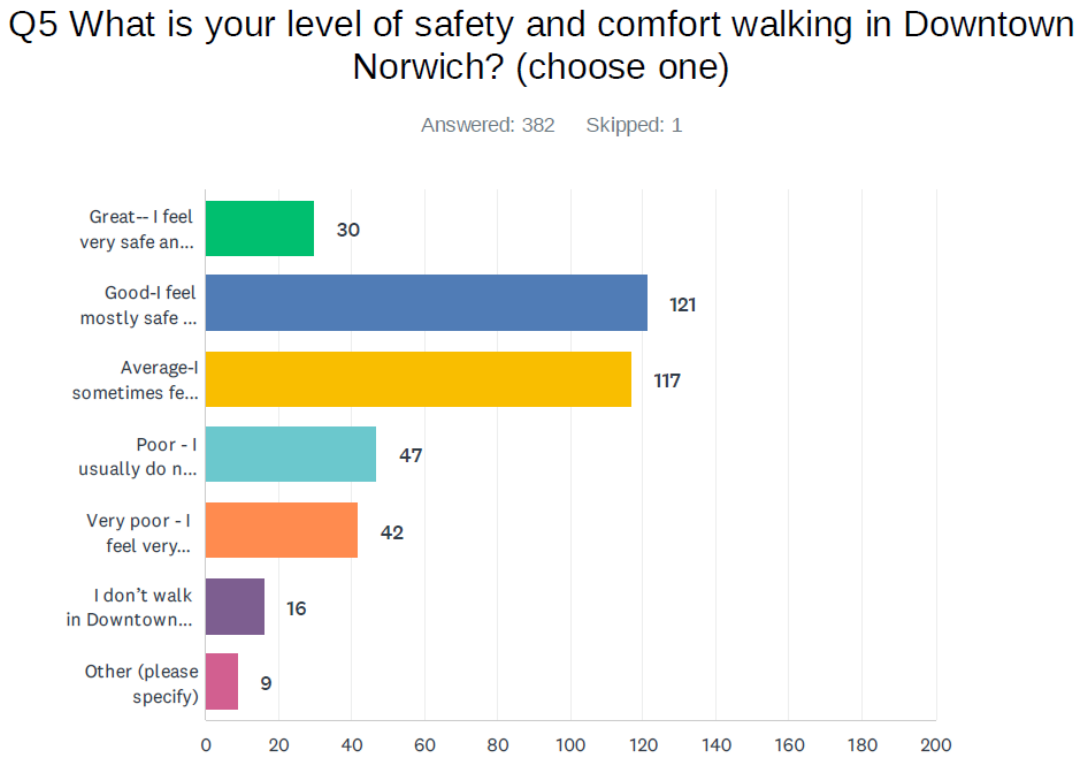
A public survey was developed and made public on August 22, 2023, to gather input from residents, business owners, employees, visitors, and travelers to Norwich. Along with a survey in English, the survey was also translated into Spanish and Mandarin Chinese to meet the demographic needs of the City of Norwich. The survey was primarily online; however, paper surveys were also distributed to various locations in Downtown Norwich to encourage more responses from those who have limited access to Wi-Fi, smartphone technology, or otherwise prefer hard copy versions. The paper surveys were distributed to: Foundry 66, Cream Coffee, The Madonna House, Otis Library, the City Hall Info Desk, and the Norwich Chamber of Commerce office.

Special efforts were taken to reach out to Low English Proficiency (LEP) communities and transit users. The team shared the survey with the Greenville Neighborhood Committee which has a significant Haitian population. Additionally, the Project Team created project posters for the local transit district, SEAT, to be displayed on their buses to reach transit riders. The Project Team also worked with the City of Norwich to use their contacts to find contacts for other hard-to-reach populations in the city. Envision 360, which is a public engagement tool hosted by the Norwich Community Development Corporation (NCDC), posted the public survey along with general information about the study, and linked to the study website.

2.7.2.1 Public Survey Results

The public survey, which stayed open for responses from mid-August to November 22, 2023, garnered 384 total responses to the survey, with 383 in English and one in Spanish. Seventy-six percent of the respondents live in Norwich, while the remaining quarter represent a variety of other towns in the region. Twenty-nine percent travel through downtown to get to other destinations, while 24% visit downtown to work or study, and another 24% visit downtown for shopping, errands, entertainment, or visiting restaurants. The majority drive through downtown and don't walk much (64%), another quarter drives into downtown and walks around, 6% use transit downtown, and 5% typically walk or bike downtown. A majority (58%) do not bike in downtown Norwich, and 22% feel it is unsafe or very unsafe to bike in downtown Norwich. Thirty-nine percent feel that walking in Norwich is good or great, and the remaining respondents feel it is average (31%) or poor to very poor (23%). See Figure 24 for a graph of people's perceptions of walking safety in downtown.

Figure 24 Perception of Walking Safety in Downtown Norwich

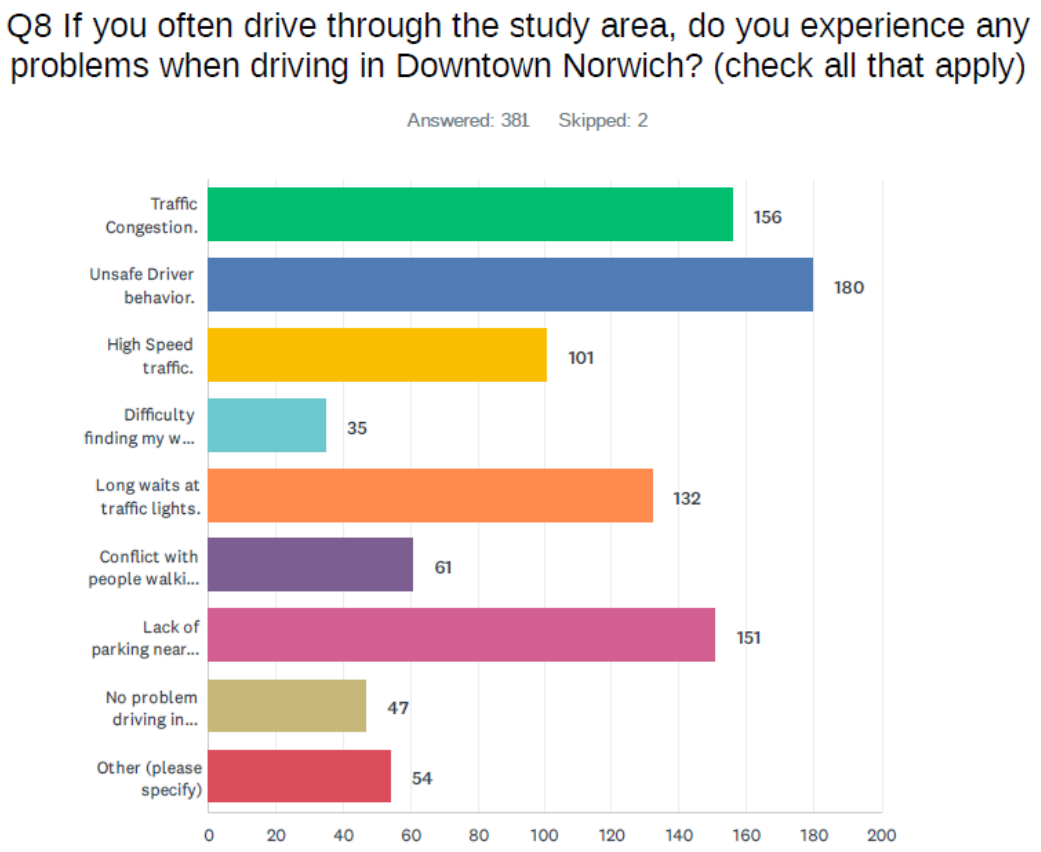


There are many different concerns people have with getting through the study area. They include unsafe drivers (47%), traffic congestion (41%), lack of parking near their destination (40%), long traffic signal wait times (34%), high speed traffic (26%), conflicts with people walking (16%), and issues with wayfinding (9%). See Figure 25 for a breakdown of these concerns in graphical form.

The survey also asked about how people perceive the Franklin Square Roundabout, which was installed in 2021. Overall, people think the roundabout works well or very well (71%) while 26% believe it does not work well or works very poorly.

Finally, many different areas of downtown were referenced as places where people feel it is unsafe or unappealing to walk or bike in. Areas on Main Street by the Post Office and Court House were mentioned, as well as near City Hall, Washington Square, getting from downtown to the marina/intermodal center, Water Street, and Market Street. Speeding was also brought up as another concern people have, and difficulty using pedestrian crossings.

Figure 25 Driving Issues Experienced in Downtown Norwich



2.7.3 Media Attention

The Mobility Study is an important, high-profile project for the City of Norwich; as such, it has received media attention from local and regional news outlets that help to get out information about the study and promote the different ways public input is being sought. The Day, a local independent news outlet in southeastern Connecticut, published several news articles about the study and the public meeting that was held on October 25. They include:

- "Downtown Norwich streets, traffic, pedestrian safety to get close look" (The Day, September 29, 2023)
- "Public forum to be held Wednesday on downtown Norwich transportation issues" (The Day, October 22, 2023)
- "Downtown Norwich traffic, pedestrian safety issues discussed" (The Day, October 25, 2023)

Additionally, the Norwich Bulletin included an article about the public meeting, and Bill Kenny, a columnist for the Bulletin, wrote a piece encouraging people to take the public survey and provide input for the future of downtown Norwich. This media attention, along with the efforts of study partners to get out the word about the public survey and public meeting by sending information to their networks, helps to create more visibility for the study and get people to take the survey and attend the meeting who may not otherwise if they did not see it in the news.

2.7.4 Outreach Events

In summer and fall 2023 The VHB Team attended two community events to promote the project, encourage survey participation, gather input from the public and increase project awareness.

2.7.4.1 Pop-up at Rock the Docks Event

This event took place on August 23, 2023, from 6:00-8:00 PM at Howard T. Brown Memorial Park. Rock the Docks is a musical event put on by the Norwich Chamber of Commerce during the summer to encourage people to come downtown and enjoy the marina area. The Study Team attended this event to provide information on the purpose and scope of the study and take feedback on mobility issues in the downtown Norwich area. It was a productive first outreach event to launch the project to the public. People raised concerns about safety at intersections in the study area, noted confusion about the new roundabout at Franklin Square, and noted various issues in the area including speeding and red-light running.

2.7.4.2 Pop-up at Celebrate Cultural Diversity Event

This event took place September 19, 2023, from 5:00-8:00 PM at Chelsea Parade. Celebrate Cultural Diversity is an annual event put on by the Rotary Club of Norwich and is a lively multicultural event with music, dancing, and food vendors. The Study Team attended this event to provide information on the purpose and scope of the study and take feedback on mobility issues in the downtown Norwich area. This event was conducive to the Team's outreach efforts as there was a steady flow of interest over the three-hour celebration. Feedback received included concerns about sidewalk conditions, traffic congestion around the harbor, long traffic signal cycles, and issues about the location of the water access at Howard T. Brown Park.

2.7.5 Public Information Meeting #1

On October 25 at the Otis Library in Downtown Norwich, the VHB Team hosted the project's first public information meeting. For the meeting, an online option was provided, as well as food and beverages for attendees, to make it more appealing and easier for people to attend the meeting. Approximately 30 people attended the meeting. The purpose of the meeting was to go over the purpose and goals of the study, give an overview of existing conditions found during data collection, and provide an opportunity for attendees to ask questions and give comments on the study area. After the presentation was a lengthy Q & A session where attendees made many different comments about the project. Comments from the meeting were:

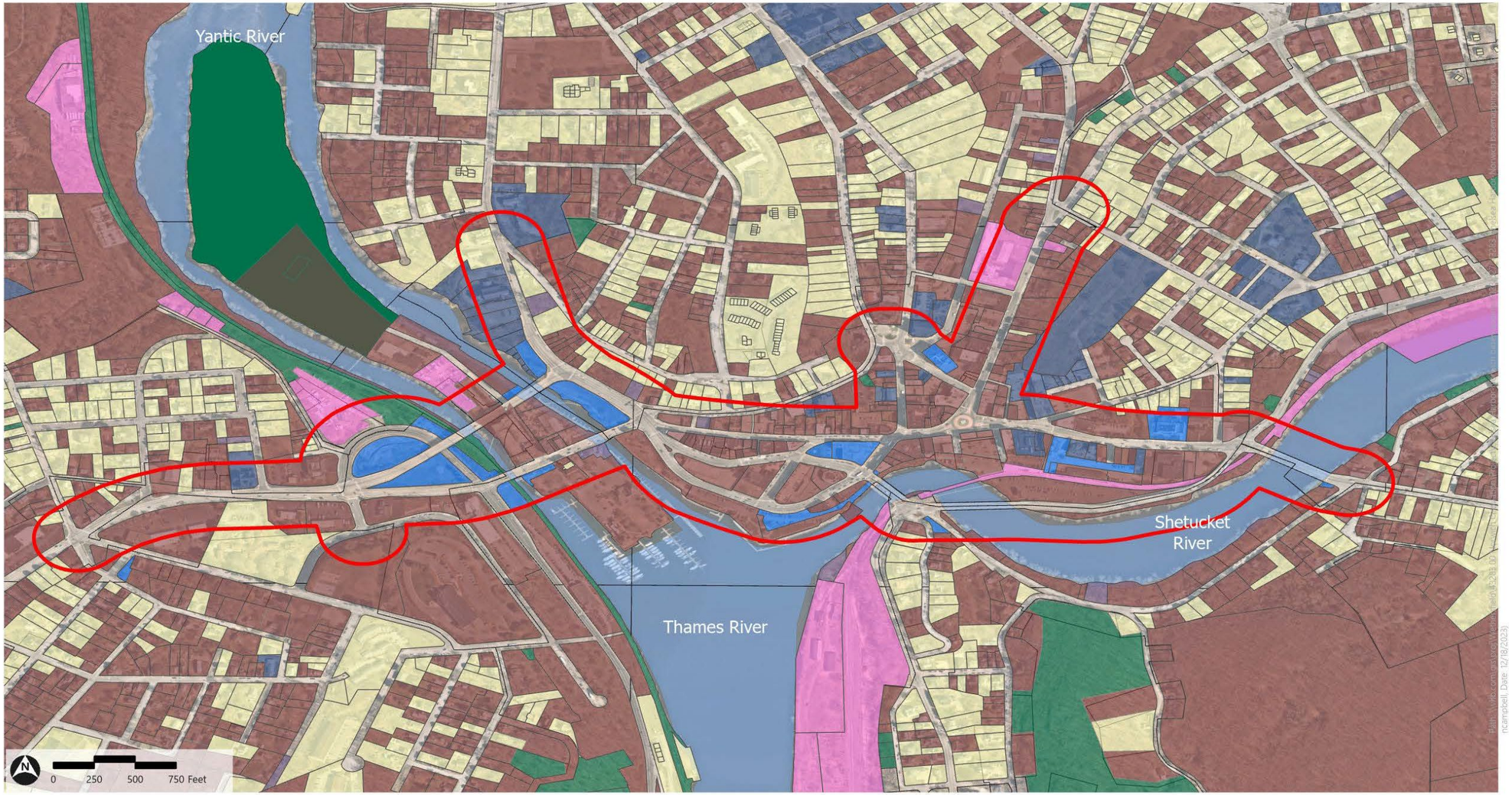
- There was a request for future public meetings to have communication options made available for people who are low-vision or hearing impaired to make them more accessible. Also, please include a reference to wheelchair users in the public survey.
- Ugly trash cans, blank storefronts, bad sidewalks are in downtown and need to be addressed.
- Empty buildings and storefronts are falling into disrepair. Windows should be covered up so people do not see the empty, messy areas inside.
- Consistent litter and weed control is needed – get property owners and businesses to help clean up.
- Too many one-way streets make commutes longer, as you have to go on a circuitous route to get anywhere.
- Better wheelchair accessibility is needed around downtown.
- Encourage more use of the Transportation Center parking garage by the Marina and Park.
- Bike lanes are needed in downtown.
- In front of the City Hall and Post Office, drivers are not stopping for pedestrians in the crosswalks; a few people mentioned almost getting hit while walking across the street.
- Norwich is not very walkable, yet the historical society is investing time, effort and money into promoting walking tours; need to support walkability downtown.
- The Franklin Square roundabout is confusing for people to use.
- There are many unhoused people around the downtown that make people concerned about their personal safety.
- The City should try to close of a street to make it for pedestrians only to support local businesses and do what other communities are doing and testing out.
- Public restrooms are needed downtown for events and visitors.
- More art is needed downtown.
- Trees and vegetation are overgrown and not maintained well. This creates an eyesore downtown.
- Improve public transportation to support as an alternative mode of transportation for residents.
- Making Water Street (for example) walkable may have to come at the cost of lowering the speed limit and causing some congestion. These are trade-offs that need to be made.
- Accessibility for children to youth centers should be considered in this study.
- Reduce on-street parking and make room for bike lanes; encourage people to use the garages instead.
- Parking garages are blocking the view of the river/marina and could be removed to make it easier to see and access the riverfront. That property could then be used for other things, such as an extension of the Howard T. Brown Park.

2.8 Land Use and Development Patterns

As an older urban downtown area, land uses in the downtown area are generally mixed, with many residences and businesses occupying the same properties, often with retail or offices on the ground floor and residential units above them. However, there is also evidence of much single-use properties that were developed later in the city's history as zoning began being used to separate different land uses away from each other. In addition, some properties were deliberately removed by urban renewal and roadway expansion in the mid-20th century, including the expansion of Route 2 as it enters downtown from the west.

The 2023 Plan of Conservation and Development (POCD) for the City of Norwich notes that residential uses make up largest land use category in the city at 53.51%. Other significant land uses include open spaces and parks (11.35%), government and institutional use (14%), commercial (7.27%) and industrial (1.86%). A significant amount of land in the city is also taken up by parking and road infrastructure. Much of the vacant land within the city is zoned for residential or has topographic or natural resource constraints that make it difficult to develop. The City's intent is to redevelop underutilized sites and re-use old infrastructure like mill sites, often referred to as infill development. See Figure 26 for a map of the land uses in the study area.

Figure 26 Land Use in the Study Area



Source: VHB, Near Map

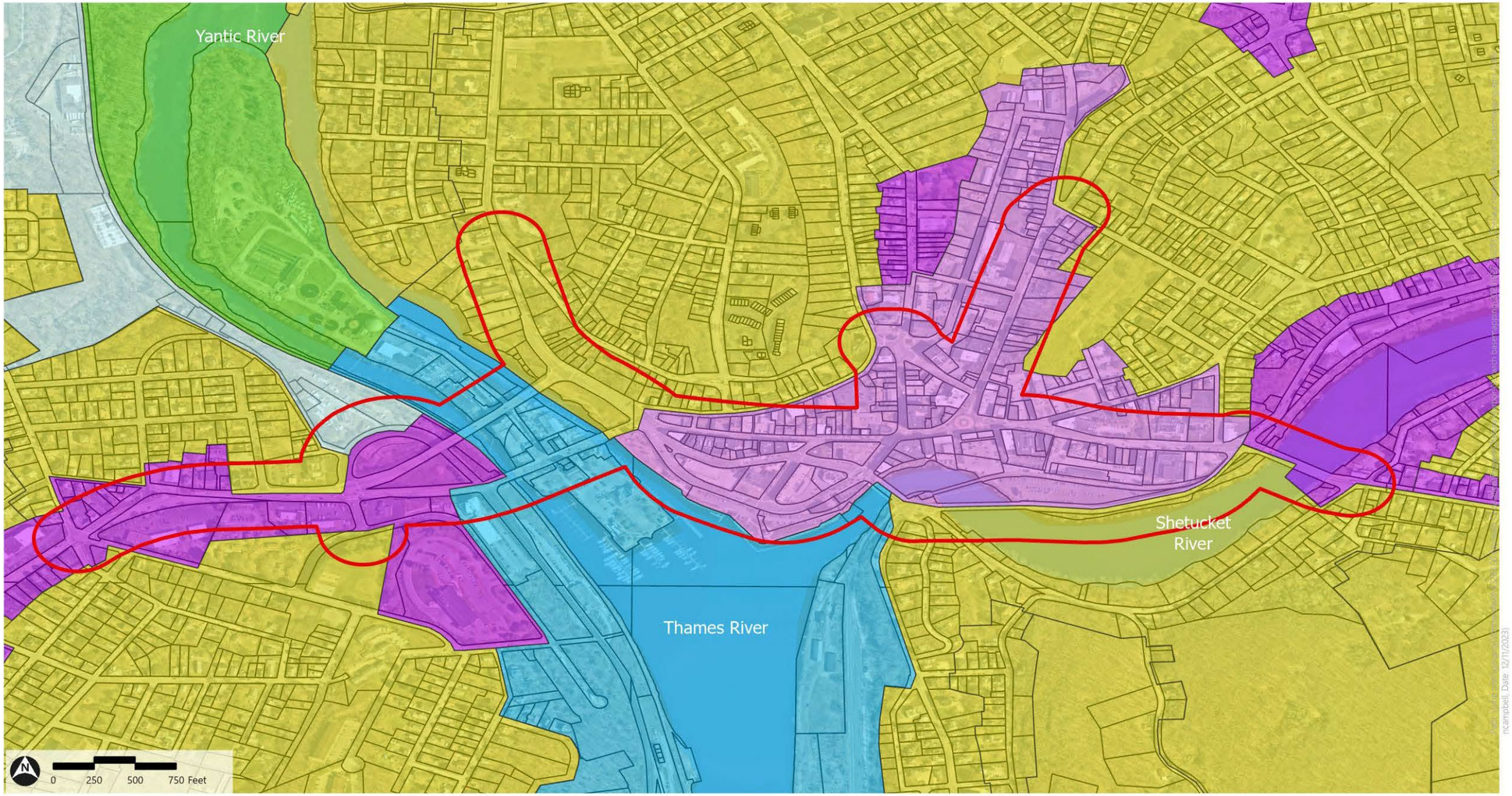
2.8.1 Zoning

The zoning within the study area is mainly made up of commercial, residential, waterfront development, and the Chelsea Central district, which makes up the core of Downtown Norwich. The Norwich POCD notes that the City intends to update its zoning code and zoning map in 2025.

See Figure 27 for a map of the zoning in the study area. The zoning map is made up of the following zones:

- GC: General Commercial
- NC: Neighborhood Commercial
- PC: Planned Commercial
- CC: Chelsea Central
- ROS: Recreation/Open Space
- WD: Waterfront Development
- I: Industrial
- R-20, R-40, R-80, MF: Residential Zones

Figure 27 Zoning in the Study Area



Source: VHB, Near Map

2.8.2 Population and Employment Trends

The Norwich POCD and the report for the Eastern Connecticut Rail and Transit Study (draft as of this writing) provide information on population and employment trends for the City of Norwich and around the study area. Norwich has had a relatively stable population over the last 70 years, which peaked in 1970 with 41,739 people and dropped to 36,117 in 2000. As of the 2020 Census, there are about 40,125 people living in Norwich. The population is most dense in the downtown area and diffuses outward along the Shetucket and Thames Rivers. The population younger than age 60 declined between 2010 and 2020, while the population over 60 saw significant growth during the same period. The median age is 38.8 years old, which is younger than that of New London County and the State. Norwich also has a greater diversity of ethnic and racial groups than the County – it is 54.1% white, 19.3% Hispanic/Latino, 11.4% black/African American, and 7.1% Asian. Between 2010 and 2020, black and Latino demographics grew while the white population decreased. On a regional level, there is slow overall population growth in the state and region. The population of southeastern Connecticut is projected to increase by just 0.28% per year between 2023 and 2050. However, Norwich is expected to see greater population growth due to greater birth and in-migration rates during that time.

Norwich has a lower median household income than New London County and the state ($57,565 compared to $75,831 and $79,855 respectively), with employment primarily in the service industry – 29% of businesses are in services. The largest employer is the William W. Backus Hospital with 1,895 employees as of 2021. Seventy-six percent of Norwich workers live outside Norwich, while 82% of Norwich residents are employed outside the city. Some of the larger employers in the area include General Dynamics Electric Boat in Groton, Mohegan Sun and Foxwoods, the Lawrence & Memorial Hospital in New London, Millstone Power Station in Waterford, Pfizer in Groton, and Day Kimball Healthcare in Putnam. The region relies heavily on gaming and the service industry for job opportunities, both of which were seriously impacted by the COVID-19 pandemic. The Norwich POCD notes that unemployment has improved since the pandemic, when many people lost their jobs. There are three Opportunity Zones and one Enterprise Zone in the city to encourage economic growth and development. Economic development is prioritized by the City in the Chelsea Central District (downtown), mill redevelopment areas, business park, and proposed business park north. The manufacturing industry in the region is expected to grow in the future, with businesses such as General Dynamics Electric Boat.

2.8.3 Environmental and Cultural Resources

Downtown Norwich has considerable history and cultural resources, being an older settled area in the region, and significant environmental resources with its proximity to the Yantic, Shetucket, and Thames Rivers. The study area also contains previously developed sites, that unfortunately are locations where hazardous materials were used and left behind, and which are now in various stages of being cleaned up. Both types of sites – historic and cultural sites, and sites needing environmental remediation – are important to be aware of to understand the context of downtown Norwich. These sites, as well as historic district boundaries and the National Diversity Database boundaries are shown in Figure 28.

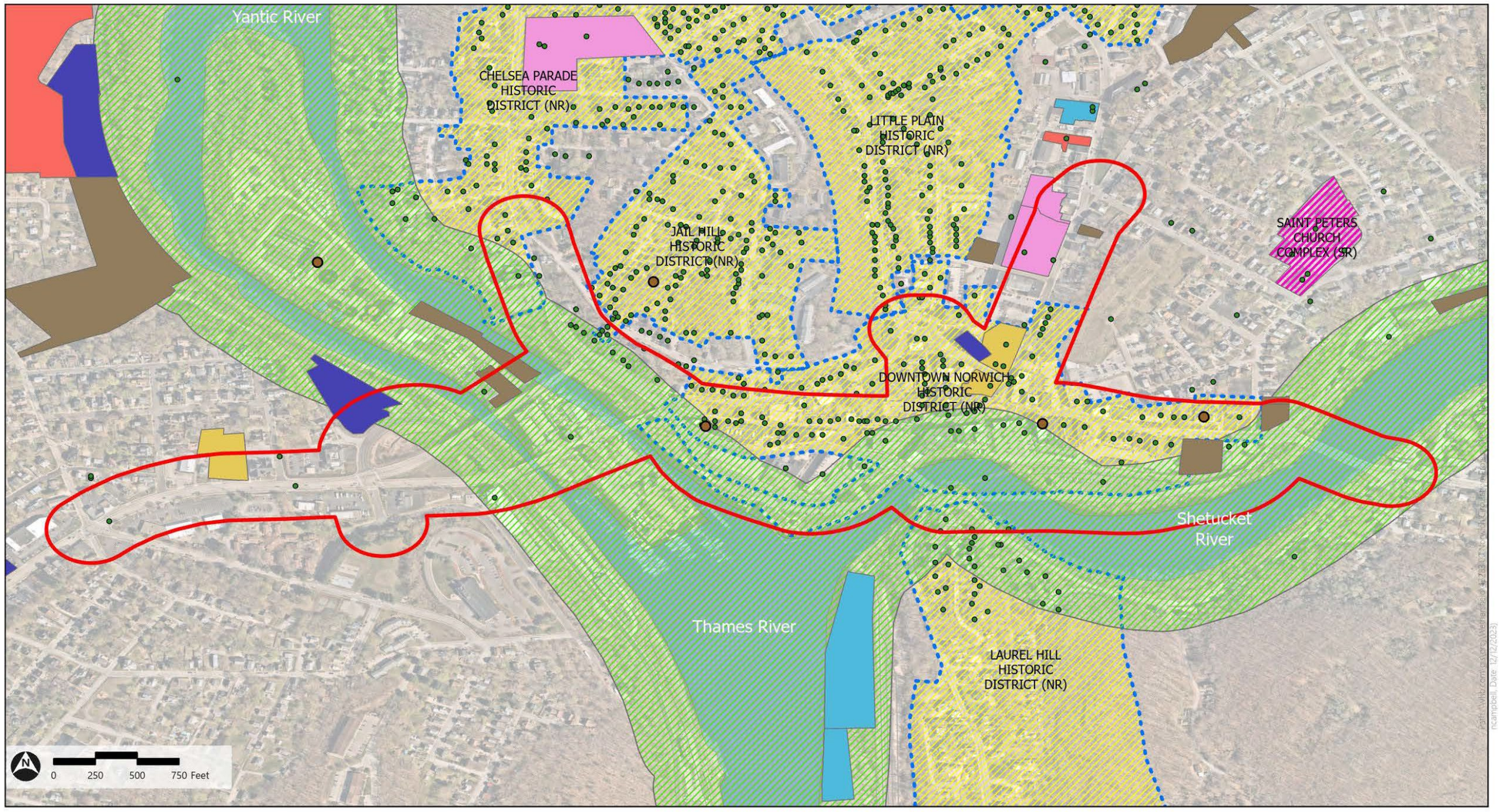
Among historic and cultural resources and sites, there are several historic districts on the National Register of Historic Places that are within or near the boundary of the study area. They include:

- Downtown Norwich Historic District
- Jail Hill Historic District
- Little Plain Historic District
- Chelsea Parade Historic District
- Laurel Hill Historic District

In addition, there are dozens of individual historic buildings and properties (4F/6F sites) within and outside the various historic districts that contribute to the sense of place of the downtown area as an older compact downtown built before the advent of the automobile.

Several brownfield sites can be found within and near the study area, and are marked based on what stage of remediation they are in. This information is accurate as of 2018.

Figure 28 Environmental and Cultural Resources in Study Area



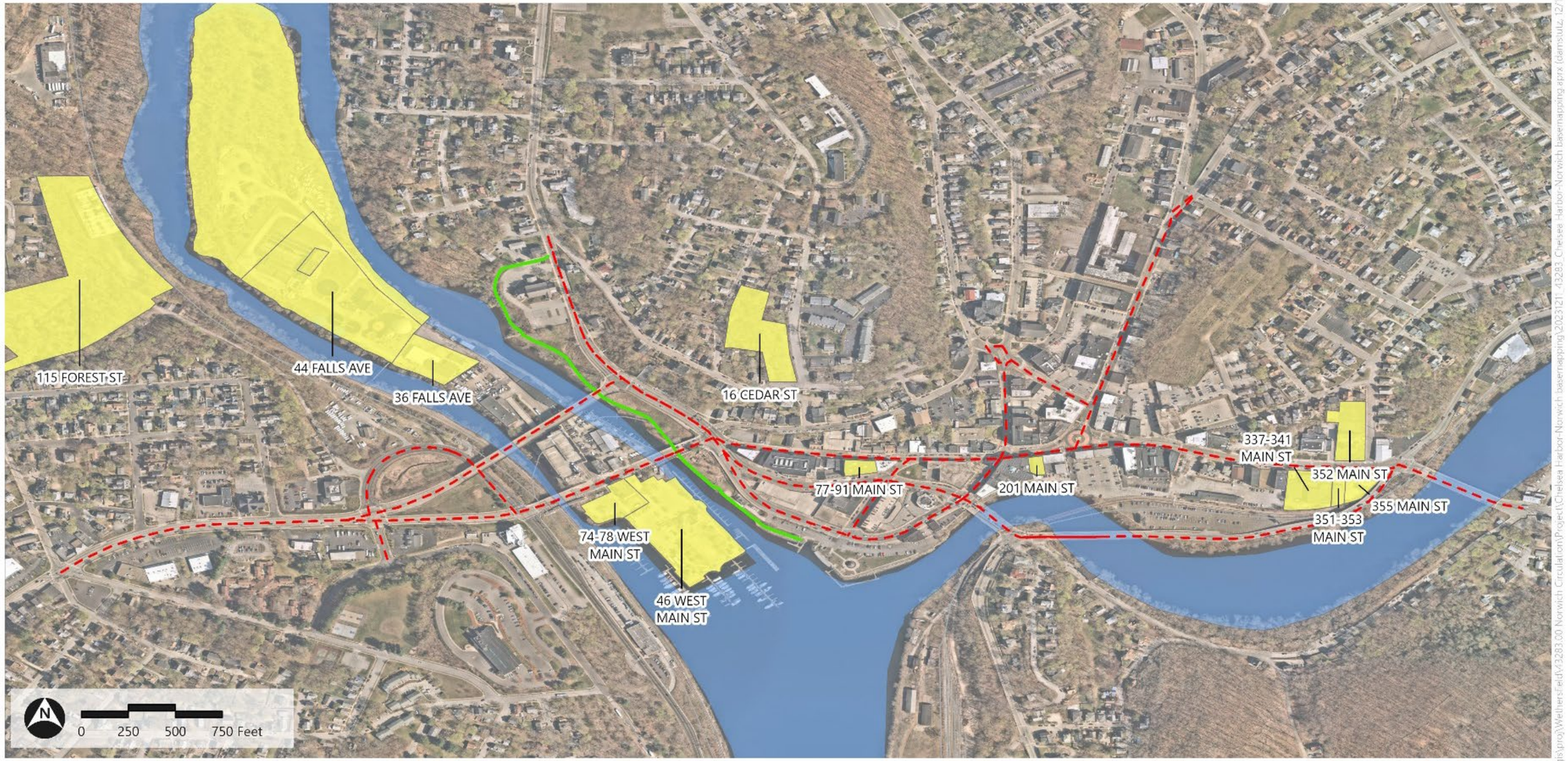
2.8.4 Proposed Development Projects

The City of Norwich has several ongoing or potential development projects in and near downtown Norwich that are important to be aware of as part of this Mobility Study. At the project kick-off meeting in summer 2023, the City provided information on several development projects in the downtown at various stages of implementation. There are also new developments, such as at the planned re-opening of the Norwich Marina, that have begun since the Mobility Study kick-off and are also included. See Figure 29 for a map of locations that were noted by the City.

The following is a list of locations with general development information on each:

- 77-91 Main Street: 42 housing units with mixed-use on the first floor are planned and under construction.
- 201 Main Street: 20 housing units are planned for the former Reid and Hughes department store building.
- 337-341 Main Street (including adjacent parcels of 351-353 Main Street and 355 Main Street): the vacant downtown YMCA property is expected to be redeveloped as a brewery and other retail.
- 352 Main Street: the old Elks Lodge, across from the vacant YMCA, will be developed as a boutique hotel with 20 rooms.
- 16 Cedar Street: the site of a historic jail (the New London County Jail), which was torn down in the 1950s. There is potential for 26-36 units of housing here. Affordable housing is expected with the development.
- 46 West Main Street/74-78 West Main Street: this is the address of the Norwich Marina, which has recently been sold to a new developer and is planned to reopen in 2024.
- 36 Falls Ave/44 Falls Ave: the current wastewater treatment plant on Hollyhock Island is being replaced with a modern facility costing $200 million and will take about 5 years to complete.
- 115 Forest Street: a cannabis cultivation plant has received zoning approval to set up in this former industrial building along the west bank of the Yantic River.

Figure 29 Development Project Locations in Study Area



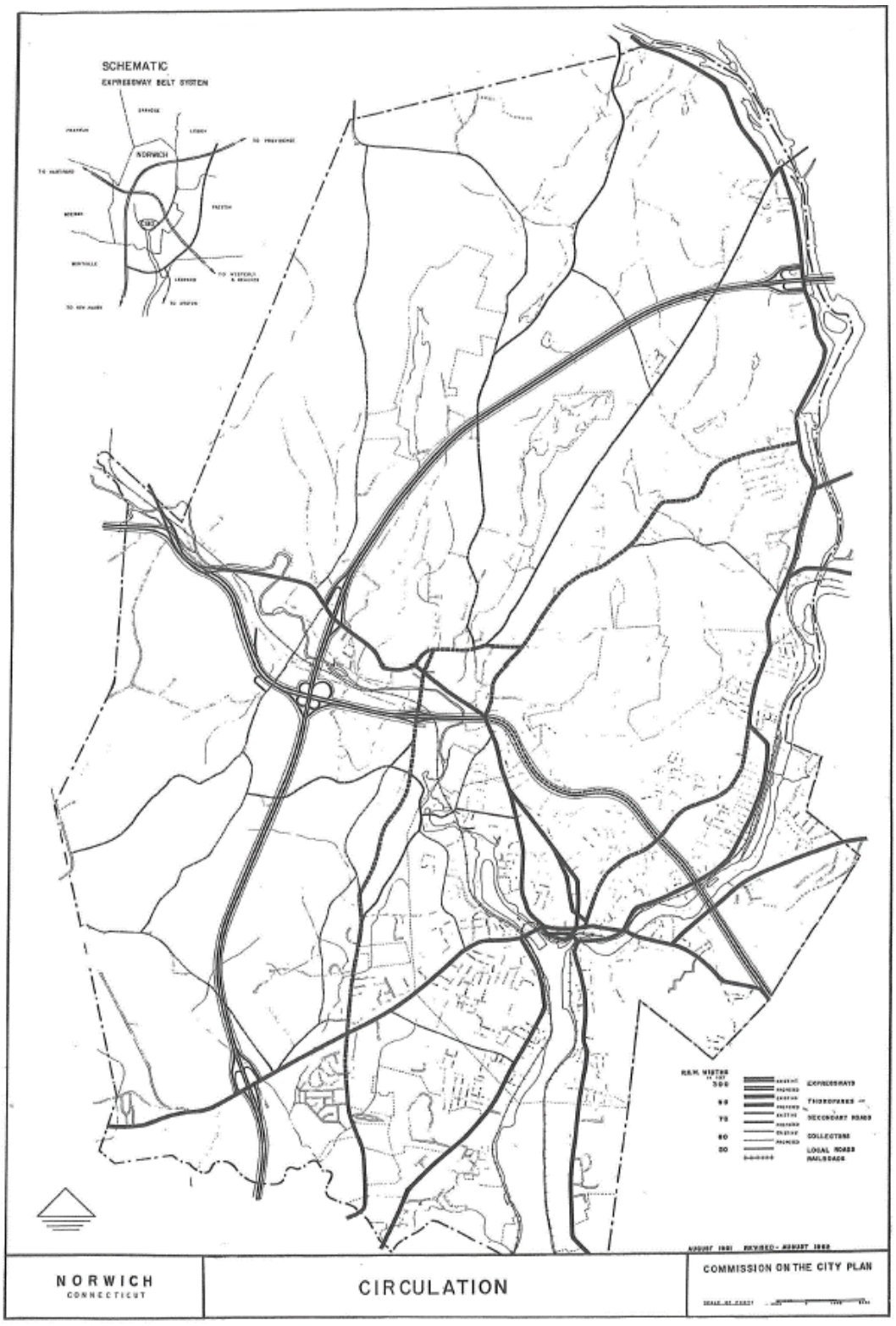
2.9 Previous and Current Plans and Studies

Previous and current plans and studies were reviewed as part of the existing conditions scan for this project. This included historical planning reports from the 1960s onward to help understand the current situation of circulation and transportation in downtown Norwich. Below are summaries of the plans and studies provided for this project.

2.9.1 General Plan for the City of Norwich, Part I (1962)

Several pages from this document were provided for review. The sections provided are relevant to downtown Norwich and the transportation system at that time. A section on the "Rejuvenation of Downtown" focused on the provision of new parking structures and spaces, repaving of downtown streets, and upgrading utilities, as well as underground utilities. New streets were being developed to change traffic flow and new developments and renewal projects were noted. Under the Circulation section, the Plan notes the impact of the new Connecticut Turnpike (now I-395) and new highways connecting the city, the construction of Route 2 as a high-speed highway between Hartford and Rhode Island, a new bridge across the Thames River, and a discussion of the ability of private automobiles to move people in and out of the city. There is an acknowledgement that widening roads in the city and addressing drainage is difficult due to the urban environment. The Plan introduces the road classification system for the roads in the city based on different roadways – local, collector, and thoroughfare. There is also a map showing the planned extension of the Route 2 expressway north of downtown (see Figure 30).

Figure 30 Circulation Map from the General Plan for the City of Norwich, 1962



Source: General Plan of the City of Norwich, 1962

2.9.2 Routes 2 and 82 – Highway Planning Report (1969)

This report makes recommendations for the relocation of Route 2 away from Downtown Norwich to an expressway alignment and improvements to Route 82 to improve traffic flow and reduce congestion. The "Hillside Line" was recommended for the relocation of Route 2, to extend the expressway from its terminus at Washington Street/Harland Corner eastward and north of Downtown Norwich where it would bypass the downtown entirely on its way into Preston and eastern Connecticut. Route 82 was recommended to be widened to a four-lane divided highway. Other recommendations for other streets in the downtown area are included. The report notes that Norwich has become the hub of many different highway routes running through it, which creates congestion in the dense urban center. Its placement next to the three rivers also makes it complicated as the bridges over the rivers become pinch points for traffic. The goal of the study was to review how to provide access to Norwich without going through the central business district. However, a significant factor was also the provision of through traffic from Hartford to the beaches in Westerly, Rhode Island. The problem being solved is how to move traffic through Norwich as fast as possible and with as little congestion as possible, as traffic projections out to 1990 claim that traffic will grow significantly. The report also looked at alignments along the Yantic River and details the impact to businesses and residences from the proposed highways. Of note, the Hillside Line (for the Route 2 expressway) would have impacted 350 residences and 24 businesses. Finally, the report suggests the creation of a circumferential highway through Preston, going north from Route 2.

2.9.3 Proposed Plan of Development, City of Norwich (1972)

VHB was provided with the Street Plan/Transportation section of this report. It highlights the steep and rugged topography which has influenced the development of the road network in Norwich, with no grid network except in Greenville, Taftville, and Thamesville. The mountainous ridge north of Norwich makes east-west travel difficult and explains why much of the traffic ends up going through downtown, as this is the flatter route. It notes that the City of Norwich rejected the extension of Route 2 north of downtown in 1970 and planned to have it follow the Yantic River instead. However, this riverfront expressway was subsequently rejected by the state and there was discussion of creating a controlled-access arterial street instead. The Mohegan-Pequot toll bridge south of the city (Route 2A) opened not long before this plan, but it being a toll bridge hinders its utilization. Even in 1972, on-street parking is considered a problem, and people went into neighborhoods to park wherever they can find a space. The document also introduces the concept of street types and lays out cross-sections for different types with widths and elements of the streets. Summer traffic is still a challenge, and the report suggests moving traffic via Route 2A and the new Mohegan-Pequot bridge instead. Finally, the report refers to the Traffic Operation to Increase Capacity and Safety (TOPICS) road circulation plan and suggests most roads through downtown Norwich should be arterials with the highest number of traffic lanes and right-of-way width.

2.9.4 Norwich Downtown Attitude Survey (1979)

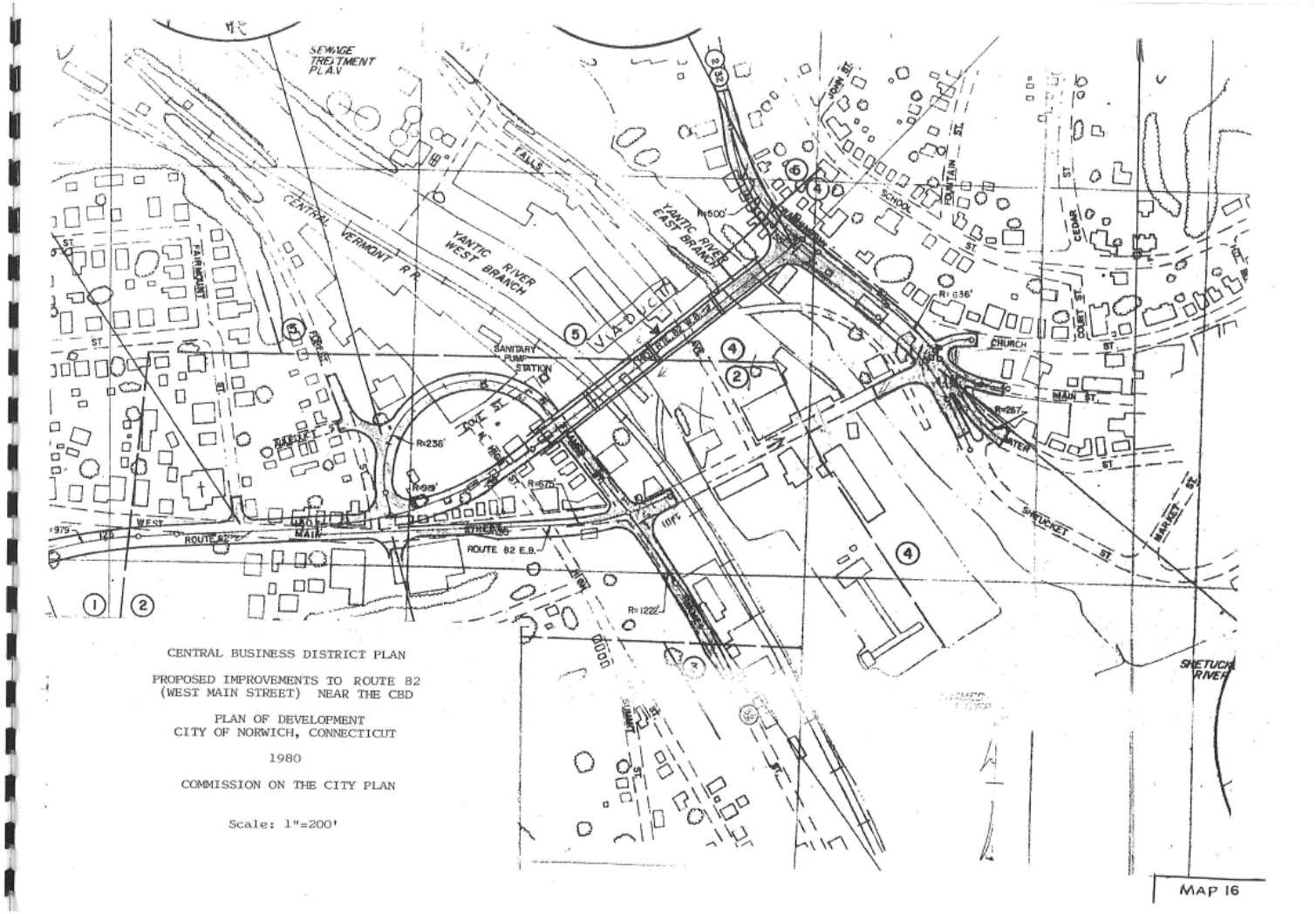
The downtown transportation sections were included in this document. In general, there is low public support for the TOPICS system (noted in section 2.9.3), which created one-way streets downtown and installed additional traffic signals for traffic flow improvements. Responses to the

survey noted that the system forces people to circle more often to find parking and the signal system is not well synchronized (the system was installed shortly before this survey). There are comments that the traffic plan for downtown should be changed, as there are many complaints about it. The lack of focus on downtown by the local chamber of commerce is also an issue, and there seems to be a lack of attention to downtown issues and people who live downtown. People noted the impact of the large shopping centers taking business away from downtown. The condition of downtown was rated very low, as well as traffic flow downtown; people complained about parking and the TOPICS system in open-ended questions.

2.9.5 Central Business District Plan (1980)

This document includes the Traffic Regulations section of this plan as well as maps of the traffic circulation downtown. This plan again notes opposition to the TOPICS circulation plan as discussed earlier, that was installed in summer 1978. People suggested removing some traffic signals, synchronizing them, or turning some one-way streets back to two-way. Another section discusses Franklin Square and how the triangle makes it difficult for transit buses to get though, as many buses at the same time may be parked or laying over there and reiterates the opposition to the one-way streets and TOPICS circulation. This plan also discusses the improvement of the new bridge to go west from Washington Square to create the one-way pair of bridges over the Yantic River and Hollyhock Island (see Figure 31 from the plan). The plan considers the new bridge and circulation to be "inadequate" to provide access to the central business district because it will make access to the marina more difficult and requires drivers to travel extra distance to get to where they need to go. The plan recommends that the new bridge be four lanes divided with two lanes in each direction and keep W. Main Street (the existing bridge) two-way. This recommendation was never implemented. The plan also recommends the provision of a limited-access highway along the west side of the Yantic River for Route 32, consistent with the City's previous plan recommendations to create an expressway along the river instead of north of downtown, which they had rejected. Finally, a map at the end of the section includes a proposed traffic plan for the central business district that revises the system of one-way streets and shows locations of proposed parking facilities.

Figure 31 Proposed Improvements to Route 82 Near the Norwich CBD, 1980



Source: Norwich Central Business District Plan, 1980

2.9.6 Downtown Development Program of Norwich (1982)

This plan covers Washington Square to Burnham Square, which is very similar to the geography of the current Mobility Study. Of particular interest are the descriptions of the different uses of downtown at the time, from residential, retail, office space, etc. Residential uses are primarily single-occupancy units, converted houses, and similar, which are not useful for families or other types of residents. Other points include:

- There was a very high vacancy rate – 25% of total floor space studied (1,626,000 square feet)
- 60% of the floor space downtown is in fair to poor or "dilapidated" condition (65% of buildings); most of the vacant floor space in these buildings is considered substandard.
- The plan notes that most buildings in Norwich are small by current standards, none over 60,000 square feet in size; a typical 8 story office building is 100,000 square feet
- Many old properties were built in the 1700s and 1800s
- City is majority owner of downtown properties at this time (over 1,000,000 square feet) and notes that the City has to act to make changes to properties
- Property values low, likely due to vacancy and building conditions
- Major institutions like banks are still investing in downtown and expanding, so there is still great interest in downtown development.

At the time, about 2,000 parking spaces, both public and private, could be found downtown. The plan argues that the city center actually needs at least 3,000 parking spaces to provide 2 spaces per 1,000 square feet of floor space.

In terms of traffic, the fact that all roads converge to downtown Norwich is both "a blessing and a curse." This document notes that the TOPICS program has been "unnecessarily confusing" and both residents and business owners complain about it. People do not want to go downtown because it is too confusing to navigate. The needs of the street system has been changed to serve through-traffic primarily to the detriment of serving the needs of people (and needs of local residents). The pedestrian environment is mentioned as a problem to address, due to the poor quality of sidewalks and lack of parks or other people-focused destinations, and the TOPICS system intrudes onto the pedestrian environment.

Many different traffic alternatives and parking alternatives are discussed later on in the plan and it suggests that traffic circulation improvements must be made first before other things can be addressed.

2.9.7 Plan of Development for the City of Norwich (1989)

The Road System section of this plan describes the street patterns, street functions and classifications, street jurisdictions, crashes, and public transportation. It describes the road system as "eccentric" and one of the most complicated in Connecticut. The lack of good east-west connections from one side of the city to the other is mentioned. The plan refers back to the Route 2 expressway proposed extension that was defeated by the city as a major controversy with the state, and the lack of this route/construction remains a major problem for the city as it dumps traffic into Norwich at the end of the existing expressway. In addition, people cannot go directly northbound on I-395 from westbound Route 2, and you cannot go westbound on

Route 2 from southbound I-395 – city streets must be used to go in one of these directions. Yantic Road and Yantic Lane are poorly designed as they are not separated from Route 32. The plan also notes interest in an interchange of I-395 at Lawler Lane (potentially to reduce some congestion at the Occum interchange) but FHWA guidelines prohibit it due to spacing with Occum interchange.

The plan lists arterials and collectors within the city. Route 82 between I-395 and downtown was recently widened to be a four-lane undivided highway, which has increased capacity but has also increased speeds and crashes and promoted strip development along the road. The new Yantic River bridge included with the Route 82 improvements is 3 lanes westbound, but people still have to use the W. Main Street bridge. The plan considers this a "major deficiency" in the plan for something that was "once a good idea." Viaduct Road was constructed to bypass the downtown area and is to be replaced within 15 years of the date of this plan. A plan for the Route 2A bypass from the Mohegan-Pequot Bridge to meet up with Route 2 is noted to have been dropped by CTDOT except for some minor improvements. According to this plan, at the time, the state had control or maintenance over 20% of streets/roads in Norwich (including expressways) – sometimes coming via City petition because of high traffic volumes and regional connections. However, it claims that Norwich would still be an "industrial backwater" without I-395 and Route 2. Route 82 is noted as the most dangerous street in the city with the most crashes at the time.

Finally, this plan is the first to go into detail about public transportation and the Southeast Area Transit District (SEAT). Downtown is used as a crossing point or transfer point for the bus routes.

2.9.8 Norwich Plan of Conservation and Development (2002)

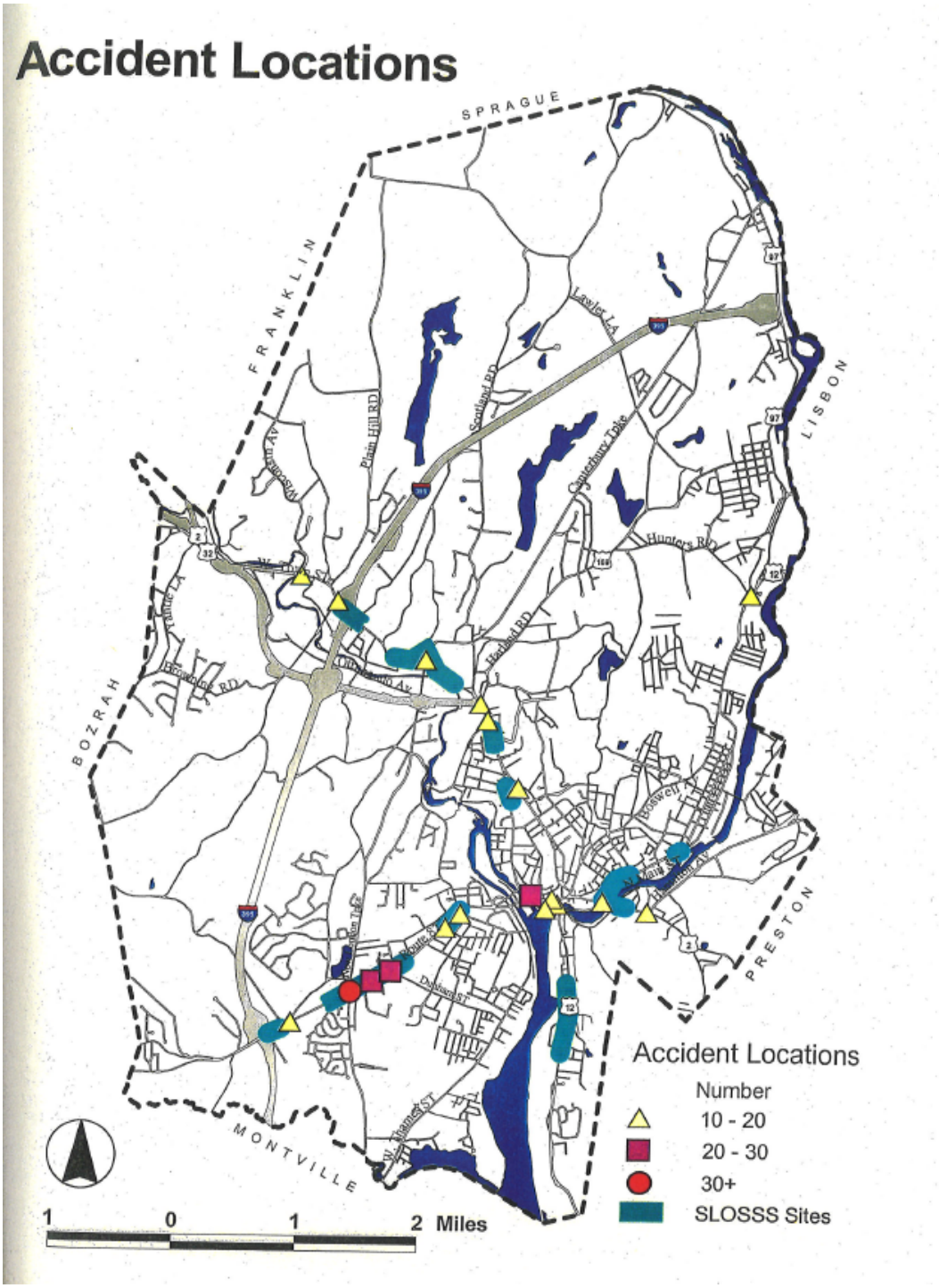
This includes a review of the Transportation section of this plan. The "Major Strategies" listed in the introduction to this section of the plan are:

- Complete the Route 2 & I-395 interchange. This plan makes similar notes as the previous Plan of Development about the problems of this interchange, and notes that at the time SCCOG thought reconstructing this interchange was a key improvement priority. It also noted that Route 2 was never built as conceived, since the expressway ends right at Washington Street in Norwich.
- Reconsider Washington Street improvements near Route 2.
- Improve traffic flow in the Route 82 corridor. There are issues with the lack of turn lanes and too many signals, as well as signals without turn lanes and too many curb cuts.
- Construct new roads to further business development.
- Plan for improved pedestrian and bicycle facilities.

The plan notes opposition to developing turn lanes on Route 32 by the Backus Hospital. At this time, CTDOT was proposing a Route 2A expressway over the Thames River bridge, near Mohegan Sun; it appears some of the expressway was built, at least on the Mohegan Sun side of the river. This version of the master plan makes some splits in functional class of the roadways, dividing into principal and minor arterial. Route 82 continues to have the most crashes within the city, between downtown and I-395. Here is also the first mention of potential access management for Route 82 – a corridor study was conducted by CTDOT for this purpose, to reduce crashes. Bicycle routes are proposed and appear to be mainly for recreational use and circuitous in this plan; this was originally from SCCOG. Only bike routes are suggested. This is

also the first mention of removing traffic from Chelsea Harbor Drive to create a riverfront park area, but it notes that Water Street would need to be made two-way and a traffic analysis would need to be completed.

Figure 32 Crash Locations in the City of Norwich, 2002



Source: Norwich Plan of Conservation and Development, 2002

2.9.9 Action Plan for the Revitalization of Downtown Norwich (2004)

This plan was developed by the Connecticut Main Street Center. It recognizes Norwich as a unique place with unique architecture, but it has been destroyed bypass-through traffic and heavy automobile traffic. There is a negative view of downtown by residents, which is evident in previous plans and surveys discussed in this section. It says that neighborhood areas have not been too destroyed for parking lots and modern buildings and argues that social issues are in part due to the bad designs and ideas that have created a people-less place. Bad design and parking garages and lots create bigger problems, and the one-way street pairs do not work on the streets of Norwich that are not a grid. Downtown is not considered a place but a pass-through for traffic. Recommendations from the end of the report include:

- Make it easier and safer for pedestrians to get around.
- Fix the one-way street system that confuses people and put in wayfinding signage after this has been done.
- Include public art (to assist pedestrians and drivers in learning where they are).
- Display history and meaning of sites around downtown.
- Slow down traffic through downtown.

2.9.10 Norwich Plan of Conservation and Development – Strategic Element (2013)

This includes the section addressing Transportation and Mobility Needs. It suggests providing a balanced transportation system for all modes – drivers, transit, walking, and bicycling. The plan also refers to Complete Streets and Public Act 09-154, "An Act Improving Bicycle and Pedestrian Access", a state law passed by the Connecticut General Assembly in 2009. Public Act 09-154 states that accommodations for all users shall be a routine part of the planning, design, construction, and operating activities of all highways, and it applies to state and municipal projects. Specific goals in the Norwich 2013 POCD related to transportation include:

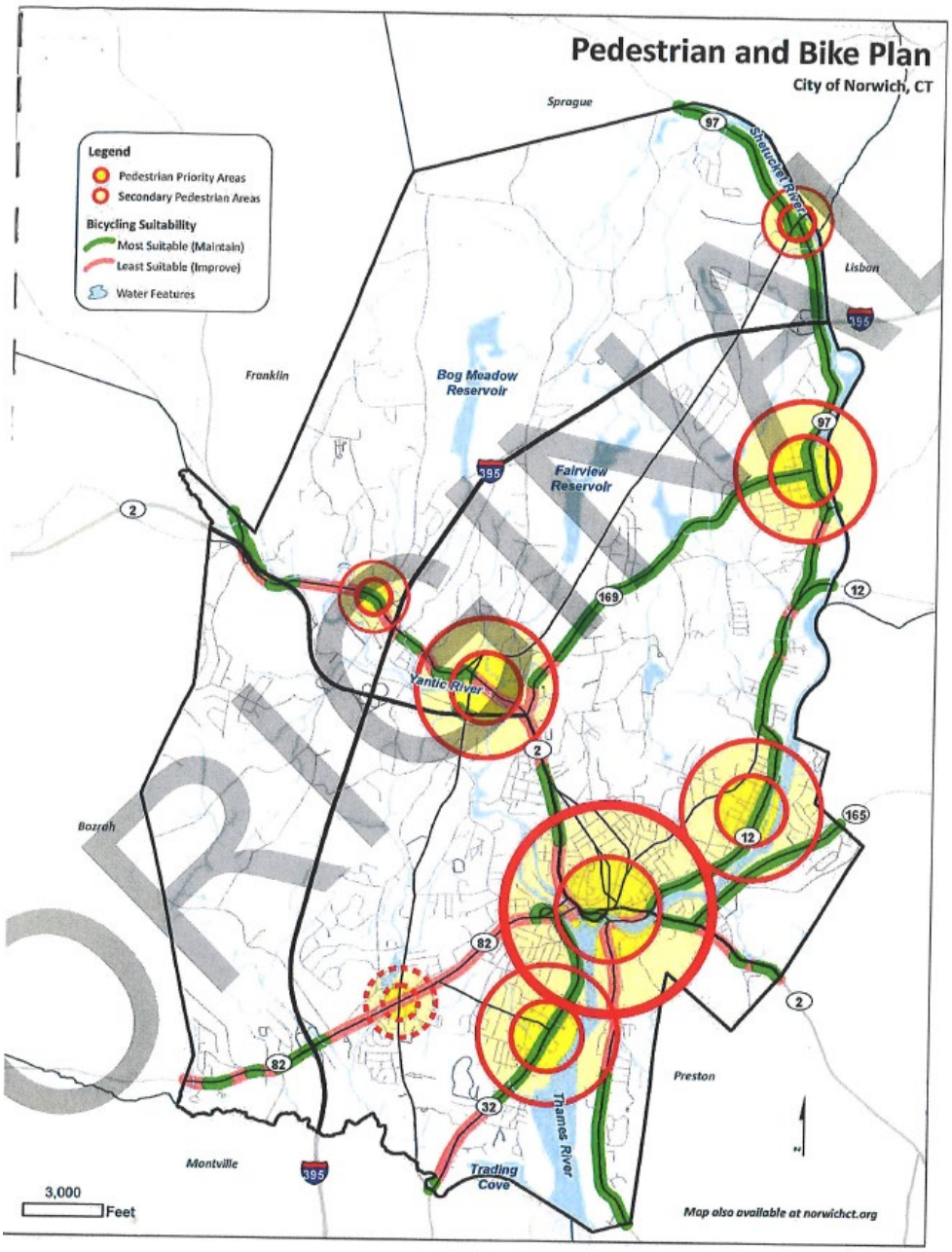
- Establish roadway connections – pedestrian/road connection from Backus Hospital and New London Turnpike
- Also, add a pedestrian and road connection between Three Rivers Community College, Uncas-on-Thames Campus, and Route 32 (including Norman Road)
- It continues to call for a full interchange at Route 2 & I-395.
- It recommends making safety/road improvements to Route 82
- For downtown, it suggests "get people to parking quickly, provide a safe clean environment for parkers, and provide a walkable and attractive streetscape."

In terms of pedestrian and bicycle provisions, it suggests increasing opportunities for these modes, and to identify priority pedestrian areas, bike routes, and try to become a Bicycle Friendly Community. A map is included that has general areas of pedestrian and bicycle priority areas, including downtown and the village areas, and shows the most and least suitable roads for biking (see Figure 33).

For public transportation, the goals are to maintain and expand SEAT service, support paratransit, explore providing water transit, and support water access improvements. Transit accessible areas

are all around downtown and along transit routes. Downtown streets are also listed as being minor arterials instead of major arterials.

Figure 33 Pedestrian and Bike Plan Map for Norwich, 2013



Source: Norwich Plan of Conservation and Development, 2013

2.9.11 Norwich Main Street Road Safety Audit (2016)

The City of Norwich worked with CTDOT to conduct a Road Safety Audit (RSA) on W. Main Street and the surrounding downtown area to improve safety for pedestrians and cyclists. The study area also included Main Street and Water Street from the Transportation Center to Park Street. There were a significant number of crashes from 2012-2014 in this area: 104 crashes total,

including 7 pedestrian crashes and 21 parking-related crashes. The pre-audit notes discuss how the downtown area has changed since Foxwoods opened. The City wants casino traffic to go around downtown and not through downtown. In addition:

- There is no route from the downtown area to the transportation center or marina that is both convenient and safe for people walking.
- There are no defined stops for SEAT bus routes – anyone can flag down a bus along the route.
- People would rather take the bus from the Transportation Center to downtown instead of walking.
- There is a desire to calm traffic through downtown.
- Intent to create a citywide bike plan.

Additional relevant notes from the RSA are:

- Long crosswalks at Courthouse Square and Washington Square
- Drivers not yielding to pedestrians
- Transportation Center garage is "lightly used"
- Lighting is an issue, not enough of it or blocked by trees/obstructions
- Desire to close Chelsea Harbor Drive in some capacity
- Excess of parking garages
- Pedestrians feel unsafe at bridges

Longer term objectives include studying circulation patterns, considering a roundabout at Main Street & Franklin Street (which was completed in 2021), and updating pedestrian facilities.

2.9.12 CTDOT Active Transportation Plan (2018)

The CTDOT Active Transportation Plan includes maps of priority streets for priority implementation of bicycle facilities. In the downtown Norwich area, these include Route 2 through the entire study area as part of the state on-road bike planning network, and Courthouse Square/Broadway going north past City Hall as a priority route that is municipally-maintained. The Route 2 section is considered part of Tier II for implementation at the state level (Tier II-1 to Tier II-5 and Tier II-6 to Tier II-8).

2.9.13 Norwich Complete Streets Policy (2022)

The City adopted a Complete Streets Policy in 2022, with an applicability statement "that all city owned transportation facilities in the public right of way including, but not limited to, streets, bridges, and all other connecting pathways shall be designed, constructed, operated and maintained to support the concept of Complete Streets so that users of all ages and abilities can travel safely and independently". The policy includes exceptions and is relevant to City streets only; however, the policy requires the City to work with CTDOT and SCCOG on implementing complete streets improvements along State routes.

In addition, CTDOT has a new completes street design criteria for projects as noted in Section 2.9.16 below and will be incorporated in future recommendations for the project study area.

2.9.14 SCCOG Metropolitan Transportation Plan (2023)

The SCCOG Metropolitan Transportation Plan (MTP) presents the goals of the regional transportation system and local priorities for transportation projects. Norwich is noted as being below its historical population, indicating latent potential for infill growth; SCCOG supports revitalizing urban centers with multi-modal options. It describes the challenge of through-traffic on Route 2 and the demand created by the region's two casinos, Mohegan Sun, and Foxwoods. It suggests re-routing traffic south on I-395 to Route 2A, but there is a bottleneck in the village of Poquetanuck, in Preston. CTDOT has studied this issue, which would require expanding the Mohegan-Pequot Bridge and building a limited-access bypass of Route 2A, but this has historically been opposed by the Town of Preston and is not supported by current traffic levels.

Route 82 in Norwich is listed as a high priority project. However, unlike previous plans, the improvements to the interchange of Route 2 and I-395 does not appear on the list of priority projects.

2.9.15 Norwich Plan of Conservation and Development (2023)

The most recent Plan of Conservation and Development for the City of Norwich (also known as Envision 06360) notes that "Transportation options for all system users—people who walk, bike, drive, or use public transit—is a key goal of Envision 06360." The "Connect" transportation/infrastructure planning theme mentions the City's Complete Streets policy, and Transit-oriented development projects. The "Live" goal also looks to have "vibrant nodes and corridors."

2.9.16 CTDOT Complete Streets Design Criteria to Improve Roadway Safety and Enhance Mobility (August 24, 2023)

The Connecticut Department of Transportation (CTDOT) has implemented new Complete Streets design criteria to be incorporated into all projects. The Complete Streets design criteria is an expansion of CTDOT's Complete Street Policy, ensuring that every project includes a focus on pedestrian and bicyclist facilities and public transportation operations to create stronger intermodal transportation networks and improve safety.

2.9.17 Eastern Connecticut Corridor Rail and Transit Feasibility Study (2023)

This study, which is currently in draft form, was directed to CTDOT by the Connecticut General Assembly to study the feasibility of extending the Shore Line East rail service to the state of Rhode Island, establishing a new passenger rail service from the City of New London to the City of Norwich, establishing a new passenger train station in the Town of Groton and the Borough of Stonington, and extending ground transportation systems in the eastern region of the state and providing interconnection between such systems and rail lines. The Study reviews existing conditions in the study area, particularly with regard to existing rail service and existing economic characteristics, and public outreach conducted, before going into the preliminary feasibility assessment. As part of the assessment of extending rail service between New London and Norwich, the study reviews two tracks along the east and west banks of the Thames River that

currently accommodate limited freight service. Additionally, the Study looked at two potential rail station locations in the downtown Norwich area, one serving a "Norwich West" routing and one serving a "Norwich East" routing. The potential site location for the Norwich West routing is on North Thames Street, between W. Main Street and West Side Boulevard, adjacent to the Yantic River across from Hollyhock Island. The Study (Appendix F) notes that "Proximity to the Norwich Transportation Center and Parking Garage provides an opportunity to support a multimodal connectivity as a hub for passenger rail traffic and commuting between Norwich, New London, and beyond." The Norwich East routing station location would be at the historic Norwich Train Station on Main Street (10 Railroad Avenue). The Study notes the significant potential of the site, given its central location in downtown Norwich and proximity to transit, businesses, state routes, and existing pedestrian infrastructure. However, the Study recommends moving forward with rail service on the west side of the Thames River between New London and Norwich (known as the Palmer Line), due to operational issues with crossing the Thames River Bridge between New London and Groton. Therefore, the potential location of the train station on the west side of Norwich's downtown would be the most likely site for new passenger rail service that comes out of the Eastern CT Corridor Rail & Transit Feasibility Study.