

4.0 Existing Social, Economic and Environmental Conditions

The Existing Social, Economic, and Environmental Conditions within the I-84 Hartford Project Area have been analyzed to identify the needs and deficiencies that the Project will address. The future impacts of an alternative, both positive and negative, are based on this assessment of existing conditions. Each of the elements analyzed below were evaluated within the Social, Economic, and Environmental Study Area (the Study Area, for the duration of this section). The Study Area comprises an area the length of the Project Study Corridor and extending approximately half a mile north and south of I-84. See Figure 4-1, following, for an illustration of the Social, Economic, and Environmental Study Area and key features within the Study Area. See the Study Areas Map, page 1-3, for further location information.

4.1 Land Use

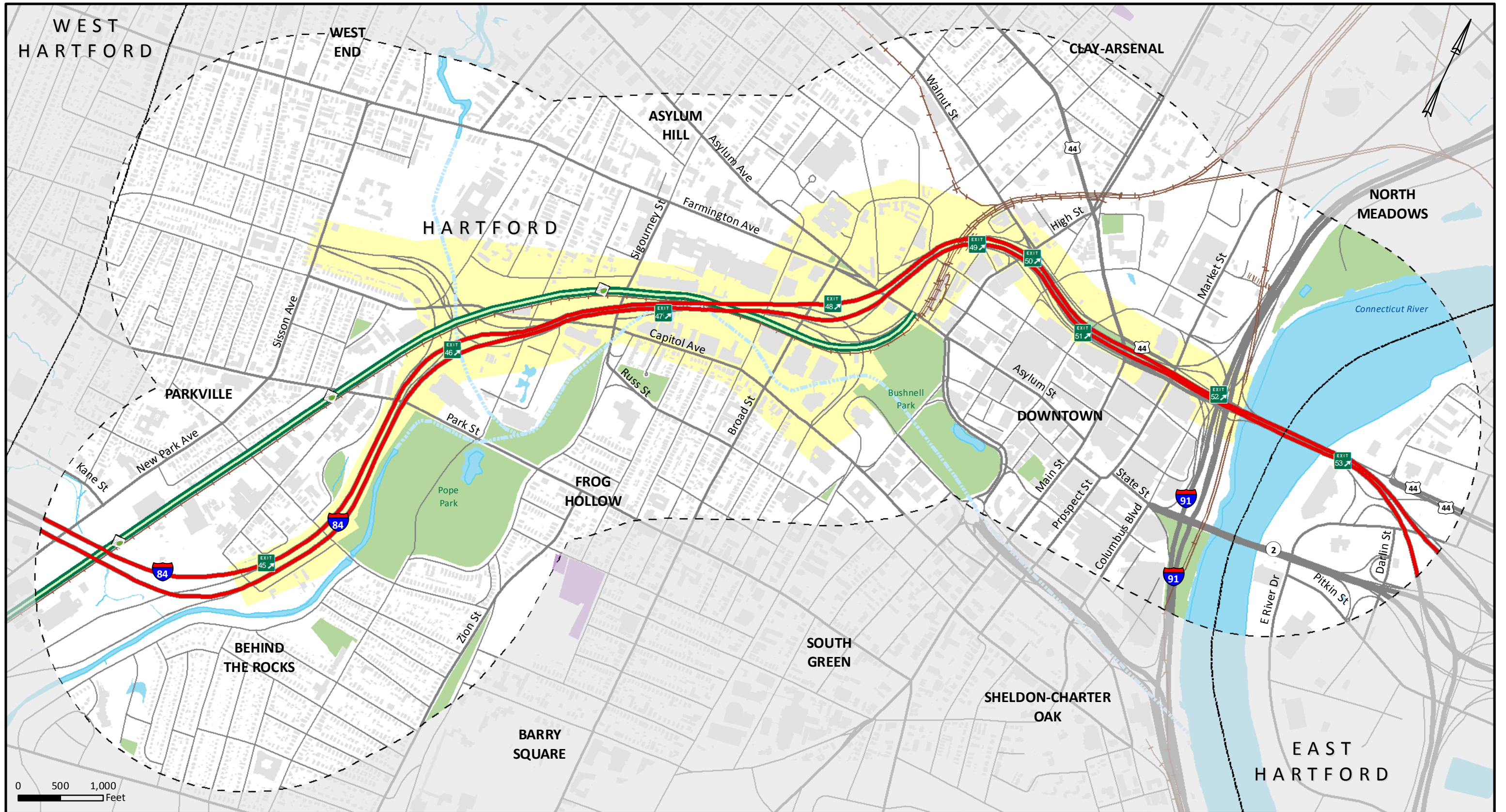
City of Hartford Land Use data and classifications were consulted for the land use evaluation. Land uses in the Study Area are characterized by a diversity of types: primarily residential (low, medium, and high density), office, retail, light industrial, education, government, and transportation/parking. Generally speaking, residential uses are located at the periphery of the Study Area, while the inner band of uses along I-84 is comprised of light industrial, green space (Pope Park and Bushnell Park), office, governmental, and transportation/parking. Land use is presented graphically in Figure 4-2, page 4-3.

4.1.1 New Park Avenue to Park Street

West of I-84, this area exhibits a large concentration of active light industrial and office uses with one large retail component (Stop and Shop Plaza). East of I-84, there are organized neighborhoods of single and multi-family housing between Flatbush Avenue and Zion Street. Near Park Street, I-84 divides Pope Park, a large neighborhood park of 71 acres, into sections east and west of the highway. Park Street is an active retail street between Prospect and Sisson Avenues.

4.1.2 Park Street to Asylum Avenue

West of I-84, the area between Park Street and Farmington Avenue is primarily residential. The I-84 Interchange 46 ramps cross above Capitol Avenue just south of Hartford High School. The Mark Twain and Harriet Beecher Stowe houses (see Section 4.9: Historic and Archaeological Resources) are on Farmington Avenue. East of I-84 includes a mix of retail (old Caldor shopping plaza) and residential areas around Russ and Broad Streets. Three major land uses within this area include the Aetna corporate campus to the west and the State Capitol and Bushnell Park to the east.

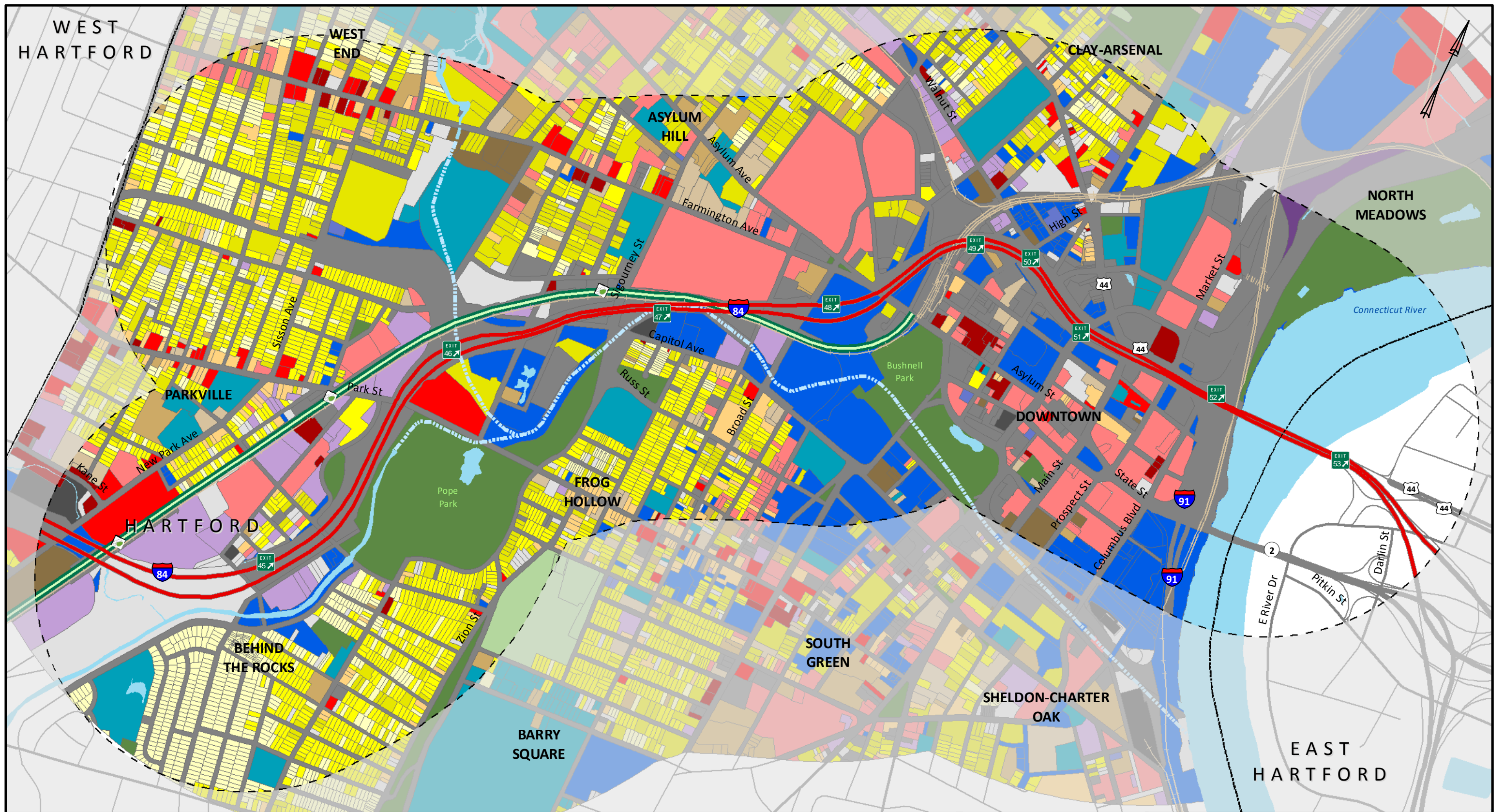


LEGEND	I-84 Exit	Interstate Highway	Railroad	Park River Conduit
	CT Fastrak Station	US Highway	CT Fastrak	Building Footprint
	I-84	Major Road	Study Area	Cemetery
	Project Corridor	Local Road	City Boundary	Park
			Water	

Sources of Data: City of Hartford, ESRI, CT DEEP, National Register of Historic Places, CDOT, US Census Bureau 2010

Notes: Colors/elements outside of study area muted intentionally.

The I-84 Hartford Project		
Study Area Map		
Date: 4/29/2014	Drawn By: AECOM	Figure No: 4-1



I-84 Exit	Study Area	Park	Emergency Services	Medium Density Residential	Commercial
CT Fastrak Station	City Boundary	Church	Government	High Density Residential	Transportation/Parking
I-84	Park River Conduit	Cultural	Light Industrial	Mixed Residential and Commercial	Utilities
Railroad	Water	Institutional	Heavy Industrial	Office	Vacant
CT Fastrak	Cemetery	Education	Low Density Residential	Retail	

Sources of Data: City of Hartford, ESRI

Notes: Colors/elements outside of study area muted intentionally.

0 500 1,000 Feet

The I-84 Hartford Project

Land Use Map

Date: 4/30/2014 Drawn By: AECOM Figure No: 4-2

4.1.3 Asylum Avenue to I-91

This area is comprised of Asylum Hill, Clay Arsenal, the North Meadows, and Downtown. Large office land uses such as The Hartford corporate complex are north of Asylum Avenue, transitioning to residential uses along Albany Avenue (US 44) in the Clay Arsenal neighborhood. Union Station sits directly adjacent to I-84 with Downtown extending east to I-91 and the Connecticut River. Downtown consists primarily of office and government uses, but also has a variety of retail and commercial land uses with the XL Center sports arena and convention center centrally located at Trumbull and Church Streets.

4.1.4 CTfastrak

The CTfastrak dedicated bus network between New Britain and Downtown Hartford began service in March 28, 2015. CTfastrak is an exclusive two-lane guideway for buses that also built 10 new transit stations. Parcels along the Amtrak rail corridor have been converted for this use. Three of the eleven stations and stops are within the Study Area: Parkville, Sigourney Street, and Union Station. The guideway runs parallel to the train tracks on the west side of I-84 between Kane Street and Sigourney Street but shifts to the east side of I-84 at Flower Street. The guideway terminates at Union Station where passengers will be able to make connections to local shuttle buses or continue to downtown destinations. For further information on CTfastrak, see Section 2.1.4: Bus Transportation.

4.2 Zoning

Table 4-1, below, and Figure 4-3, on page 4-6, present the 14 different zoning classifications adopted by the City of Hartford within the Study Area, and their intended purposes. The zoning map was last updated by the City of Hartford in 2008.

In general, the Study Area is zoned for a mix of commercial or business activity. A number of the zones are structured to encourage a mix of complementary uses and designed to foster neighborhood cohesion and a sustainable downtown. The remaining areas are zoned for primarily residential uses at varied densities as well as some mixing of uses with residential. There is a single sizeable area zoned industrial at the southwestern edge of the Study Area.

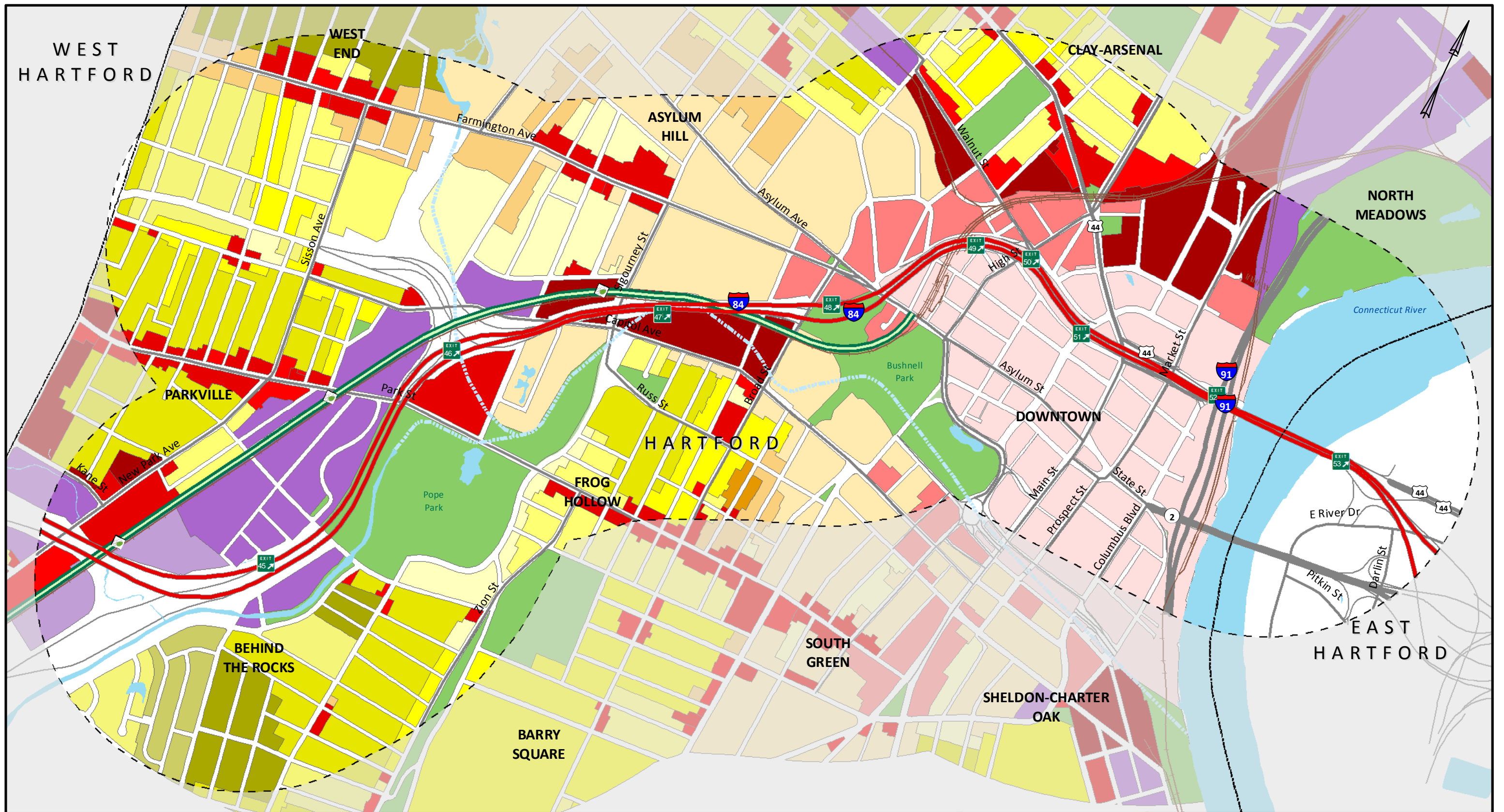
Table 4-1: Zoning Districts within the Study Area

Zoning District	Primary Purposes
B-1	Downtown Development District; mixed retail, office and residential development compatible with the character of the downtown area and conforming to the Downtown development plan.
B-2	Downtown Perimeter District; development that will provide sensitive transitions in the scale, use and intensity from the B-1 downtown development district to surrounding residential areas.
B-3	Business District (general-linear business) to provide for linear, "strip" or "shoestring" commercial streets by the concentration of shopping areas.

Table 4-1 (ctd.): Zoning Districts within the Study Area

Zoning District	Primary Purposes
C-1	Commercial District; locations for uses such as storage warehouses, wholesalers, laboratories, computer centers and display rooms and offices of equipment manufacturers where the equipment is medium or large in size.
I-1	Industrial District; heavy industrial district intended as an area for the location of the city incinerator, automobile wrecking yards and similar uses.
I-2	Industrial District; medium to heavy industry characterized by a minimum of noise, odor, glare, and pollution, and by moderate traffic upon the public streets; it is intended to support continuation of clustered areas of this type of industry.
RO-1	Residence-Office District (300 PPA*); financial, insurance, government, personal services and other similar offices together with multiple residence structures, boardinghouses and rooming houses.
RO-2	Residence-Office District (225 PPA*); Similar to RO-1 with lower permissible persons per acre.
R-1	Residence District (150 PPA*); high density, multiple-family residential structures on the perimeter of the downtown development district, on Asylum Hill, and in other areas which are desirable sites for this use because of proximity to employment, parks, commerce, transportation, etc.
R-2	Residence District (high density, 100 PPA*); relatively high density multiple-family residential structures.
R-3	Residence District (medium density, 75 PPA*); similar to R-2 but outside the Asylum Hill and central areas and with lower residential density permitted.
R-4	Residence District (three-family); similar to R-2 with lower residential density permitted and allowing for new forms of medium density multiple residences; to encourage new and modern construction but limiting the conversion of older structures.
R-5	Residence District (one- and two-family); low density residential; minimum lot size of 7000 square feet.
R-6	Residence District (one-family); single-family with minimum lot size of 6000 square feet.
R-7	Residence District (one-family); single-family with minimum lot size of 7500 square feet.
R-8	Residence District (one-family); Low-density areas of single-family residences with minimum lot area of 12,000 square feet.
P	Public Property and Cemetery District; Public parks and recreational uses such as skating rinks, public swimming pools, and zoos. Large cemeteries and expressways and highways are included in this district.

*PPA = Persons Per Acre



LEGEND

	I-84 Exit		Interstate Highway		Park River Conduit
	CT Fastrak Station		US Highway		Water
	I-84		Major Road		
	Study Area		Railroad		
	City Boundary		CT Fastrak		

	B-1		B-4		I-2		R-2		R-5		R-8
	B-2		C-1		P		R-3		R-6		RO-1
	B-3		I-1		R-1		R-4		R-7		RO-2
											RO-3

Sources of Data: City of Hartford, ESRI

Notes: Colors/elements outside of study area muted intentionally.

0 500 1,000 Feet

The I-84 Hartford Project

Zoning Map

Date: 4/29/2014 Drawn By: AECOM Figure No: 4-3

4.3 Neighborhoods

City of Hartford neighborhood data and classifications, Hartford's *One City One Plan* plan of conservation and development (POCD), and a visual assessment were consulted for the neighborhoods evaluation. Portions of eight neighborhoods are located within the Study Area: Behind the Rocks, Parkville, Frog Hollow, the West End, Asylum Hill, Downtown, Clay Arsenal, and North Meadows. These neighborhoods are shown graphically on Figure 4-4, following. Numerous planning and development initiatives are ongoing within these neighborhoods related to complete streets, planning, zoning, economic development, revitalization, small business development, housing, marketing, licensing, and policy-making. Some are well known - such as the ongoing iQuilt Partnership and Intermodal Triangle initiatives in Downtown - while others are smaller and more neighborhood specific. The complete list of initiatives can be found in the City of Hartford Department of Development Services, *Project Updates Report*, 2013 as well as Chapter 13 of the *One City One Plan* POCD, adopted in June 2010. A brief description of each neighborhood as it relates to the Study Area follows.

4.3.1 Behind the Rocks

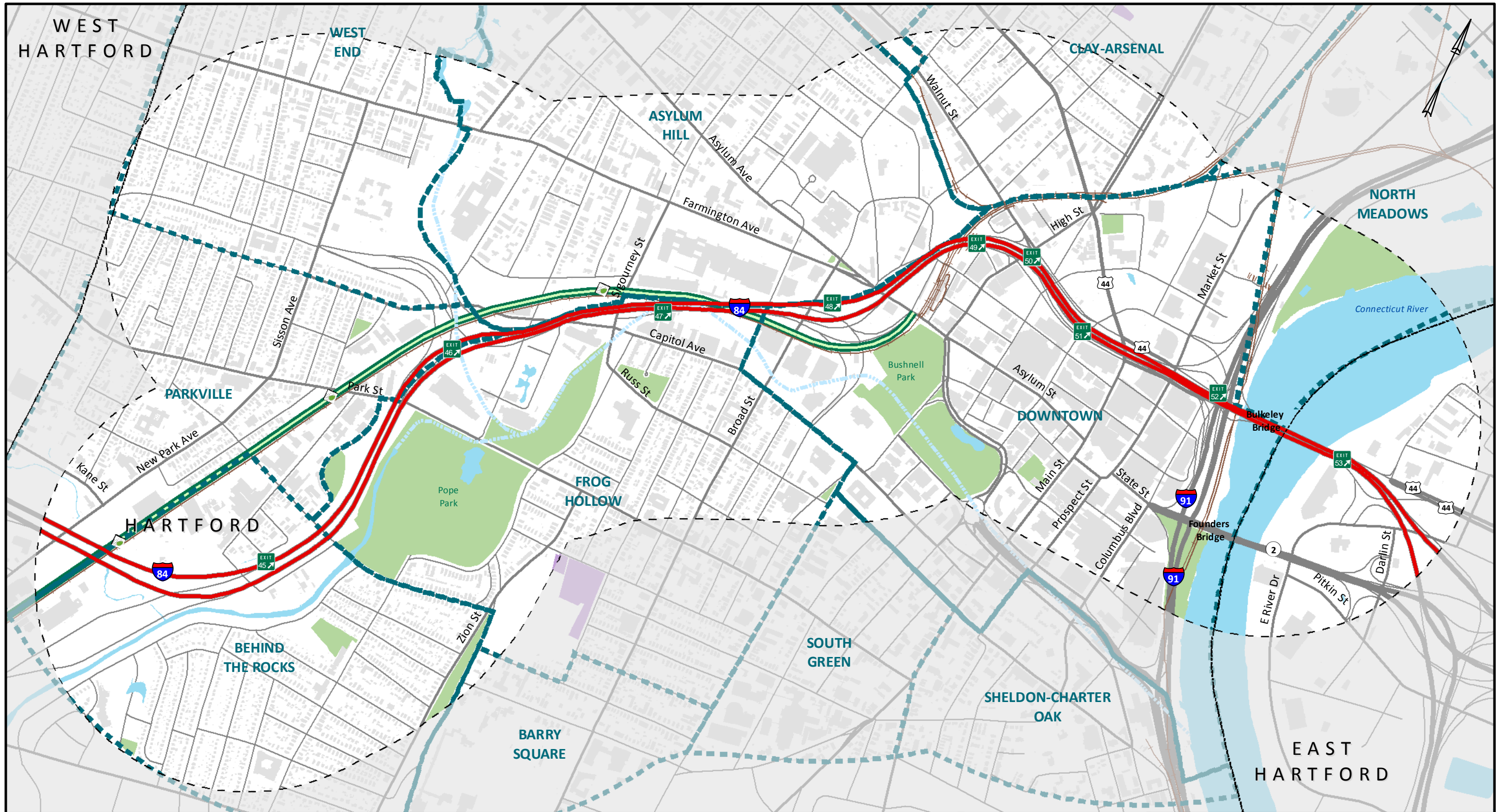
Located at the southwestern limits of the Study Area, approximately 90% of Behind the Rocks is within the Study Area. The neighborhood is characterized by extensive residential blocks south of Hamilton Street and west of Zion Street and by light industrial/office uses west of I-84. Behind the Rocks encompasses the Interchange 45 (Flatbush Avenue) ramps which run parallel to the South Branch of the Park River; the latter is contained in a man-made concrete channel, surrounded by green space.

4.3.2 Parkville

Located at west of I-84, approximately 90% of Parkville is located within the Study Area. Parkville is defined by the retail uses along Park Street (a multitude of shops, restaurants, and small local businesses) surrounded by clearly defined residential neighborhoods south of Capitol Avenue. A light industrial area with a design center, restaurant, offices, and emerging residential component exists near the railroad line and I-84. Parkville is also home to the offices of Hartford's Real Art Ways, a long-standing cultural institution in the city.

4.3.3 Frog Hollow

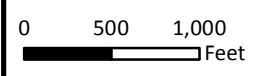
South of I-84, approximately 75% of Frog Hollow is located within the Study Area. Pope Park is the central defining feature of Frog Hollow. The neighborhood is bounded to the north by Downtown at Capitol Avenue and extends south to Hamilton Street. Frog Hollow includes a number of governmental uses surrounded by residential neighborhoods around Russ and Broad Streets (as well as the Billings Forge Community Works, a well-known not-for-profit job training center). Extensive surface parking lots exist both behind government offices along Capitol Avenue as well as underneath I-84. Based on interviews with stakeholders, the neighborhood is disconnected between the adjacent Parkville and Asylum Hill, with the expansive presence of I-84 and its ramps a contributing factor, as noted in Appendix A.3.1.



LEGEND	I-84 Exit	Interstate Highway	CT Fastrak	Cemetery
	CT Fastrak Station	US Highway	Park River Conduit	Park
	I-84	Major Road	Neighborhood	Water
	Study Area	Local Road	Building Footprint	
	City Boundary	Railroad		

Sources of Data: City of Hartford, ESRI

Notes: Colors/elements outside of study area muted intentionally.



The I-84 Hartford Project

Neighborhood Map

Date: 4/29/2014

Drawn By: AECOM

Figure No: 4-4

4.3.4 West End

Towards the northwest of the Study Area, approximately 50% of the West End neighborhood is located within the Study Area. This area includes the Interchange 46 (Sisson Avenue) ramps, extensive residential neighborhoods west of Sisson Avenue, and the Farmington Avenue retail corridor with a variety of shops, restaurants, gas stations, and small businesses. Hartford Public High School straddles the border of the West End and Asylum Hill neighborhoods and is in close proximity to the I-84 and Interchange 46 ramp overpasses over Capitol Avenue and the railroad.

4.3.5 Asylum Hill

North of I-84, approximately 60% of Asylum Hill is located within the Study Area. Asylum Hill is centered on Farmington and Asylum Avenues. Residential and commercial neighborhoods (including the Mark Twain and Harriet Beecher Stowe houses on Farmington Avenue) give way to larger uses towards downtown. The Hartford Financial Services Hartford campus fronts onto Asylum Avenue with nearby multi-family residential buildings and large surface parking areas behind it. The Aetna corporate campus is located between I-84 and Farmington Avenue between Sigourney and Flower Streets. Flower Street was closed to vehicular and pedestrian traffic in 2013. Based on stakeholder interviews, the neighborhood feels disconnected from neighboring Frog Hollow and Downtown partly due to the lack of connectivity across I-84 and its ramps.

4.3.6 Downtown

Approximately 90% of Downtown is located within the Study Area. Downtown extends from Union Station, the State Capitol, and Bushnell Park on the west to the Connecticut River to the east, Capitol Avenue to the south and the area known as North Park to the north of I-91. Asylum Avenue becomes Asylum Street after crossing I-84 and is the main spine through Downtown, intersecting Main Street near the historic Old State House, the landmark Travelers Tower, and the Wadsworth Atheneum. The XL Center sports, entertainment, retail, and residential complex sits in the middle of Downtown surrounded by a variety of office and commercial uses. Towards the river, large office buildings at Constitution Plaza and the iconic Phoenix Mutual Life Insurance Building along State Street give way to the Connecticut Science Center and the Mortensen Riverfront Plaza which reaches across I-91 and steps down to the water below the Founders Bridge (Route 2 over the Connecticut River). South of State Street, the Adriaen's Landing development district sits next to the Connecticut Convention Center. Downtown also includes commercial/light industrial lands north of I-84, dominated by large surface parking lots and large industrial office buildings around Windsor, Trumbull, and Pleasant Streets.

4.3.7 Clay Arsenal

In the northern sections of the Study Area, approximately 40% of Clay Arsenal is located within the Study Area. This area includes lower Albany Avenue (US Route 44), lined by a variety of small businesses below apartments, and Walnut Street, which hosts a number of automotive establishments and other light industrial uses. A mix of single- and multi-family residential neighborhoods lies between these two primary corridors and around the Thomas Quirk Middle School. A portion of Main Street also runs through Clay Arsenal with a mix of small retail businesses and multi-family housing developments.

4.3.8 North Meadows

Approximately 40% of the North Meadows is located within the Study Area. The North Meadows is situated next to the Connecticut River, more or less parallel to I-91. The North Meadows is comprised of Riverside Park, which includes a recently constructed boat house and community center facility at the edge of the river. Large trees, lawn areas, pathways, a gazebo, a boat launch area, and a parking lot are also part of the Riverside Park facilities. A large pedestrian bridge connects North Meadows to North Park and the Market Street area across I-91.

4.4 Community Resources and Institutions

There is a rich diversity of community resources and institutions in the Study Area. These include schools, churches, and parks that offer community gathering places and contribute to a community sense of place and cohesion. They also include community government and safety facilities such as government offices, police and fire stations, as well as major cultural destinations and entertainment venues. These resources are illustrated in Figure 4-5, following, and listed in Table 4-2, page 4-12. A complete listing is provided in Appendix A.3.5.

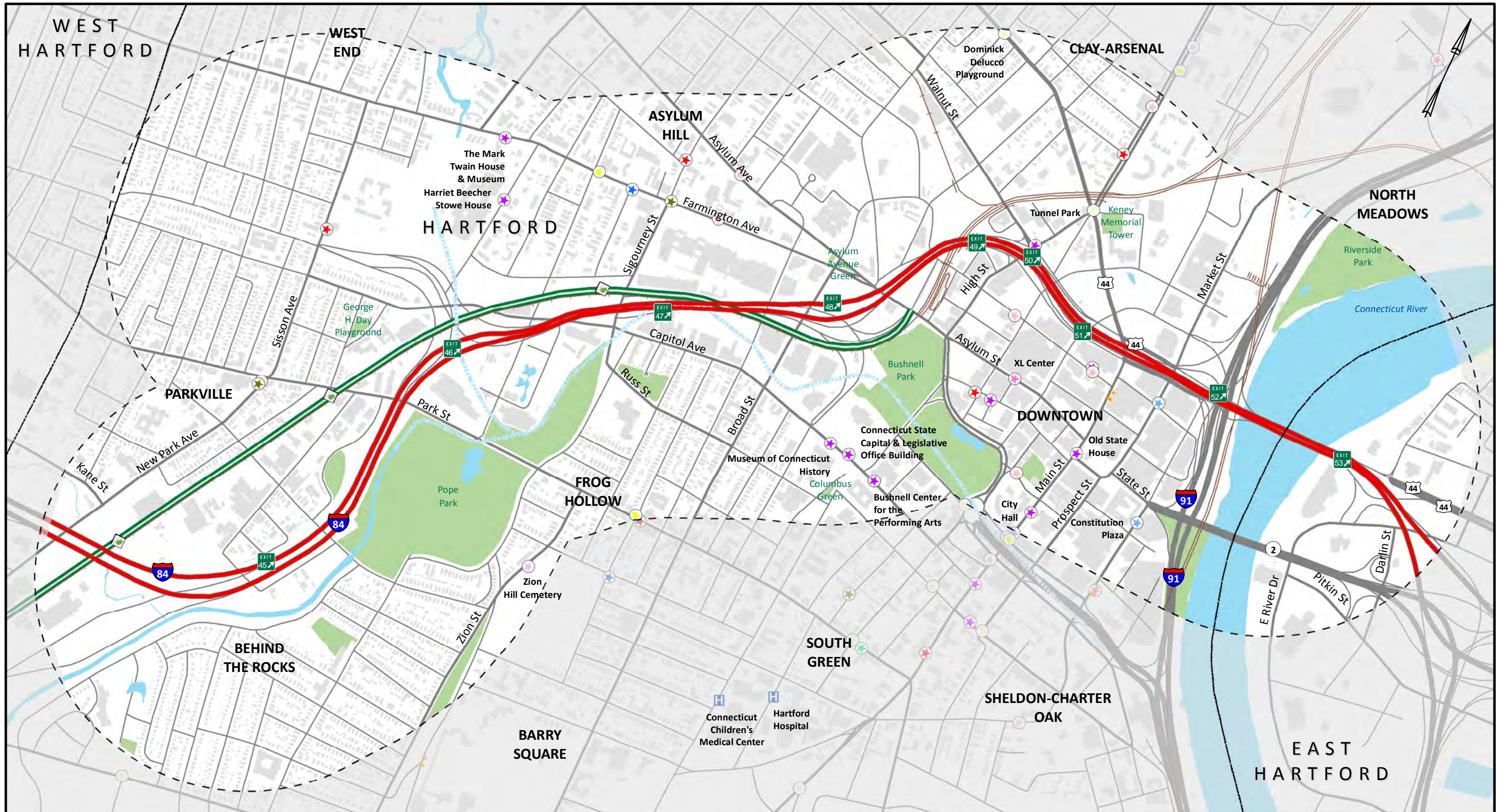
Notable individual community resources and institutions in the Study Area include:

- the State Capitol and State Legislative Office Building, located adjacent to Bushnell Park on Capitol Avenue;
- Trinity College, located slightly southwest of the Study Area, which has been active in fostering revitalization and stability in the neighborhoods surrounding the campus; and
- two large entertainment venues in Downtown: the XL Center and the Connecticut Convention Center.

The variety and number of resources is indicative of the Hartford urban core as both a destination and cultural hub, as well as being composed of a number of cohesive neighborhoods defined in part by a distinctive collection of community assets as described in Section 4.3 above.

Interviews were conducted with a number of the institutions and organizations located in and around the Study Area. The following is a summary of existing conditions and travel patterns associated with each. For further information, see Stakeholder Interview Summaries, Appendix A.3.1

- The churches attract a large amount of visitors from outside the city. Emmanuel Church estimates that 80% of its parishioners are from the suburbs (mainly West Hartford, Farmington, and Glastonbury) and travel in for services.
- The Cathedral of Saint Joseph hosts more than 100,000 visitors each year, with 1,500 per week at mass. The cathedral also hosts concerts, community events, graduations and weddings.
- Trinity Episcopal has a more local congregation, with a large percentage of the Burmese community living in the Laurel Street/South Marshall neighborhood that walk to the church. There is also a large Indian community from the Union Station area that attends the church.

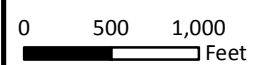


LEGEND

- | | | | | | |
|--------------------|--------------------|-------------------------|----------------|-----------------------|--------------------|
| I-84 Exit | Interstate Highway | Cemetery | Library | Recreation Center | Park River Conduit |
| CT Fastrak Station | US Highway | Civic | Municipal | Religious Institution | Park |
| I-84 | Major Road | Culture & Entertainment | Museum | Secondary Education | Water |
| Study Area | Local Road | Fire Department | Open Space | Senior Center | Building Footprint |
| City Boundary | CT Fastrak | Hospital | Police Station | | |
| | Railroad | | | | |

Sources of Data: City of Hartford, ESRI

Notes: Colors/elements outside of study area muted intentionally.



The I-84 Hartford Project

Community Resources and Institutions Map

Date: 6/24/2014

Drawn By: AECOM

Figure No: 4-5

- Hartford Hospital is an 867-bed facility and has the second busiest operating room in the Northeast. An average of 10,000 people comes through the front lobby daily. The hospital is located just to the south of the Study Area.
- The St. Francis Hospital complex is located just to the north of the Study Area.
- Ambulances for area hospitals currently look to the main roads/boulevards in and out of the city for alternate routes during high traffic periods on area highways. Roads currently used are New Britain Avenue, Farmington Avenue, Asylum Avenue, and Albany Avenue. Patients are sometimes routed to New Britain General Hospital due to traffic in Hartford.

Table 4-2: Community Resources and Institutions within the Study Area

Community Resource or Institution Type	Number within the Study Area
Cemetery	1
Colleges, Universities and other Secondary Educational Facilities	1
Culture and/or Entertainment Venue	4
Government	4
Fire Departments	4
Libraries	3
Municipal	3
Museums	12
Parks, Plazas, and Other Open Space	8
Police Station/Substation	1
Recreation Center	1
Religious Institution	6
Senior Centers	2

4.5 Demographics

Demographic characteristics considered for the Study Area include residents, their employment, and housing. Consequently, the analysis of existing conditions for demographics addresses the following: population, housing, income and employment, and commute patterns.

2010 US Census Bureau data were used to determine the demographic aspects of the Study Area. Census Tracts and Block Groups located were mapped to reflect variations in these aspects across the Study Area. The block groups within the Study Area are illustrated in Appendix A.3.4. A number of the block groups extend substantially beyond the Study Area limits, therefore, in order to best represent the Study Area traits, any block group that falls partially within, but is 75% or more outside the Study Area, was eliminated from the demographic data tabulations.

Since the 2010 Census does not provide population and housing data at the same level of data as the 2000 Census, this analysis contained herein supplements data from the 2010 Census with data contained in the 2009 American Community Survey (ACS), the 2011 ACS updates, and information from the Connecticut Economic Resource Center (CERC). The ACS contains Census data that has been updated via surveys (yielding sample data) and projections of trends from both the 2000 and 2010 US Census forward.

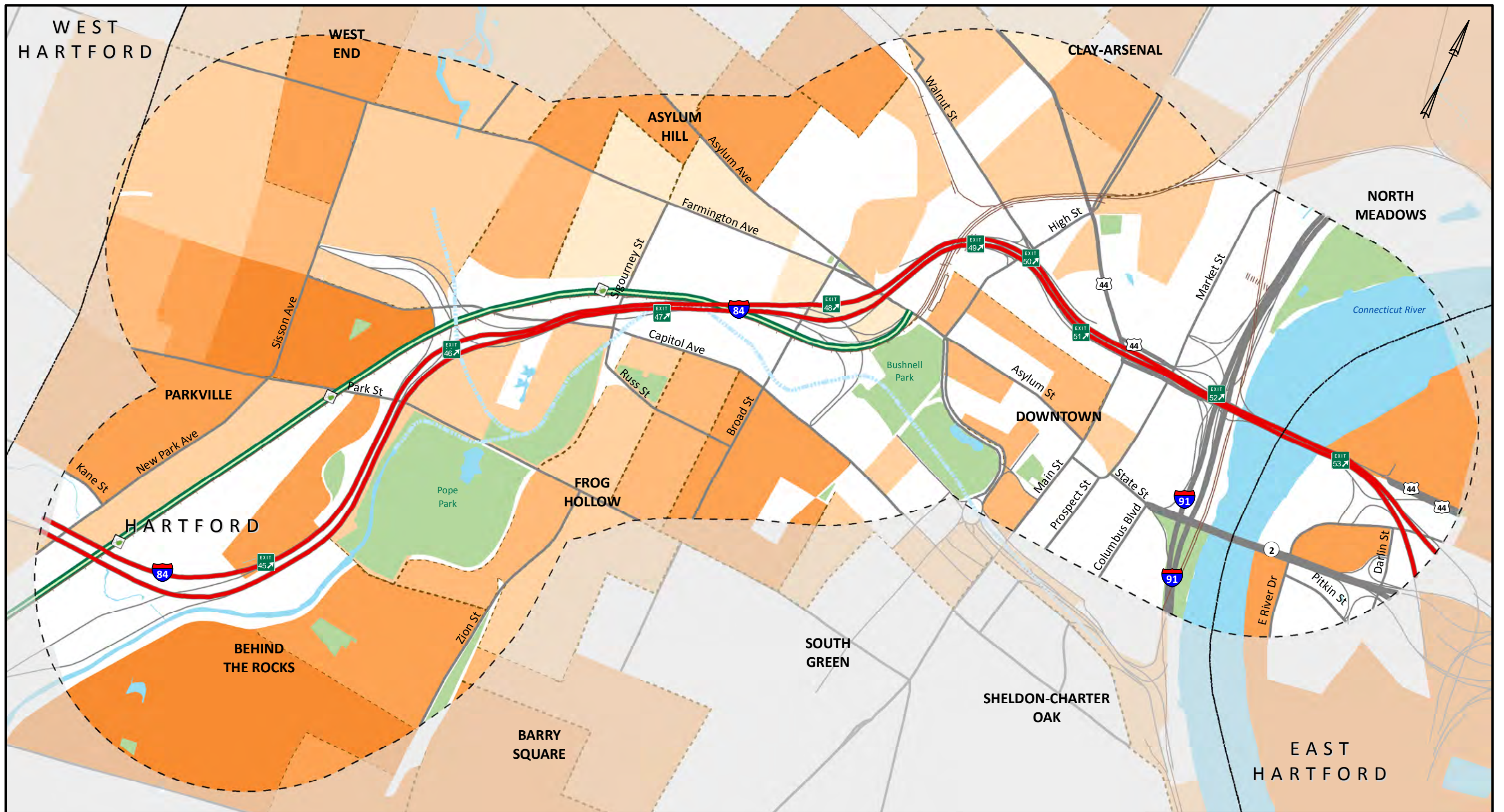
4.5.1 Population Characteristics

As the Study Area stretches across the core of the City of Hartford, population characteristics are quite diverse. Table 4-3, below, indicates the distribution of the Study Area population by age and ethnicity. The total population of the Study Area, 33,757 people, represents approximately 26.5% of the total population of the City of Hartford (127,775 people). The data indicates a substantial portion of the population (nearly 62%) is of employment age, falling between the ages of 18 and 59. In terms of ethnicity within the Study Area, there were a number of responses. It is typically assumed that there is some human error on the respondent's end in choosing multiple ethnicities. The Study Area is predominantly comprised of minority ethnicities with approximately 33% self-identifying as White. Of the total population, almost 48% are Hispanic, 30% African American, and 28% self-identified as Other Race. The Other Race category includes all other responses not included in the White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander race categories. Please note that, for the US Census, Hispanic is considered a separate category, and so the percentages do not add up to 100%.

Table 4-3: Study Area Population Characteristics

	Total	Percent (%)
Population	33,757 people	100%
<5 years	2,669	7.9%
5-17 years	5,879	17.4%
18-59 years	20,854	61.8%
60-79 years	3,720	11.0%
80 years and over	635	1.9%
White		
White	11,039	32.7%
African-American		
African-American	10,171	30.1%
American Indian, Eskimo or Aleut/ Alaska Native		
American Indian, Eskimo or Aleut/ Alaska Native	511	1.5%
Asian or Pacific Islander		
Asian or Pacific Islander	1,333	3.9%
Other (single use)		
Other (single use)	9,497	28.1%
Two or more races		
Two or more races	2,412	7.1%
Hispanic or Latino		
Hispanic or Latino	16,177	47.9%

The distribution of the resident population within the Study Area is illustrated in Figure 4-6, following, and Figure 4-7, page 4-15. The density graphic indicates that the population per Census block group is highest at the eastern and western edges of the Study Area. These are predominantly residential neighborhoods with a diversity of housing from single-family to three-family to multi-family complexes. The population is least dense in the center of the Study Area and west of Hartford's downtown core. This is an area predominantly of commercial, entertainment and office uses, typical of an urban downtown with a comparatively limited number of residential units.



LEGEND

- I-84 Exit
- CT Fastrak Station
- I-84
- Study Area
- City Boundary
- Interstate Highway
- US Highway
- Major Road
- Railroad
- CT Fastrak
- Park River Conduit
- Park
- Water

Residents per Block Group

- < 500
- 501 - 1,000
- 1,001 - 1,500
- 1,501 - 2,000
- 2,001 - 2,500
- > 3,000

Sources of Data: City of Hartford, US Census Bureau 2010, ESRI

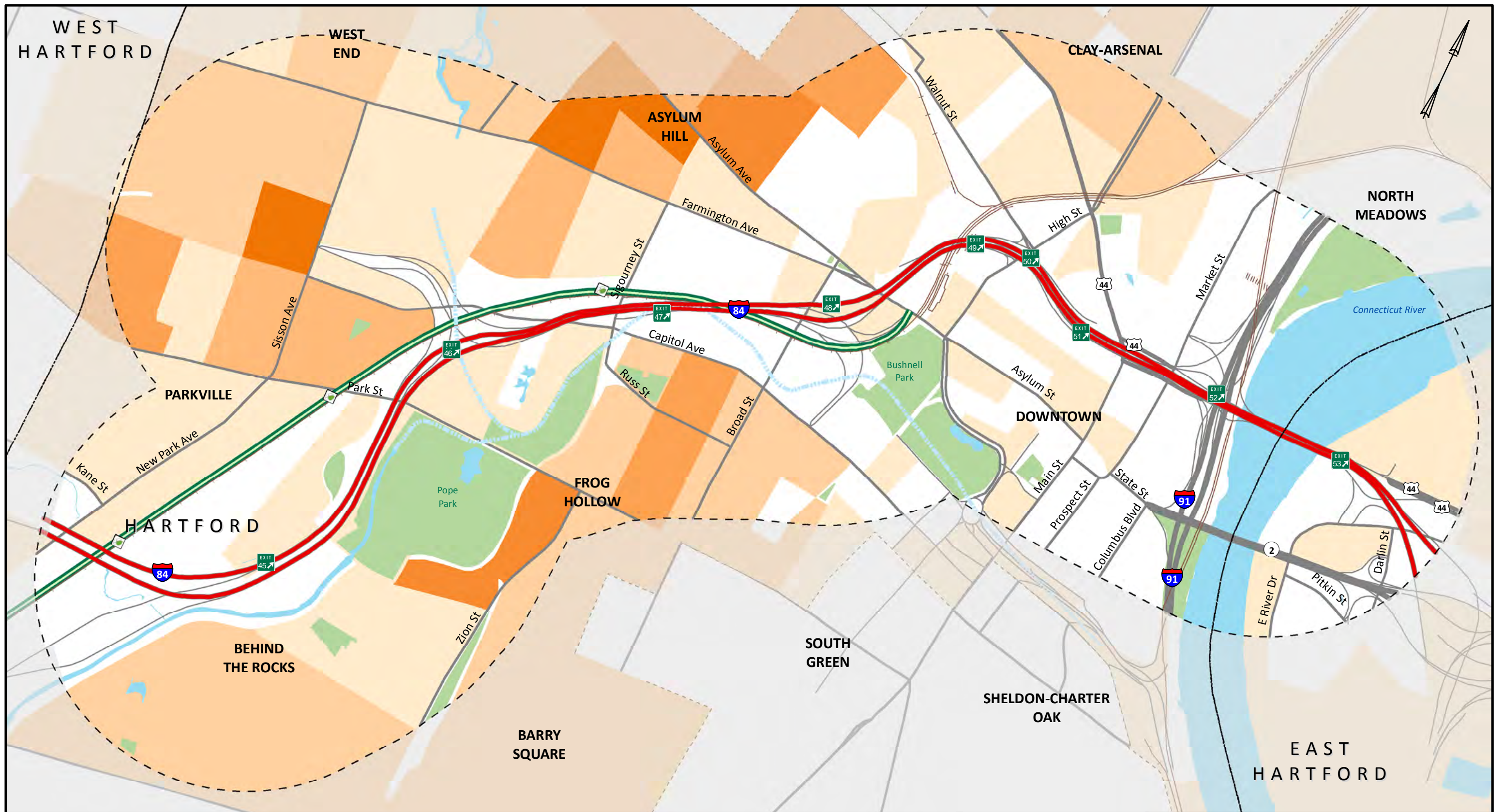
Notes: Colors/elements outside of study area muted intentionally. Population data displayed by 2010 Census block group.

0 500 1,000 Feet

The I-84 Hartford Project

Population Map

Date: 6/24/2014 Drawn By: AECOM Figure No: 4-6



LEGEND	I-84 Exit	Interstate Highway	Park River Conduit	# Residents by Acre	< 15	36 - 45
	CT Fastrak Station	US Highway	Park		16 - 25	46 - 55
	I-84	Major Road	Water		26 - 35	> 55
	Study Area	Railroad				
	City Boundary	CT Fastrak				

Sources of Data: City of Hartford, US Census Bureau 2010, ESRI

Notes: Colors/elements outside of study area muted intentionally. Population data displayed by 2010 Census block group.

0 500 1,000 Feet

The I-84 Hartford Project		
Population Density Map		
Date: 6/24/2014	Drawn By: AECOM	Figure No: 4-7

4.5.2 Housing

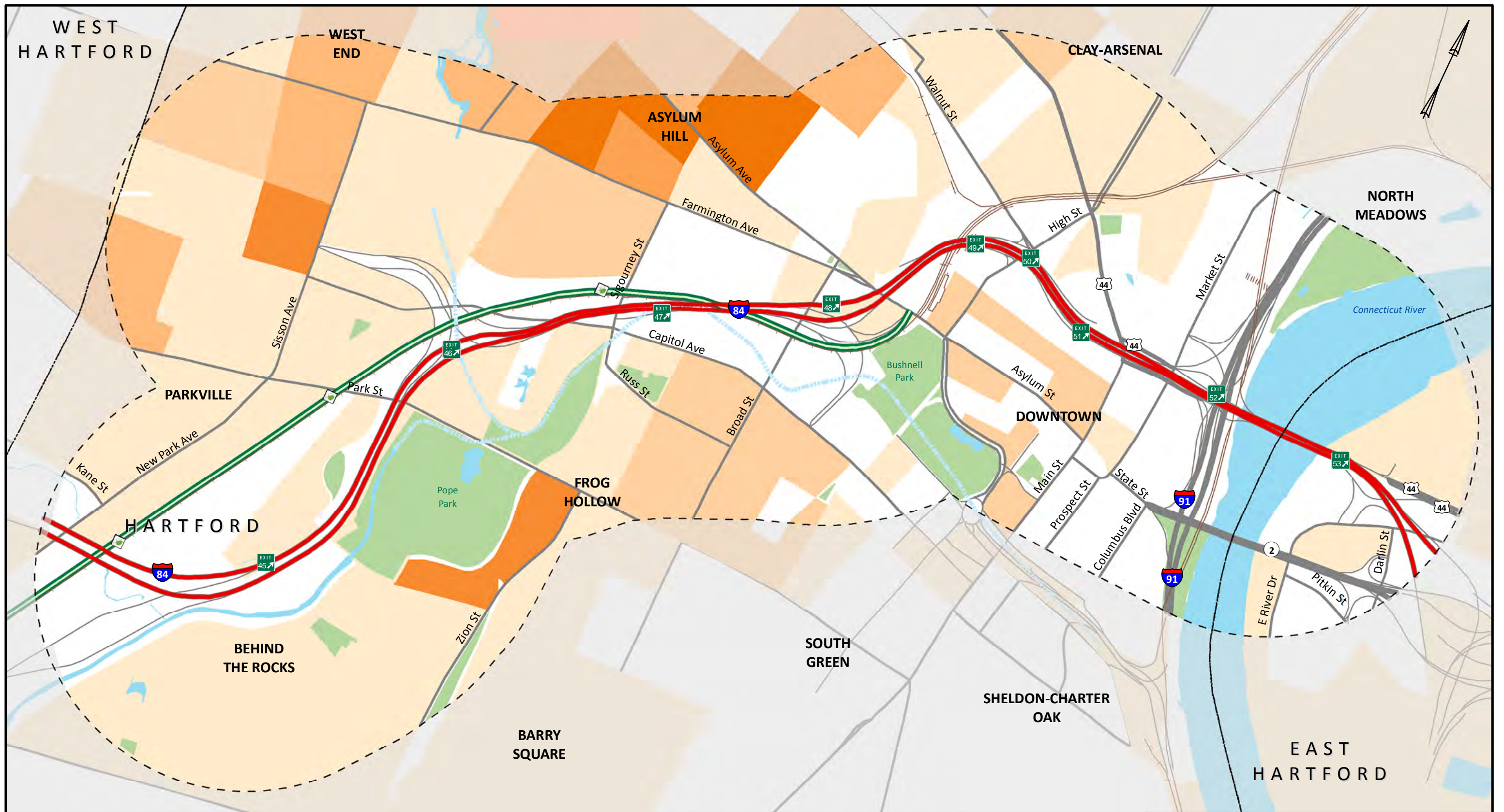
Table 4-4, below, provides data on housing characteristics in the Study Area. It indicates that the majority (83%) of housing units are occupied. The Study Area also contains a fair number of vacant housing units; however, the 17% vacancy rate within the Study Area is comparable to the nearly 16% vacancy rate within the City of Hartford as a whole.

The average household size in the Study Area is slightly larger for the owner-occupied units than for the renter-occupied units. At an average of 2.23 persons per household or more overall, this data suggests, in consideration of the population age distribution, that the Study Area has a substantial number of families with school age children or younger. It is also notable that 40% of the households in the Study Area have no vehicle and can be considered dependent on transit to meet their overall transportation needs.

Table 4-4: Study Area Housing Characteristics

	Total	Percent (%)
Housing Units	18,357	100%
Occupied	15,219	82.9%
Vacant	3,138	17.1%
Occupied Housing Units	15,219	100%
Owner-occupied	2,407	15.8%
Renter-occupied	12,812	84.2%
Vehicles Available		
None	6,109	40.1%
1-2 Vehicles	8,573	56.3%
3 or more Vehicles	537	3.5%
Household Size - Person Per Housing unit (pph)		
Occupied Housing Units	2.23 pph	-
Owner-occupied housing units	2.80 pph	-
Renter-occupied housing units	2.21 pph	-

The housing distribution in the Study Area largely mirrors that of the population distribution and is shown in Figure 4-8, following and Figure 4-9, page 4-18. There are clusters of vacant units as shown in Figure 4-9, with the densest cluster occurring in the northeast portion of the Study Area.



- LEGEND**
- I-84 Exit
 - CT Fastrak Station
 - I-84
 - Study Area
 - City Boundary

- Interstate Highway
- US Highway
- Major Road
- Railroad
- CT Fastrak

- Park River Conduit
- Park
- Water

- # Housing Units by Acre**
- < 10
 - 11 - 15
 - 16 - 20
 - 21 - 25
 - 26 - 30
 - > 30

Sources of Data: City of Hartford, US Census Bureau 2010, ESRI

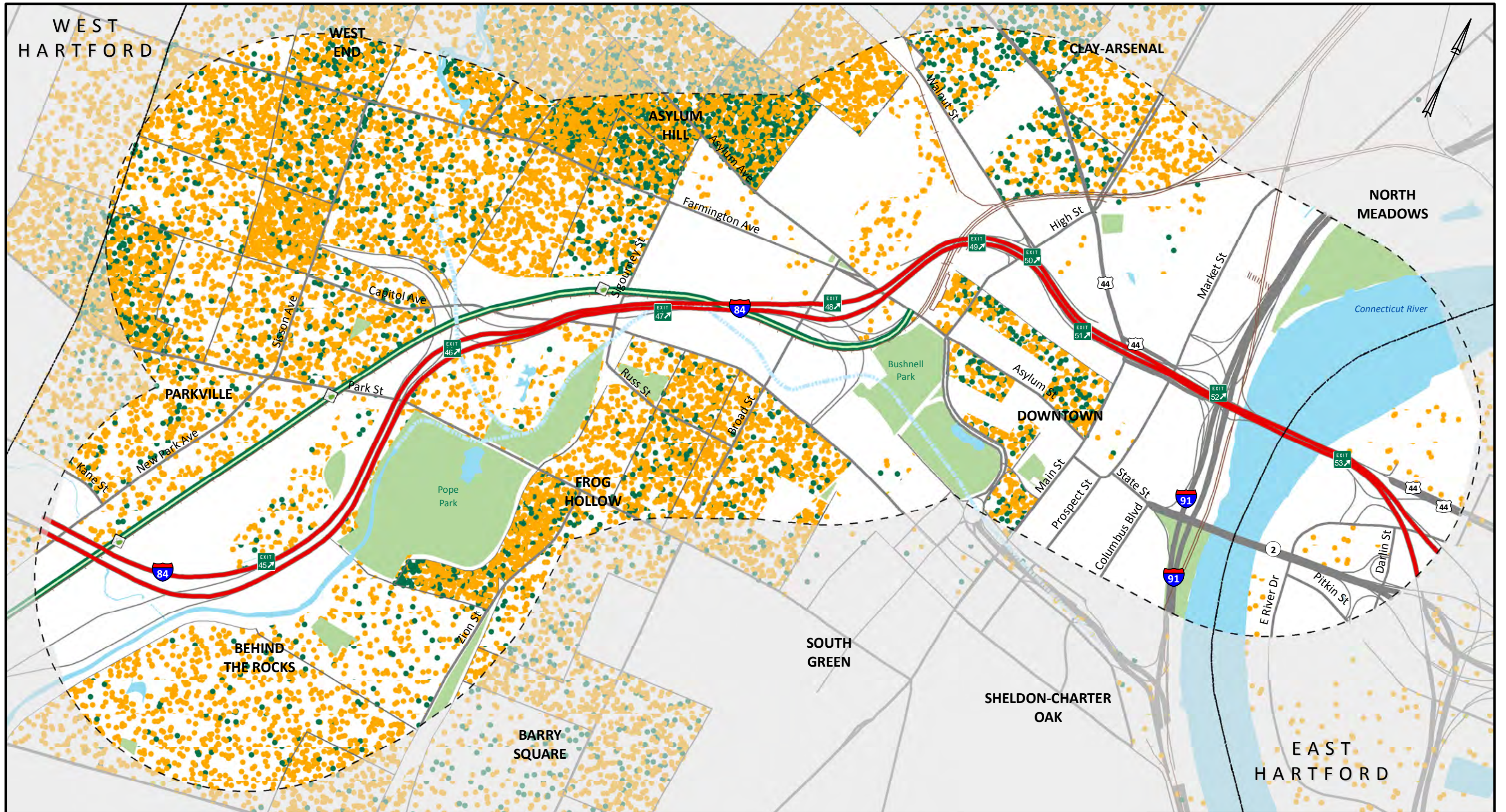
Notes: Colors/elements outside of study area muted intentionally. Population data displayed by 2010 Census block group.

0 500 1,000 Feet

The I-84 Hartford Project

Housing Unit Density Map

Date: 6/24/2014 Drawn By: AECOM Figure No: 4-8



LEGEND	I-84 Exit	Interstate Highway	Park River Conduit	1 Dot = 1 Housing Unit
	CT Fastrak Station	US Highway	Park	Vacant Housing Unit
	I-84	Major Road	Water	Occupied Housing Unit
	Study Area	Railroad		
	City Boundary	CT Fastrak		

Sources of Data: City of Hartford, US Census Bureau 2010, ESRI

Notes: Colors/elements outside of study area muted intentionally. Population data displayed by 2010 Census block group.

0 500 1,000 Feet

The I-84 Hartford Project		
Housing Unit Occupancy Map		
Date: 6/24/2014	Drawn By: AECOM	Figure No: 4-9

4.5.3 Income and Employment

Income and employment data for the Study Area is shown below in Table 4-5. Comparative data for the Study Area in the context of the City of Hartford, Hartford County, and State of Connecticut is shown in Table 4-6, also below. The Study Area households have a median income of \$28,339 annually which is somewhat lower than the City of Hartford as a whole, less than half of that in Hartford County and the State of Connecticut as a whole. Similarly, the Study Area has approximately 34% of households and population below the poverty level as compared with 30% for the City of Hartford as a whole. This is substantially higher than the Hartford County and the State of Connecticut. Also, similarly, the unemployment rate among those of employment age is at 18% for the Study Area and is comparable to that for the City as a whole, but notably higher than the state-wide average.

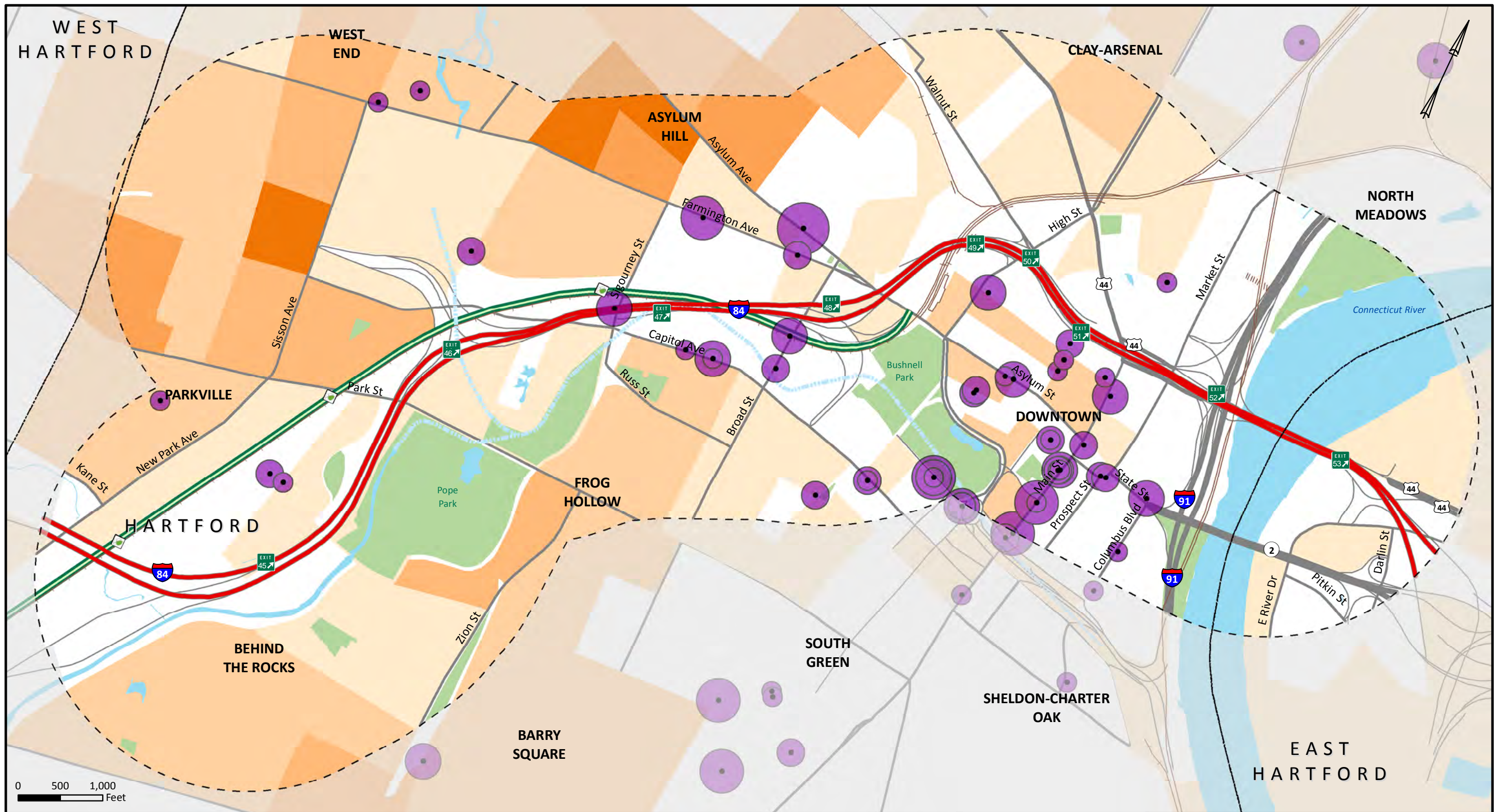
Table 4-5: Study Area Income and Employment Characteristics

Economic Characteristics	Total	Percent (%)
Households Total	15,219	100%
Median household income in the past 12 months (in 2010 inflation-adjusted dollars)	\$28,339	N/A
Households with income in the past 12 months below poverty level	5,179	34%
Total Population (for whom poverty status is determined)	33,275	100%
Individual income in the past 12 months below poverty level	12,001	36%
Population 16+ years; In labor force; Civilian labor force	16,656	100%
Employed	13,720	82%
Unemployed	2,936	18%

Table 4-6: Comparative Income and Employment Characteristics

Comparative Characteristics	Study Area	City of Hartford	Hartford County	State of Connecticut
Median household income	\$28,339	\$29,017	\$62,590	\$67,740
Individual income below poverty level	36%	30%	11%	10%
Unemployed	18%	18%	9%	9%

Figure 4-10, following, illustrates the distribution of employed persons and major employers within the Study Area. The distribution of employed persons aligns for the most part with the overall population distribution. There is a relatively high concentration of employers located in downtown Hartford directly south of and including the census block groups encompassing the main I-84 viaduct structures.



LEGEND

- I-84 Exit
- CT Fastrak Station
- I-84
- Study Area
- City Boundary
- Interstate Highway
- US Highway
- Major Road
- Railroad
- CT Fastrak
- Park River Conduit
- Water
- Park

Employed Residents by Acre

	< 5		16 - 20
	6 - 10		21 - 25
	11 - 15		> 25

of Employees by Employer Location

	249		500 - 999		> 5,000
	250 - 499		1,000 - 4,999		Employer Location

Sources of Data: City of Hartford, US Census Bureau 2010, CT Labor Market Information, ESRI

Notes: Colors/elements outside of study area muted intentionally. Population data displayed by 2010 Census block group for population aged 16 and over.

The I-84 Hartford Project

Employment Density in Relation to Major Employers Map

Date: 6/24/2014	Drawn By: AECOM	Figure No: 4-10
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4.5.4 Commute Patterns

Table 4-7, below, presents origin and destination data for the City of Hartford, produced by the Connecticut Economic Resource Center (CERC) (2011). Table 4-8, following, presents means of travel to work for the U.S. Census block groups within the Study Area, prepared by the 2011 American Community Survey (ACS).

The data indicates that among Hartford residents over 50% work in Hartford. In addition, more workers commuted into Hartford to work than commuted from Hartford out to other communities. Regardless, West Hartford, which lies directly adjacent to the City, has the greatest number of commuters in each direction among nearby communities. Interviews conducted with major employers within the Study Area provided some additional information about commuting patterns.

- The Travelers insurance company reported that many of its employees commute from West Hartford using local streets (Farmington Avenue, Asylum Avenue, and Capitol Avenue). The company believes that the commute has improved for employees due to increased flex time, telecommuting, and staggered shifts. Approximately 23% of its 6,000 Hartford employees take the bus to work.
- Hartford Hospital employs approximately 8,000 people who work varying shifts. About half of the staff, or 4,000 people, work between 7 AM and 5 PM. The nursing staff works 12-hour shifts, and there is often congestion on local roadways adjacent to the hospital at 7 PM due to shift changes. Many of the employees travel from locations east of the Connecticut River.
- Aetna (formerly Aetna Insurance Company) estimates 4,500 employees travel by car to its campus and utilize on-campus parking. While most employees traveling from the east use I-84, many employees from West Hartford and Bloomfield use Farmington Avenue or Albany Avenue to avoid highway congestion.
- The Hartford (insurance company) currently has 6,000 employees at its Downtown campus. Approximately 2,500 employees live within Hartford County, and approximately 50% of those 2,500 live along the I-84 corridor in Hartford, West Hartford, East Hartford, and surrounding towns. Up to 40% of all employees do some level of telecommuting.

Table 4-7: Commuting Patterns - Origins and Destinations

Commuters Into Hartford From	Number	Hartford Residents Commuting To	Number
Hartford	14,661	Hartford	14,661
West Hartford	7,687	West Hartford	2,981
Manchester	5,223	East Hartford	1,949
East Hartford	5,174	Bloomfield	1,854
Windsor	3,613	Farmington	1,680
New Britain	3,494	Windsor	1,433
Wethersfield	3,463	Manchester	1,404
Glastonbury	3,392	New Britain	1,104
Newington	3,369	Newington	1,024
Total	50,076	Total	28,090

According to the 2011 ACS, approximately 66% of workers commuting to Hartford used automobiles, whether traveling alone or carpooling, while nearly 21% of workers took public transportation. The remaining 13% traveled by other means, including walking, bicycling, motorcycle, taxicab, or, alternatively, worked from home. Whether using any of these modes of travel, 44% of workers traveled between 15 and 30 minutes to get to work while almost 23% traveled 30 minutes or more to work.

Table 4-8: Mode of Transportation to Work

Transportation to Work	Total	Percent (%)
Mode of Transportation to Work	13,158	100%
Drove alone or carpooled	8,657	65.8%
Public transportation	2,713	20.6%
Bicycle	272	2.1%
Walked	1,152	8.8%
Other means (including taxi, motorcycle)	50	0.4%
Worked at home; no commute	314	2.4%
Commute Times	12,844	100%
Less than 15 minutes (travel time to work)	4,186	32.6%
15 to 29 minutes	5,682	44.2%
30 to more minutes	2,976	23.2%

4.6 Business Activity and Major Employers

For this analysis, major employers are considered to be those who employ 100 or more people. Data on major employers was compiled from the 2011 ACS and supplemented with local plans and studies discussing local business activity, as well as interviews with some of the major employers within the Study Area. Table 4-9, following, lists a sample of the major employers by employment sector in the Study Area. Figure 4-10, page 4-20, presents the distribution of employers across the Study Area.

The data indicates that much of the employment in the Study Area is in insurance, medical, education, and government sectors, with the State of Connecticut among the largest employers overall. While the largest insurance companies generally have the majority of their employees at their offices in the Study Area, some percentage are also working from satellite office campuses in nearby communities. In late 2015, United Technologies Corp. is planning to move all its employees from the Hartford headquarters to nearby Farmington.

Table 4-9: Sample of Major Employers by Sector

Employer	Range of Employees
Financial/Insurance	
Aetna Inc.	1,000 - 4,999
Travelers	5,000 - 9,999
Hartford	5,000 - 9,999
Lincoln National Life Ins Co	500 - 999
ING Investment Management	250 - 499
Construction/Manufacturing/Wholesale	
United Technologies Corp.	500 - 999
Government	
State of CT - DEEP	1,000 - 4,999
Bureau of Materials Management	500 - 999
Leisure & Hospitality	
XL Center	500 - 999
WCCT Television/Broadcasting	500 - 999
Hilton-Hartford	250 - 499
Marriott-Downtown	100 - 249
Other Services/Retail	
Marshall's Department	250 - 499
Walmart/Sam's Club	100 - 249
Professional and Business Services	
Shipman & Goodwin LLP	500 - 999
Hartford Steam Boiler	250 - 499
Cantor Colburn LLP	100 - 249
Day Pitney LLP	100 - 249
Cornerstone Advisors	100 - 249
Ernst & Young	100 - 249
Trade, Transportation, Utilities	
Connecticut Light & Power Co.	250 - 499

Source: Connecticut Labor Market Information,
<http://www1.ctdol.state.ct.us/lmi/EmpSearchTopList.asp>

Jobs in the Study Area are concentrated in downtown Hartford as is common in urban cities. As Figure 4-10, page 4-20, illustrates, however, some large employers clustered west of the downtown as well.

4.7 Population and Employment Trends

For both historical trends and projections of population, there are a range of sources available for varied (or slightly different) geographies that encompass the study area. The data sources reviewed included the Capitol Region Council of Governments (CRCOG), the Connecticut Economic Resource Center (CERC), and the Connecticut State Data Center (CSDC). The 2011 ACS (used above to assess other demographic characteristics) does not offer population projections. Each source speaks to a distinct geographic area, and the projection methodologies and time frames considered vary somewhat.

Population trends to 2020 are shown in Table 4-10 below using CERC data. Between 1990 and 2012, the data indicates a minor loss of population in the city of Hartford as compared with less than 1 percent growth in Hartford County and the State of Connecticut as a whole. Future population projections show a positive average annual growth rate. It is projected between 2010 and 2020 that the City of Hartford population will grow 0.15% annually on average. Hartford County is anticipated to observe an average annual growth of 0.46%, which is slightly less than State's projection.

Table 4-10: Population Trends

	1990	2000	2010	2011	2012	2020	Average Annual Growth Rate (1990-2012)	Average Annual Growth Rate (2010-2020)
City of Hartford	139,739	121,578	124,760	124,817	124,879	126,656	-0.51%	0.15%
Hartford County	851,783	857,183	880,467	890,588	893,504	922,085	0.22%	0.46%
State of CT	3,287,116	3,405,565	3,511,137	3,558,172	3,572,213	3,690,997	0.38%	0.50%

The CERC annual growth rate projections of population coincide with forecasts from other sources. A summary of the average annual growth rates anticipated via these sources for the City of Hartford are summarized as follows:

- CERC: 0.15 % annual growth between 2010 and 2020
- CSDC: 0.07% annual growth between 2010 and 2025
- CRCOG: 0.11% annual growth between 2010 and 2040

The growth in population in Hartford is expected to be stronger over the coming decade than it has been since 1990. The recent resurgence in housing development projects in the City of Hartford supports this finding. The following graphs depict the variations in these population growth trends for the City of Hartford, Hartford County, and the State of Connecticut. Table 4-11, following, illustrates the population projections available for the City of Hartford by source. By projecting intermediate years, the

CSDC predicts a slight decline in the City's population between 2020 and 2025; however, between 2010 and 2025, the average annual growth is both positive and in line with the CRCOG and CERC projections.

Table 4-11: City of Hartford - Population Projections over Time by Source

	CERC	CSDC	CRCOG
1990	139,739	-	-
2000	121,578	-	-
2010	124,760	124,775	124,701
2011	124,817	-	-
2012	124,879	-	-
2015	-	125,999	-
2020	126,656	126,656	-
2025	-	126,185	-
2040	-	-	128,692
Average Annual Growth (2010-2020)	0.15%	0.15%	-
Average Annual Growth (2010-2025)	-	0.07%	-
Average Annual Growth (2010-2040)	-	-	0.11%

Table 4-12, below, illustrates the population projections available for Hartford County by source. A summary of the average annual growth rates projected for Hartford County are summarized as follows:

- CERC: 0.46 % annual growth between 2010 and 2020
- CSDC: 0.31% annual growth between 2010 and 2025
- CRCOG: 0.39% annual growth between 2010 and 2040

Table 4-12: Hartford County - Population Projections over Time by Source

	CERC	CSDC	CRCOG
1990	851,783	-	-
2000	857,183	-	-
2010	880,467	894,014	893,924
2011	890,588	-	-
2012	893,504	-	-
2015	-	910,924	-
2020	922,085	925,492	-
2025	-	936,810	-
2040	-	-	1,003,157
Average Annual Growth (2010-2020)	0.46%	0.35%	-
Average Annual Growth (2010-2025)	-	0.31%	-
Average Annual Growth (2010-2040)	-	-	0.39%

Table 4-13, following, illustrates the population projections available for the State of Connecticut by source. CRCOG does not have state-wide population projections. A summary of the average annual growth rates projected for the State are summarized as follows:

- CERC: 0.50 % annual growth between 2010 and 2020
- CSDC: 0.31% annual growth between 2010 and 2025

Table 4-13: State of Connecticut - Population Projections over Time by Source

	CERC	CSDC
1990	3,287,116	-
2000	3,405,565	-
2010	3,511,137	3,574,097
2011	3,558,172	-
2012	3,572,213	-
2015	-	3,644,545
2020	3,690,997	3,702,469
2025	-	3,746,181
2040	-	-
Average Annual Growth (2010-2020)	0.50%	0.35%
Average Annual Growth (2010-2025)	-	0.31%
Average Annual Growth (2010-2040)	-	-

Table 4-11 through Table 4-13, page 4-25 and above, show growth in the upcoming years on the city, county, and state-wide level. The projected populations are relatively close. At the county level, the average annual growth rate is less than 0.50%: CERC projects 0.46% and CSDS projects 0.35% between 2010 and 2020. The state-wide population values for CERC and CSDC differ by approximately 0.3% in 2020. All sources project growth on an average annual basis over the next decade.

The CRCOG projections noted above are based on data for the agency's Traffic Analysis Zones used for transportation planning purposes. This data was also used to generate the traffic projections for this study, based on an annual projected growth rate of 0.11% growth. Overall, the data suggests that while the population of the City of Hartford, and comparably the study area, may rise overall somewhat over time up to the 2040 design year, as a whole it can also be anticipated to remain essentially stable.

Employment trends are more difficult to predict given the changes in the national economy in recent years. Varied sources of employment projections over the past decade suggest that job growth may be anticipated to continue. These information sources have found the following:

- Every two years, the State of Connecticut's Department of Labor (CTDOL) creates ten year industry employment forecasts. The CTDOL projects an average annual growth rate of 0.95% for employment between 2012 and 2022 in north central Connecticut, including Hartford.
- In Hartford County, CRCOG projects 0.42% job growth on an average annual basis between 2010 and 2040.

- The Urban Land Institute projected in 2007 that the Hartford MSA (Metropolitan Statistical Area) had the potential to gain 12,540 new jobs between 2007 and 2017.
- The City of Hartford's comprehensive Plan of Conservation and Development, the One City One Plan (2010), indicated a 4% growth rate in jobs between 2001 and 2008 and anticipated continued growth.
- The US Census showed an employment growth rate of 11.6% over 10 years between 2000 and 2010 for Hartford.
- The March, 2013 Manpower Employment Outlook Survey (Manpower Group) for the Hartford-West Hartford-East Hartford, CT MSA found that employers expect to hire at a continuing pace during 2013 and 2014. Fifteen percent of the companies interviewed said from April to June 2013, they planned to hire more employees, while 6% expect to reduce staff. Another 77% expect to maintain their current workforce levels.

Interviews conducted in 2013 with Study Area major employers may provide one of the clearest indications of near-term employment change potential for the Study Area. Several said they anticipate future employment growth for their business in downtown Hartford as follows:

- The University of Connecticut has committed to locating a satellite campus in downtown Hartford in the near future and is initiating design for the new campus. The site will provide space for 3,500 staff and students.
- Infinity Hall, a new concert venue, will be located adjacent to the Connecticut Convention Center, continuing the infill development program in the area surrounding the Connecticut Convention Center.
- The Hartford Financial Services is in the process of selling its Simsbury location and most of those employees will be relocated to the Hartford offices.

In addition, the new Hartford Yard Goats minor league baseball stadium is scheduled to open for the start of the 2016 baseball season at the intersection of Main Street and Trumbull Street. Initial job estimates indicate that over 500 jobs will be created to operate the ballpark on top of jobs to construct the ballpark.¹

4.8 Environmental Justice and Title VI

Environmental Justice must be addressed to ensure that federal transportation funds are used in manner that does not result in disproportionately high and adverse human health or environmental impacts to minority and low-income populations and ensures that minority and low-income populations are included in the planning and decision making processes for transportation services and projects. Environmental justice populations are defined by various thresholds at the federal, state, regional, and local levels, based on demographic and socioeconomic statistics.

¹ In Brailsford & Dunlavey, "New Ballpark Planning Study" from April 2014.

The Capitol Region Council of Governments (CROG) 2002 report on Environmental Justice and Transportation Planning summarizes the guiding principles and history of environmental justice regulations as follows:

“Environmental justice is not a new concept. It has its roots in Title VI of the Civil Rights Act of 1964. Title VI bars intentional discrimination as well as disparate impact discrimination. In 1994, President Clinton took this one step further by issuing Executive Order 12898, *“Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,”* commanding all Federal agencies to implement environmental justice.”

Civil Rights Act of 1964, Title VI “No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.”

Executive Order 12898, Environmental Justice “Each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

The US Department of Transportation (USDOT) also issued its *DOT Order to Address Environmental Justice in Minority Populations and Low-Income Populations* in 1997. It identified environmental justice as an “undeniable mission of the agency” along with safety and mobility. USDOT stresses three principles of environmental justice:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have been working with their State and local transportation partners to make sure that the principles of environmental justice are integrated into every aspect of their transportation programs. Title VI and environmental justice are more than a set of legal and regulatory obligations. Properly implemented, environmental justice principles and procedures improve all levels of transportation decision-making. This approach will:

- Make better transportation decisions that meet the needs of all people.
- Design transportation facilities that fit more harmoniously into communities.
- Enhance the public involvement process, strengthen community-based partnerships, and provide minority and low-income populations with opportunities to learn about and improve the quality and usefulness of transportation in their lives.

- Improve data collection, monitoring, and analysis tools that assess the needs of, and analyze the potential impacts on minority and low-income populations.
- Partner with other public and private programs to leverage transportation agency resources to achieve a common vision for communities.
- Avoid disproportionately high and adverse impacts on minority and low-income populations.
- Minimize and/or mitigate unavoidable impacts by identifying concerns early in the planning phase and providing offsetting initiatives and enhancement measures to benefit affected communities².

In 2012, USDOT issued an update to the 1997 DOT Order 5610.2³ to reaffirm USDOT's commitment to environmental justice and clarify aspects of the original Order.

In 2013, CRCOG reevaluated the environmental justice populations in the region in light of the 2012 USDOT update and the availability of 2010 count data from the US Census Bureau. From the 2013 report,⁴ minority groups comprise 33% of the population in the Capitol Region.⁵ In the Study Area, the inverse is the case with 67% of people self-identifying as non-white or two or more races, as shown in Table 4-3: Study Area Population Characteristics, page 4-13. The City of Hartford is the center of the Capitol Region and contains 25% of the region's jobs and 16% of its population, but is composed of only 2% of the region's land area. Approximately 10% of the population in the Capitol Region is living below the poverty level (as defined by the US Census Bureau). In the Study Area, approximately 36% of the population is living below the poverty level, as shown Table 4-6: Comparative Income and Employment Characteristics, page 4-19. CRCOG also looks at two other elements of interest when identifying environmental justice populations – zero vehicle households and Limited English Proficiency (LEP). In the Capitol Region, 10% of households have no vehicle available and 8% of the population speaks English less than 'very well.' In the Study Area, approximately 40% of households have no vehicle available, as shown in Table 4-8: Mode of Transportation to Work, page 4-22. English proficiency of the Study Area is discussed further in Section 4.8.2: Environmental Justice in the Study Area.

Every year, the Connecticut Department of Economic Development compiles a list of 'distressed' municipalities. Distressed municipalities are defined based on per capita income; poverty status; unemployment rate; population, employment and income change; age of housing stock; and educational attainment. In 2014, Hartford is listed as the most distressed municipality in the State of Connecticut.⁶

² CRCOG. *Environmental Justice & CRCOG's Transportation Planning Program*, December 2002.

http://www.crcog.org/publications/TransportationDocs/E%20J/EJFinalReport_Hartford.pdf

³ USDOT. *Department of Transportation Order 5610.2(a): Final DOT Environmental Justice Order*, 2012.

http://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/order_56102a/dot56102a.pdf

⁴ CRCOG. *Atlas of Title VI Populations in the Capitol Region – 2010*, August 2013.

<http://www.crcog.org/publications/TransportationDocs/TitleVI-2011/TitleVIAtlas2013.pdf>

⁵ The CRCOG region is composed of 30 municipalities in central Connecticut.

⁶ DECD Research, 2013, <http://www.ct.gov/e cd/cwp/view.asp?a=1105&q=251248>

4.8.1 Methodology

For this study, regional (CROG) thresholds of minority and low-income populations are used to identify and quantify environmental justice populations within the Study Area. USDOT has federal standards and thresholds for identifying environmental justice populations, but encourages local and regional developed definitions as long as they are at least inclusive of the federal standards.⁷ Minority, low income, vehicle availability, and LEP populations are identified separately per federal guidelines.⁸ The following are the environmental justice thresholds used for this study:

- Minority: 50% of U.S. Census block or more
- Low-Income: below poverty level, 150% of poverty level; 50% of block group or more
- Zero-Vehicle Households: 50% or more of block group
- Limited English Proficiency: 8% or more of block group speak English less than 'very well'

For the analysis of environmental justice populations, all blocks or block groups located within the Study Area, even if only partially, are included in the Study Area. Thus the analysis includes some population living outside, but immediately adjacent to, the Study Area.

Minorities include all non-white races. For this study, Census counts of 'white, not Hispanic' populations are subtracted from total population to get a count of minorities in the Study Area. The source of data is 2010 Census counts by block. Blocks where 50% or more of the population are minorities are identified as environmental justice populations. Block-level count information is not available for socioeconomic characteristics, so another dataset must be used for the other elements of the analysis.

'Low-income' as a component of environmental justice is not specifically defined in the USDOT Order, but the federal government does define annual income levels below which people are considered to be living in poverty. Poverty as defined by the US Census Bureau for 2011 is shown in Appendix A.3.4, Table A.3.4-1. Poverty status is determined by the age of the individual and the number of people living in a household. For this study, to approximate the CROG 150% of poverty level threshold, the individual poverty threshold of \$11,139 was used in comparison to per capita income. 150% of the individual poverty threshold is \$16,709. The source of data is US Census Bureau American Community Survey (ACS) 2007-2011 estimates by block group for the population for which poverty status is determined (as defined by the US Census Bureau). Low-income populations are also identified for block groups where 50% or more residents have incomes below the federal poverty level.

Vehicle availability is another component of the CROG environmental justice program. Occupied housing units by block group are used as the base unit of analysis and households without vehicles are identified through the use of ACS estimates.

⁷ FTA. *Circular 4702.1B: Title VI Requirements and Guidelines for Federal Transit Administration Recipients*, October 2012. http://www.fta.dot.gov/documents/FTA_Title_VI_FINAL.pdf and US Department of Health & Human Services. *Poverty Guidelines*, 2013. <http://aspe.hhs.gov/poverty/index.cfm>

⁸ Texas Department of Transportation. *Identifying, Measuring, and Mitigating Environmental Justice Impacts of Toll Roads*, 2007. http://www.utexas.edu/research/ctr/pdf_reports/0_5208_1.pdf

The final component of the CRCOG environmental justice program is Limited English Proficiency (LEP). LEP populations are identified for the population aged 5 and over by block group. ACS estimates of population who speak English alone or English 'very well' are subtracted from the population total to get the count of people who speak English less than 'very well.'

4.8.2 Environmental Justice in the Study Area

Most of the blocks (87%) and block groups (81%) within the Study Area are home to 50% minorities or higher. More than half of the block groups have population living at less than 150% of the poverty level based on per capita income. However, only 7 block groups (17%) have more than 50% of population living below the federal poverty level. With regard to vehicle availability, 8 block groups (or 19% of Study Area block groups) have 50% or more of households without a vehicle available. Most of the block groups within the Study Area (88%) have populations with at least 8% limited English proficiency. Counts of blocks and block groups within the Study Area that are classified as containing environmental justice populations are listed in Table 4-14, below.

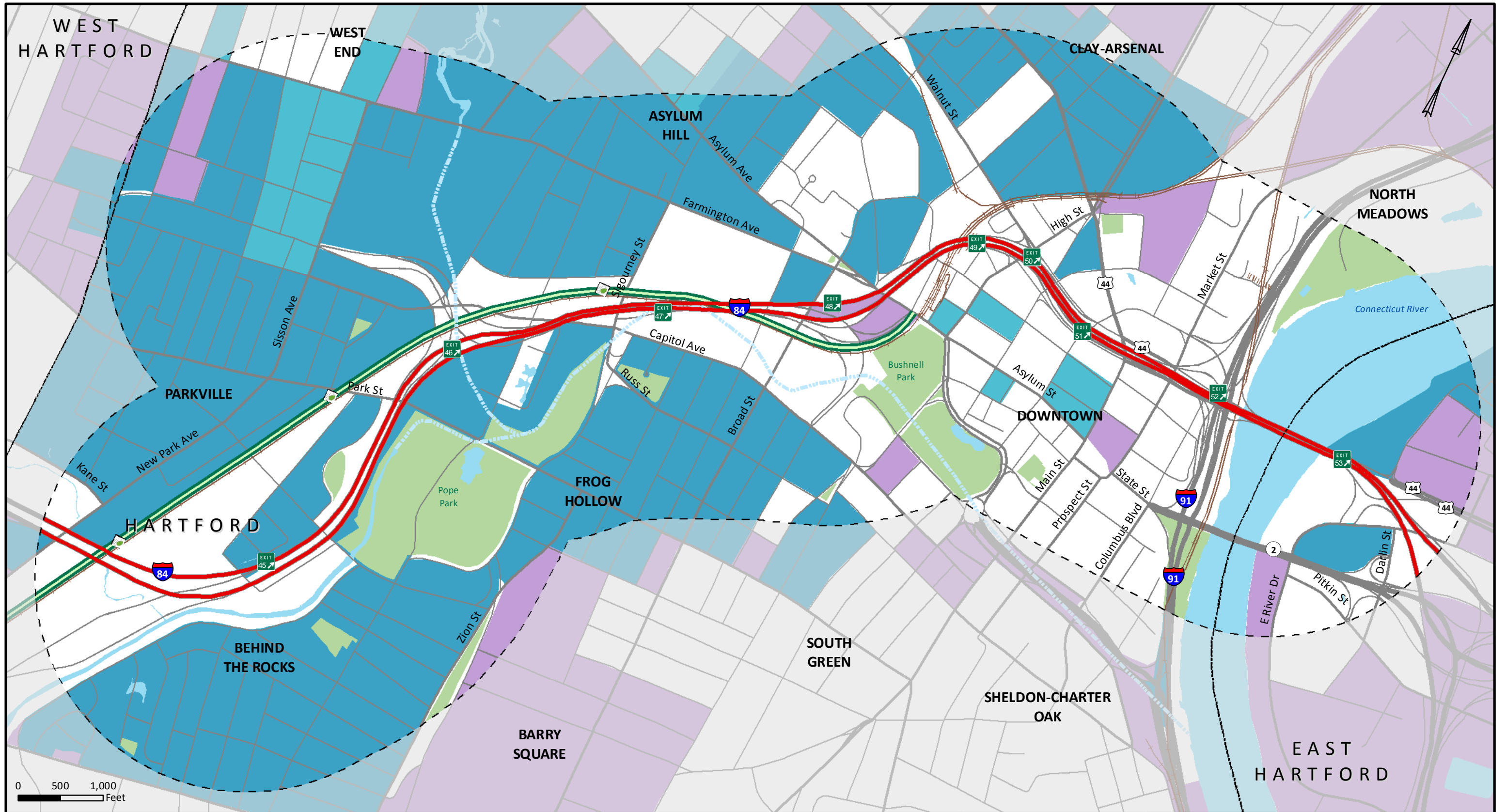
Table 4-14: Study Area Block and Block Group Counts of Environmental Justice Populations

Population Characteristic	# of Block Groups	%	# of Blocks	%
Study Area Total	42		198	
Minority - 50% or More	34	81%	173	87%
Population Living Below 150% Poverty Level	22	52%		
Population Living Below Poverty Level - 50% or More	7	17%		
Zero Car Households - 50% or More	8	19%		
LEP - 8% or More	37	88%		

Maps of the components of environmental justice populations within the Study Area are presented in Figure 4-11, following, and Figure 4-12, page 4-33. Minorities and LEP are shown together in Figure 4-11 and low-income populations and zero vehicle households are shown together in Figure 4-12.

4.8.3 Regional Context

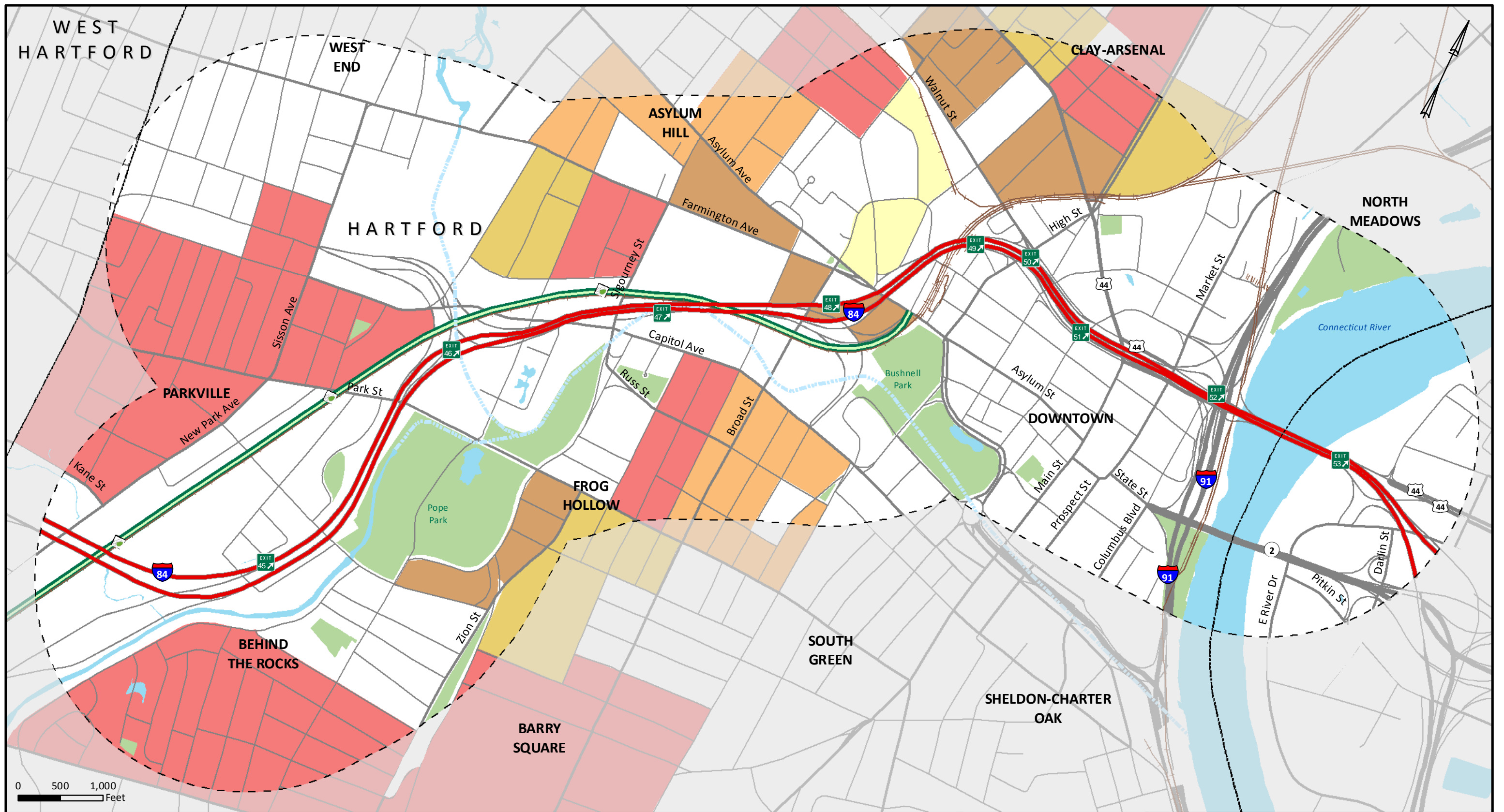
The Study Area is comprised of approximately the same percentage of minorities as the City of Hartford as a whole, but a much higher percentage than the larger CRCOG region. The same can be said for the low-income, vehicle availability and LEP characteristics. Comparisons of the Study Area with the region and the City of Hartford as a whole are presented in Table 4-15, page 4-34. The Study Area totals for this analysis may differ slightly from those in other analysis due to how the data source has defined its boundaries. For the US Census block groups, a number of the block groups extend substantially beyond the Study Area limits, therefore, in order to best represent the Study Area traits, any block group that falls partially within, but is 75% or more outside the Study Area, was eliminated from the demographic data tabulations.



LEGEND	I-84 Exit	Interstate Highway	Park River Conduit	EJ Population - Minority Only
	CT Fastrak Station	US Highway	Park	EJ Population - LEP Only
	I-84	Major Road	Water	EJ Population - Minority and LEP
	Study Area	Local Road		
	City Boundary	Railroad		
	CT Fastrak			

Sources of Data: City of Hartford, US Census Bureau 2010, ESRI
 Notes: Colors/elements outside of study area muted intentionally. EJ blocks/block groups are defined by percent (> 50%) minorities and by percent (>8%) able to speak English less than 'very well.' Blocks without residents excluded from groups.

The I-84 Hartford Project Environmental Justice Populations Map - Minorities and LEP		
Date: 4/30/2014	Drawn By: AECOM	Figure No: 4-11



0 500 1,000 Feet

LEGEND	I-84 Exit	Interstate Highway	Park River Conduit	EJ Population - Low Income
	CT Fastrak Station	US Highway	Park	EJ Population - Zero Vehicle Households
	I-84	Major Road	Water	EJ Population - Low Income/Below Poverty
	Study Area	Local Road		EJ Population - Low Income/Zero Vehicle
	City Boundary	Railroad		EJ Population - Low Income/Below Poverty/Zero Vehicle
	CT Fastrak			

Sources of Data: City of Hartford, US Census Bureau 2010, ESRI
 Notes: Colors/elements outside of study area muted intentionally. EJ block groups defined by income less than 150% of poverty level, (> 50%) below poverty level, and by (>50%) zero vehicle households. Blocks without residents excluded from groups.

The I-84 Hartford Project
Environmental Justice Populations Map - Low Income and No Vehicles Available

Date: 8/25/2014 Drawn By: AECOM Figure No: 4-12

Table 4-15: Study Area Environmental Justice Comparison with the City of Hartford and CROG

Population Characteristic	Study Area Total*	%	City of Hartford Total*	%	CROG Region† (as a %)
Total Population	47,412		151,000		
Minorities	36,577	77%	117,773	78%	33%
Total Population for which Poverty Status is Determined	43,182		142,004		
Population Living Below Poverty	14,644	34%	41,180	29%	10%
Total Population 5 and Over	44,271		141,072		
Speak English less than very well	10,392	23%	27,230	19%	8%
Occupied Housing Units	19,437		55,907		
Zero-Car Households	7,219	16%	17,064	12%	10%

*Calculated from ACS block group 2007-2011 statistics

†From CROG Environmental Justice Report, 2013

The Study Area is home to a larger percentage of low-income persons, zero vehicle households and population with Limited English Proficiency than the City of Hartford as a whole, and much larger percentages of these environmental justice characteristics than the CROG region. The Study Area is home to approximately the same proportion of minorities as the City of Hartford as a whole and again, a much higher percentage than the larger region. Approximately 40% of the population in the Study Area speaks Spanish regardless of English proficiency.¹⁰

4.9 Historic and Archaeological Resources

The National Historic Preservation Act of 1966 (NHPA) was enacted to integrate consideration of historic resources into the early stages of project planning by a federal agency. Under Section 106 of NHPA, prior to the execution of a project, the federal agency or federally funded agency is required to consider the project's impact on any district, site, building, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places (National Register). The Connecticut Environmental Policy Act of 1978 (CEPA) has similar requirements to consider the impacts of state funded or licensed projects on districts, sites, buildings, structures, or objects listed in or eligible for listing in the Connecticut State Register of Historic Places (State Register).

Other laws and guidelines also direct federal agencies to take into account important historic, cultural, and natural aspects of the nation's heritage, and to consider these resources in project planning and execution. These directives include, but are not limited to:

- National Environmental Policy Act of 1969 (NEPA) (42 USC 4321-4361)
- Executive Order (EO) 11593, Protection and Enhancement of the Cultural Environment
- The Historic Sites, Buildings, and Antiquities Act (16 USC 461)
- The Public Buildings Cooperative Use Act (40 USC 601a)
- The Antiquities Act (16 USC 431-433)

¹⁰ ACS block group 2007-2011 statistics

- Archaeology and Historic Preservation Act of 1974
- Archaeological Resource Protection Act of 1979
- Native American Grave and Repatriation Act of 1990
- U.S. Department of Transportation Act of 1966, Section 4(f) (49 USC 303)

Historic and archaeological resources were evaluated within the Study Area and are illustrated in Figure 4-13, following. In addition, the archaeological site file search area has been defined and depicted as a one-mile radius around the Study Area, in accordance with the guidance found in the Connecticut Department of Economic and Community Development/State Historic Preservation Office's (SHPO) *Environmental Review Primer for Connecticut's Archaeological Resources*, illustrated in Figure 4-14, page 4-37. The area of concern includes portions of the City of Hartford and Towns of East and West Hartford.

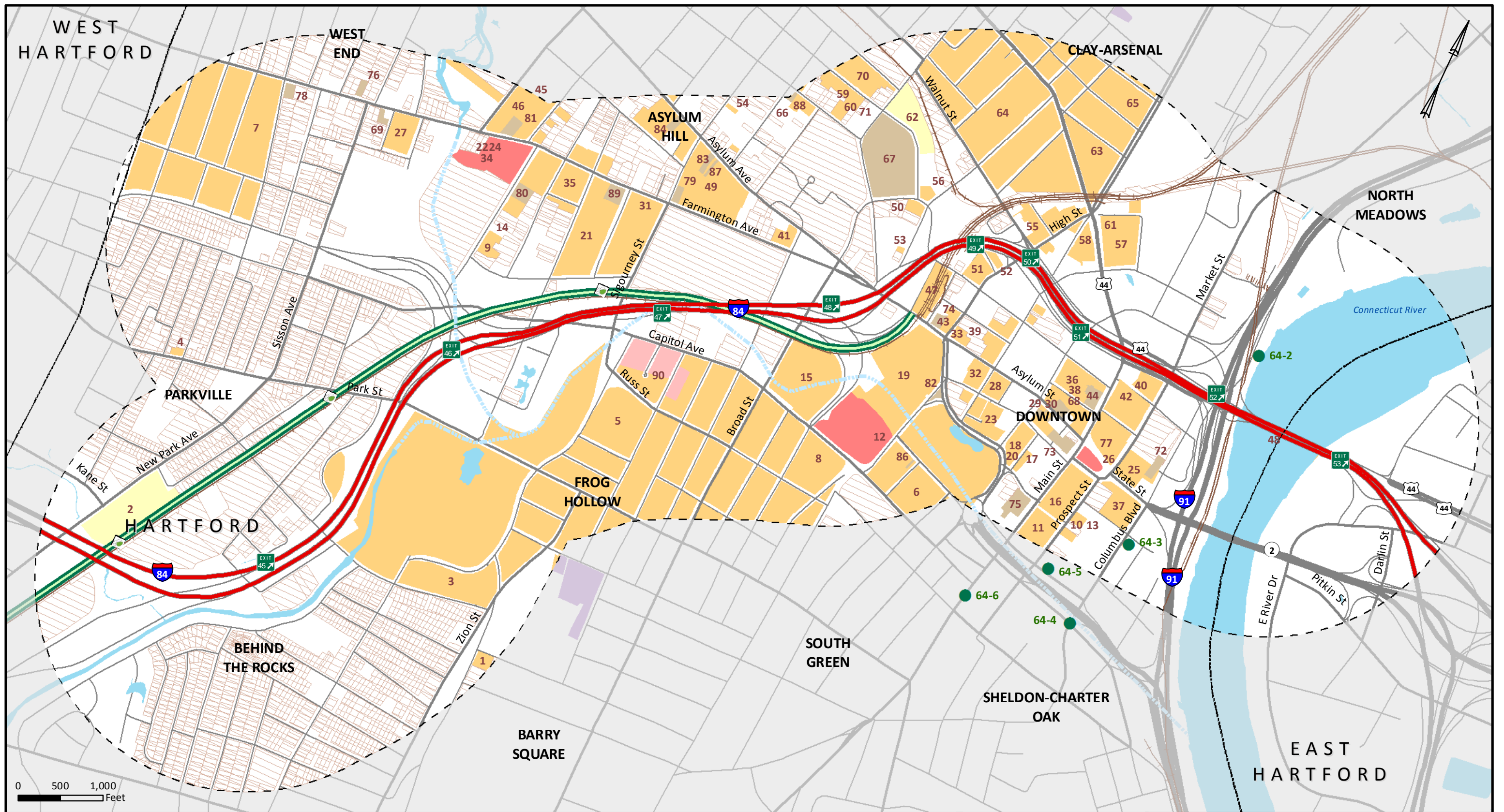
Preliminary identification of archaeological resources within the archaeological search area and historic architectural resources within the Study Area has been completed. Data concerning previously identified archaeological sites registered with the State of Connecticut within the one-mile search area was gathered during a visit to the SHPO office. In addition, the CTDOT GIS data on archaeological site locations based upon the shape files maintained by the Office of the State Archaeologist (OSA) were reviewed for the 2,500-foot cultural resources study area and the one-mile archaeological search radius. Data concerning historic architectural resources was also gathered at that time. Furthermore, information regarding National Register-listed and eligible for listing resources was gathered from the National Park Service (NPS) website. A windshield survey of the 2,500-foot Study Area was also conducted to observe existing conditions.

4.9.1 Archaeological Resources

The archaeological site files at the SHPO were reviewed for Hartford, East Hartford, and West Hartford. Copies of the site forms for previously identified sites that were located within the archaeological search area in Hartford and East Hartford were made for future reference. No previously identified sites were located in West Hartford within the one-mile search radius. In addition to the site files, relevant survey reports at the SHPO were reviewed for information concerning potential archaeological resources within the one-mile search area, and any information concerning the previously identified sites in Hartford and East Hartford.

There are seven previously identified sites located within the archaeological search area; five are located in Hartford, and two are located in East Hartford as depicted in Figure 4-13 and Figure 4-14. Two of the Hartford site locations are located within the 2,500-foot Study Area. Table 4-16, page 4-38, lists the seven archaeological sites, and provides information concerning their temporal and cultural affiliations. It was noted that there have been few archaeological surveys undertaken in the search area during recent years, and these have occurred in the eastern portion of Hartford, primarily along the I-91 corridor.

It should be noted that areas of archaeological potential are likely to exist across the 2,500-foot cultural resources study area. In many instances, the parcels and districts that contain State/National Register-



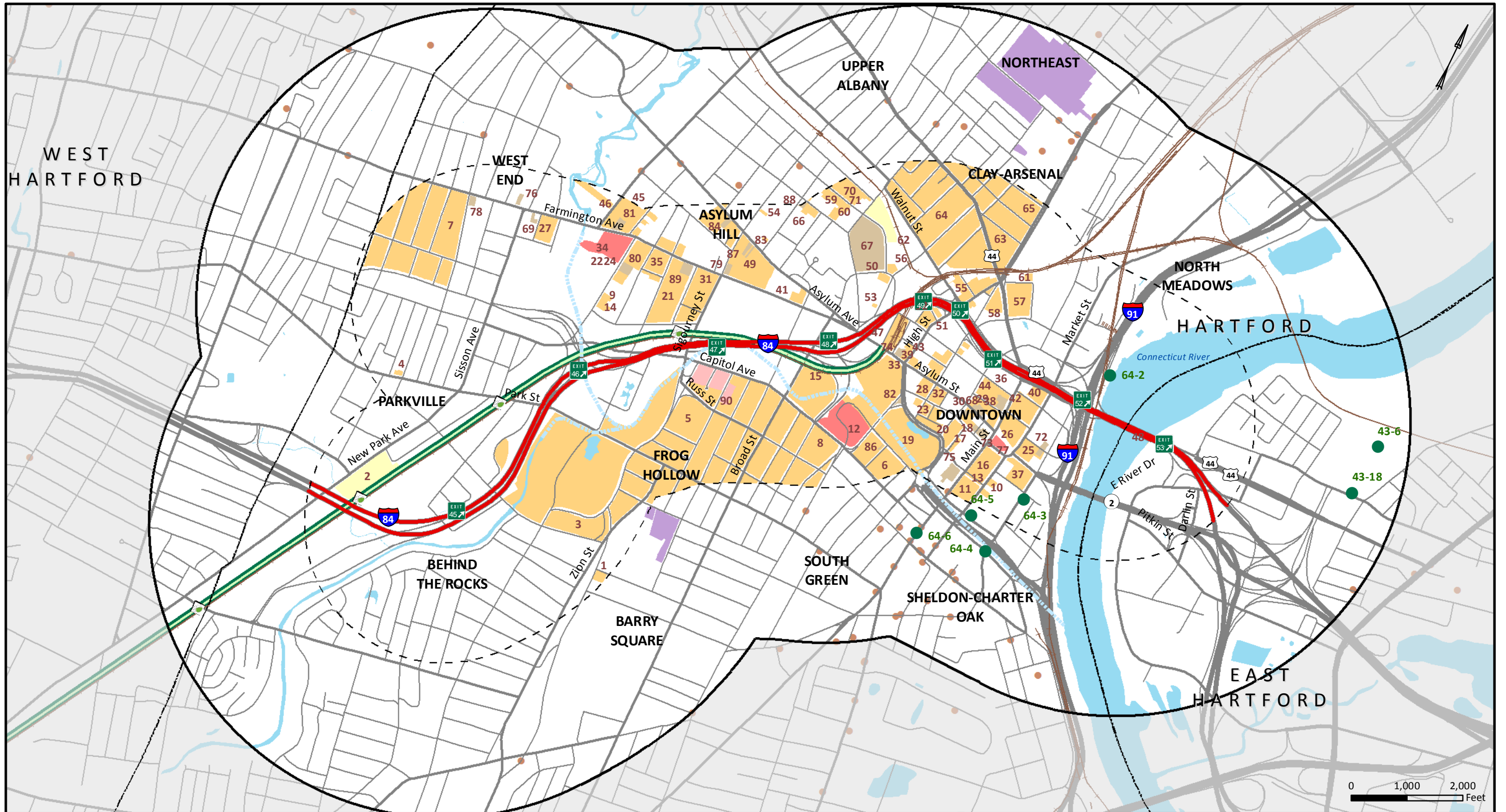
LEGEND	I-84 Exit	Interstate Highway	Park River Conduit	Local Historic District*	Potential Historic Resource
	CT Fastrak Station	US Highway	Water	National Historic Landmark, State/National Register-Listed*	Archaeological Site
	Study Area	Major Road	Cemetery	State/National Register-Listed*	
	City Boundary	Local Road		State/National Register-Listed (Demolished)*	
I-84	Railroad		State Register-Listed*		
	CT Fastrak				

*Numbers assigned to historic resources in the map correspond to the numbers in Table 4-14.

Sources of Data: City of Hartford, CT DEEP, ESRI, National Register of Historic Places, CDOT

Notes: Colors/elements outside of study area muted intentionally. Potential historic resources are structures built more than 50 years ago.

The I-84 Hartford Project		
Historic and Archaeological Resources Map		
Date: 4/29/2014	Drawn By: AECOM	Figure No: 4-13



	CT Fastrak Station		Interstate Highway		Park River Conduit
	I-84 Exit		US Highway		Cemetery
	I-84		Major Road		Water
	Study Area		Local Road		Historic Site Outside 2,500 Feet
	City Boundary		Railroad		Archaeological Site
			CT Fastrak		Archaeological Site File Search Radius

	Local Historic District*
	National Historic Landmark, State/National Register-Listed*
	State/National Register-Listed*
	State/National Register-Listed (Demolished)*
	State Register-Listed*

*Numbers assigned to historic resources in the map correspond to the numbers in Table 4-14.

Sources of Data: City of Hartford, CT DEEP, ESRI, National Register of Historic Places, CDOT

Notes: Colors/elements outside of study area muted intentionally. Only Sites within 2,500 feet of project area limits are numbered.

The I-84 Hartford Project

Archaeological Site File Search Map

Date: 4/29/2014	Drawn By: AECOM	Figure No: 4-14
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**Table 4-16: Previously Identified Archaeological Sites within the
Archaeological Site File Search Area**

Site Name	Site #	Time Period	Temporal / Cultural Affiliation	Site Types	Comments	Reference
City of Hartford						
Riverside Dump	64-2	H	19 th C	Urban	Excavation at Hartford's first municipal dump identified artifacts in ash matrix; site integrity fair.	CAS 1990
Pottery Site	64-3	H	19 th – 20 th C	Industrial	Subsurface testing for Adriaen's Landing Project identified remnants of former Stoneware Plant; no further field work recommended.	AHS 2006
Charter Oak Brewery	64-4	H	19 th – 20 th C	Industrial	Above-ground remains of brewery's foundation walls identified during archaeological survey; site assumed to be destroyed.	PAST 2001
Phoenix Ironworks	64-5	H	19 th – 20 th C	Industrial	Subsurface testing for Adriaen's Landing Project identified remnants of Phoenix Ironworks Foundry; site noted as destroyed.	AHS 2006
Butler-McCook House	64-6	H	18 th – 19 th C	Urban	Subsurface testing in association with restoration work identified kitchen midden; site integrity good.	Poirier, Bellantoni and Gradie 1982
Town of East Hartford						
Unnamed site	43-6	P	Woodland	Unknown	Subsurface testing recovered flint flakes from stratified site; site integrity undisturbed.	PAST 1981
Mixmaster I	43-18	P	Late Woodland	Camp	Phase I subsurface testing for Prospect St Bypass recovered chert flakes, FCR, charcoal flecks; site integrity undisturbed.	Koetje 1991

listed and locally designated historic architectural resources may include undisturbed, open land areas that have the potential to contain intact, significant archaeological deposits. Review of the nomination forms for the presently listed and designated historic architectural resources will be a component of the background research that will be conducted for the Phase I archaeological assessment.

As mandated by Section 106 of NHPA, consultation with the SHPO will be initiated for the I-84 Hartford Project. The SHPO has been notified via letter that includes background information and context for the project, information on the status of cultural resources identified to date, and proposed next steps.

As the I-84 Hartford Project progresses and alternatives are developed, the archaeological area of potential effects (APE) will be refined in accordance with Section 106 of NHPA. A Phase I archaeological assessment and reconnaissance survey will be conducted to identify areas of archaeological sensitivity within the archaeological APE. Once these areas are identified, subsurface testing will be conducted as warranted to determine the presence or absence of archaeological resources. If this investigation reveals archaeological resources in the APE, an impacts assessment of the proposed alternatives will be undertaken and included in the NEPA/CEPA document. Consultation with SHPO will continue throughout the process, including development of mitigation measures for adversely affected resources, if necessary.

4.9.2 Historic Architectural Resources

According to NPS guidelines, historic buildings, structures, sites, objects, and districts that are over 50 years old are eligible for listing in the National Register if they possess significance for their association with historic events (Criterion A); lives of persons significant in the past (Criterion B); design and construction (Criterion C); and ability to yield information important in prehistory or history (Criterion D). In addition to significance, such resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association.

To identify historic architectural resources in the Study Area, State Register files were reviewed at SHPO, and copied for future reference. Relevant survey reports that pertained to Hartford were also reviewed. National Register nomination forms for National Register-listed resources were downloaded from the NPS website. As indicated in Table 4-17, page 4-40, which is keyed to Figure 4-14, research indicates that there are 90 formally designated historic architectural resources in the study area. These include four National Historic Landmarks (NHLs) which are also listed in the State/National Register, 64 State/National Register-listed resources, 21 State Register-listed resources, and 1 locally designated historic district. This historic district is included within the boundary of a larger State/National Register-listed district. In the process of mapping the resources, it was determined that two of the resources were no longer extant, the State/National Register-listed Royal Typewriter Company Building (Resource 2) and the Sigourney Square Historic District (Boundary Increase) (Resource 62). According to Hartford's newspaper *The Courant*, the Royal Typewriter Company Building was partially destroyed in a 1992 fire, subsequently demolished, and replaced by a Stop-and-Shop supermarket (*The Courant*, March 14, 1994). Based on review of aerial mapping, all buildings within the boundary of the Sigourney Square Historic District (Boundary Increase) have been demolished.

As noted on Figure 4-14, page 4-37, one resource is located within the footprint of I-84, the Bulkeley Bridge (Resource 48). In addition, a number of resources are situated adjacent to, or within close proximity to the highway. These include the Frog Hollow Historic District (Resource 5), Hartford Union Station (Resource 47), US Post Office and Federal Building (Resource 51), and Footguard Hall (Resource 52).

In addition to the above-noted resources which have formal designations, Figure 4-14 depicts all previously unevaluated resources in the study area that are over 50 years old, and therefore have the potential to be considered State/National Register-eligible if they meet the requisite criteria. It should also be noted that the main I-84 viaduct structures themselves, constructed in 1965, will be 50 years old in 2015. However, it appears that the viaducts, as part of I-84 would be exempt from Section 106 review under the “Exemption Regarding Historic Preservation Review Process for Effects to the Interstate Highway System” adopted by the Advisory Council on Historic Preservation (ACHP) on March 10, 2005 (*Federal Register*, March 10, 2005). As a result, although the viaducts will be 50 years within a year of publication, they do not need to be evaluated as part of this project.

A windshield survey conducted on August 13, 2013 confirmed the large number of resources over 50 years old in the study area, including many adjacent to, or within close proximity to the highway, as depicted in Figure 4-14. These resources include mid-20th-century and earlier residential, commercial, and industrial buildings, with the highest concentration in the western half of the study area. Relatively few resources in the Study Area appeared to be less than 50 years of age, and these include a recent housing development at the southwest end of the Study Area, and scattered commercial buildings, generally located downtown.

As noted under archaeological resources, consultation with the SHPO has been initiated for the I-84 Hartford Project via letter. Similarly, as the I-84 Hartford Project progresses and alternatives are developed, the historic architectural APE will be delineated, in accordance with Section 106 of NHPA. A survey will be conducted to evaluate resources over 50 years old within the APE that may be considered eligible for listing in the State/National Register. Following identification of historic architectural resources, an impacts assessment of the proposed alternatives will be undertaken in the NEPA/CEPA document. Consultation with SHPO will continue throughout the process, including development of mitigation measures for adversely affected resources, if necessary.

Table 4-17: Architectural Resources within the Study Area

I.D. Number (See Figure 4-13)	Name	Address	Status
1	Saint Anthony Hall	340 Summit Street	State/National Register Listed
2	Royal Typewriter Company Building ¹	150 New Park Avenue	State/National Register Listed
3	Frog Hollow Historic District (Boundary Increase)	Bounded by Park Terrace, Hillside Avenue, Hamilton and Summit streets.	State/National Register Listed

Table 4-17: Architectural Resources within the Study Area

I.D. Number (See Figure 4-13)	Name	Address	Status
4	St. Paul's Methodist Episcopal Church	1886-1906 Park Street	State/National Register Listed
5	Frog Hollow	Roughly bounded by Park River, Capitol Avenue, Oak, Washington, and Madison streets	State/National Register Listed
6	Elm Street Historic District	71-166 Capitol Avenue, 55-97 Elm Street, 20-30 Trinity Street	State/National Register Listed
7	West End South Historic District	Roughly bounded by Farmington Avenue, Whitney and South Whitney streets and, West Boulevard	State/National Register Listed
8	Connecticut State Library and Supreme Court Building	231 Capitol Avenue	State/National Register Listed
9	Hooker, John and Isabella, House	140 Hawthorn Street	State/National Register Listed
10	B.P.O. Elks Lodge	34 Prospect Street	State/National Register Listed
11	Wadsworth Atheneum	25 Atheneum Square	State/National Register Listed
12	Connecticut State Capitol	Capitol Avenue	NHL, State/National Register-listed
13	Hartford Club	46 Prospect Street	State/National Register Listed
14	House at 36 Forest Street	36 Forest Street	State/National Register Listed
15	State Arsenal and Armory	360 Broad Street	State/National Register Listed
16	Main Street Historic District No. 2	West Main, North Central Row, East Prospect streets, and North Atheneum Square	State/National Register Listed
17	First Church of Christ and the Ancient Burying Ground	60 Gold Street	State/National Register Listed
18	Lewis Street Block	1-33, 24-36 Lewis Street, 8-28 Trumbull Street	State/National Register Listed
19	Bushnell Park	Bounded by Elm, Jewell, and Trinity streets	State/National Register Listed
20	Webster Memorial Building	36 Trumbull Street	State/National Register Listed
21	Imlay and Laurel Streets District	Imlay, Laurel and Sigourney streets	State/National Register Listed

Table 4-17: Architectural Resources within the Study Area

I.D. Number (See Figure 4-13)	Name	Address	Status
22	Stowe, Harriet Beecher, House	73 Forest Street	NHL, S/NR-listed
23	Southern New England Telephone Company Building	55 Trumbull Street	State/National Register Listed
24	Day House	77 Forest Street	State/National Register Listed
25	Phoenix Life Insurance Company Building	One American Row	State/National Register Listed
26	Connecticut Statehouse	Main Street at Central Row	NHL, S/NR-listed
27	Little Hollywood Historic District	Farmington Avenue, Owen, Frederick and Denison streets	State/National Register Listed
28	Goodwin Block	219-257 Asylum Street, 5-17 Hayes Street, 210-228 Pearl Street	State/National Register Listed
29	Charter Oak Bank Building	114-124 Asylum Street	State/National Register Listed
30	Stackpole, Moore, and Tryon Building	105-115 Asylum Street	State/National Register Listed
31	Building at 83-85 Sigourney Street	83-85 Sigourney Street	State/National Register Listed
32	Ann Street Historic District	Allyn, Ann, Asylum, Church, Hicks and Pearl streets	State/National Register Listed
33	High Street Historic District	402-418 Asylum Street, 28 High Street, and 175-189 Allyn Street	State/National Register Listed
34	Mark Twain House	351 Farmington Avenue	NHL, S/NR-listed
35	Laurel and Marshall Streets District	Laurel, Marshall, and Case streets, and Farmington Avenue	State/National Register Listed
36	Pratt Street Historic District	31-101 and 32-110 Pratt Street; 196-260 Trumbull Street	State/National Register Listed
37	First National Bank Building	50 State Street	State/National Register Listed
38	Dillon Building	69-71 Pratt Street	State/National Register Listed
39	Batterson Block	26--28 High Street	State/National Register Listed
40	Department Store Historic District	884--956 Main Street and 36 Talcott Street	State/National Register Listed
41	James Pratt Funeral Service	69 Farmington Avenue	State/National Register Listed
42	Cheney Building	942 Main Street	State/National Register Listed

Table 4-17: Architectural Resources within the Study Area

I.D. Number (See Figure 4-13)	Name	Address	Status
43	Judd and Root Building	175--189 Allyn Street and 5--23 High Street	State/National Register Listed
44	Christ Church	955 Main Street	State/National Register Listed
45	Nook Farm and Woodland Street District	Woodland, Gillett, and Forest streets, and Farmington Avenue	State/National Register Listed
46	Lyman House	22 Woodland Street	State/National Register Listed
47	Hartford Union Station	Union Place	State/National Register Listed
48	Bulkeley Bridge	I-84 over the Connecticut River	State/National Register Listed
49	Asylum Avenue District	Asylum and Farmington Aves., and Sigourney Street	State/National Register Listed
50	Apartment at 49-51 Spring Street	49-51 Spring Street	State/National Register Listed
51	U. S. Post Office and Federal Building	135-149 High Street	State/National Register Listed
52	Footguard Hall	Footguard and High Streets	State/National Register Listed
53	Calvin Day House	105 Spring Street	State/National Register Listed
54	Linke, William L., House	174 Sigourney Street	State/National Register Listed
55	Isham-Terry House	211 High Street	State/National Register Listed
56	Myers and Gross Building	2 Fraser Place	State/National Register Listed
57	Downtown North Historic District	Roughly Ann, Atlantic, Ely, High, Main and Pleasant streets	State/National Register Listed
58	Pomeroy, Arthur G., House	490 Ann Street	State/National Register Listed
59	Building at 136-138 Collins Street	136-138 Collins Street	State/National Register Listed
60	Building at 142 Collins Street	142 Collins Street	State/National Register Listed
61	Keney Tower	Main and Ely streets	State/National Register Listed
62	Sigourney Square Historic District (Boundary Increase)	216-232 Garden Street	State/National Register Listed
63	Engine Company 2 Fire Station	1515 Main Street	State/National Register Listed

Table 4-17: Architectural Resources within the Study Area

I.D. Number (See Figure 4-13)	Name	Address	Status
64	Clay Hill Historic District	Roughly bounded by Main, Mather, Garden, and Walnut streets	State/National Register Listed
65	Clay Hill Historic District (Boundary Increase)	8 Florence Street	State/National Register Listed
66	Collins and Townley Historic District	Irregular boundary, along Collins Street to the north between Atwood and Sumner streets, extends south along Atwood and Willard streets to Asylum Street to the south, and halfway down Sigourney Street to the south.	State/National Register Listed
67	Connecticut Mutual Life Insurance Building	140 Garden Street	State Register-listed
68	Asylum-Trumbull-Pearl Streets Historic District	Includes multiple buildings: 76 Asylum Street, 78-82 Asylum Street, 92-110 Asylum Street, 114-124 Asylum Street, 81 Asylum Street, 83 Asylum Street, 105 Asylum Street, 115 Asylum Street, 140 Trumbull Street, 80 Pearl Street, 90 Pearl Street, 100 Pearl Street	State Register-listed
69	Solomon Youngman House	461 Farmington Avenue	State Register-listed
70	Sigourney Square Historic District	Sargent/Ashley/Garden/Sigourney	State/National Register Listed
71	Sigourney Square Boundary Increase #2	21 Ashley Street	State/National Register Listed
72	Hotel America	5 Constitution Plaza	State Register-listed
73	Hartford National Trust and Bank Building	777 Main Street	State Register-listed
74	Capitol Building	410 Asylum Street	State Register-listed
75	Bushnell Tower	1 Gold Street	State Register-listed
76	Colonial Theater	488-492 Farmington Avenue	State Register-listed

Table 4-17: Architectural Resources within the Study Area

I.D. Number (See Figure 4-13)	Name	Address	Status
77	Main Street Historic District No. 1	Roughly the west side of Main Street from Asylum to Pratt streets and east side of Main Street from Kinsely to Talcott streets (includes 11-21 Asylum Street; 18 and 20 Asylum Street; 805-875 Main Street; 852-990 Main Street; 125-185 Market Street; 1-25 Pratt Street.	State Register-listed
78	Rudson-Lake House	551-553 Farmington Avenue	State Register-listed
79	Ahern Funeral Home	180 Farmington Avenue	State Register-listed
80	Hartford Institute of Accounting	66 Forest Street	State Register-listed
81	Immanuel Congregational Church	350-360 Farmington Avenue	State Register-listed
82	Soldiers and Sailors Monument	Trinity Street between Elm and Jewell	State Register-listed
83	Commercial Structure	839 Asylum Avenue	State Register-listed
84	Commercial Structure	903 Asylum Avenue	State Register-listed
85	Commercial Structure	Asylum and Trumbull streets	State Register-listed
86	Commercial Structure	95 Elm Street	State Register-listed
87	Residence	847 Asylum Avenue	State Register-listed
88	Residence	181 Collins Street	State Register-listed
89	Residence	237-239 Farmington Avenue	State Register-listed
90	George Keller Historic District	Capitol Avenue	Local Historic District

¹ No longer extant.

References:

- *Federal Register*. March 10, 2005. "Exemption Regarding Historic Preservation Review Process for Effects to the Interstate Highway System." Vol.77, No. 46.
- *The Courant*. March 14, 1994. "A Monument to Royal Typewriter Hartford." Available at: http://articles.courant.com/1994-03-14/news/9403130076_1_memorial-fund-new-supermarket-shop. Accessed March 6, 2014

4.10 Visual and Aesthetic Resources

I-84 in the City of Hartford is a significant visual element. The highway is elevated for the majority of the Study Area either via a structural viaduct or an earth embankment, with numerous streets running underneath it: Hamilton Street, Park Street, Capitol Avenue, Laurel Street, Sigourney Street, Flower Street (now closed to traffic), Broad Street, Asylum Avenue, and Church/Myrtle Streets near Union Station and Market Street. Four streets cross over I-84 in downtown Hartford, where the highway is depressed below street level: High Street, Ann Street, Trumbull Street, and Main Street.

In 1970, after the highway was completed, the CTDOT I-84 Environmental and Joint Use Study noted that the highway along with its elevated network is “visually overwhelming.” The study recommended buffering the contrast between the highway and the surrounding downtown area with public-private joint development projects. The visual impact of the highway is particularly prominent in several areas, including Capitol Avenue where the Sisson Avenue ramps tower overhead, Sigourney Street where the highway passes in front of the Aetna Corporate Headquarters (providing the often-used name of the highway as the “Aetna Viaduct”), and between Downtown and Asylum Hill where the highway rises well above the street network and makes a distinctive “S” shape around Union Station.

For the purposes of this analysis, a visual barrier is defined as an object or structure that blocks the human view from one location to another, obstructing sight of other objects, vistas, scenes, or settings. Illustrated on Figure 4-15, page 4-48, five unique viewsheds can be broadly described in terms of I-84's visual and aesthetic resources:

- Flatbush Avenue/New Park Street/Hamilton Street
- Parkville/Frog Hollow
- Capitol Avenue/Sigourney Street/Broad Street
- Asylum Avenue/Union Station
- Downtown

4.10.1 Flatbush Avenue/New Park Street/Hamilton Street

This segment of I-84 runs between light industrial lands to the west and open space (Pope Park) and natural areas to the east. It is characterized as an open, elevated highway with views emerging as one gets closer to the highway underpasses, although it is fairly hidden behind the industrial buildings and areas of invasive vegetation. Some taller buildings within the light industrial area are in close proximity to the highway.

4.10.2 Parkville/Frog Hollow

This segment is an elevated highway with Park Street running underneath. Due to higher grades along Park Street on the west, the highway is mostly hidden from view from this perspective. On the Park Street east side, the highway is much more prominent due to the fact that the Park Street is at a consistently lower elevation. The parking lot of the Park Plaza Shopping Center provides a broad, open expanse from which there is an unimpeded view to the viaduct. Surrounding residential and office towers have full 180 degree views of the highway from the middle and upper floors.

4.10.3 Capitol Avenue/Sigourney Street/Broad Street

The elevated highway is fully exposed between Capitol Avenue and Broad Street as it nears downtown Hartford. Significant visual impact is found at the Capitol Avenue underpass where the Interchange 46 ramps loom several stories above the roadway and can be seen from both west and east. The highway passes in front of the well-known view of the Aetna building at Sigourney Street. Through this segment the highway viaduct is a visual barrier in both directions.

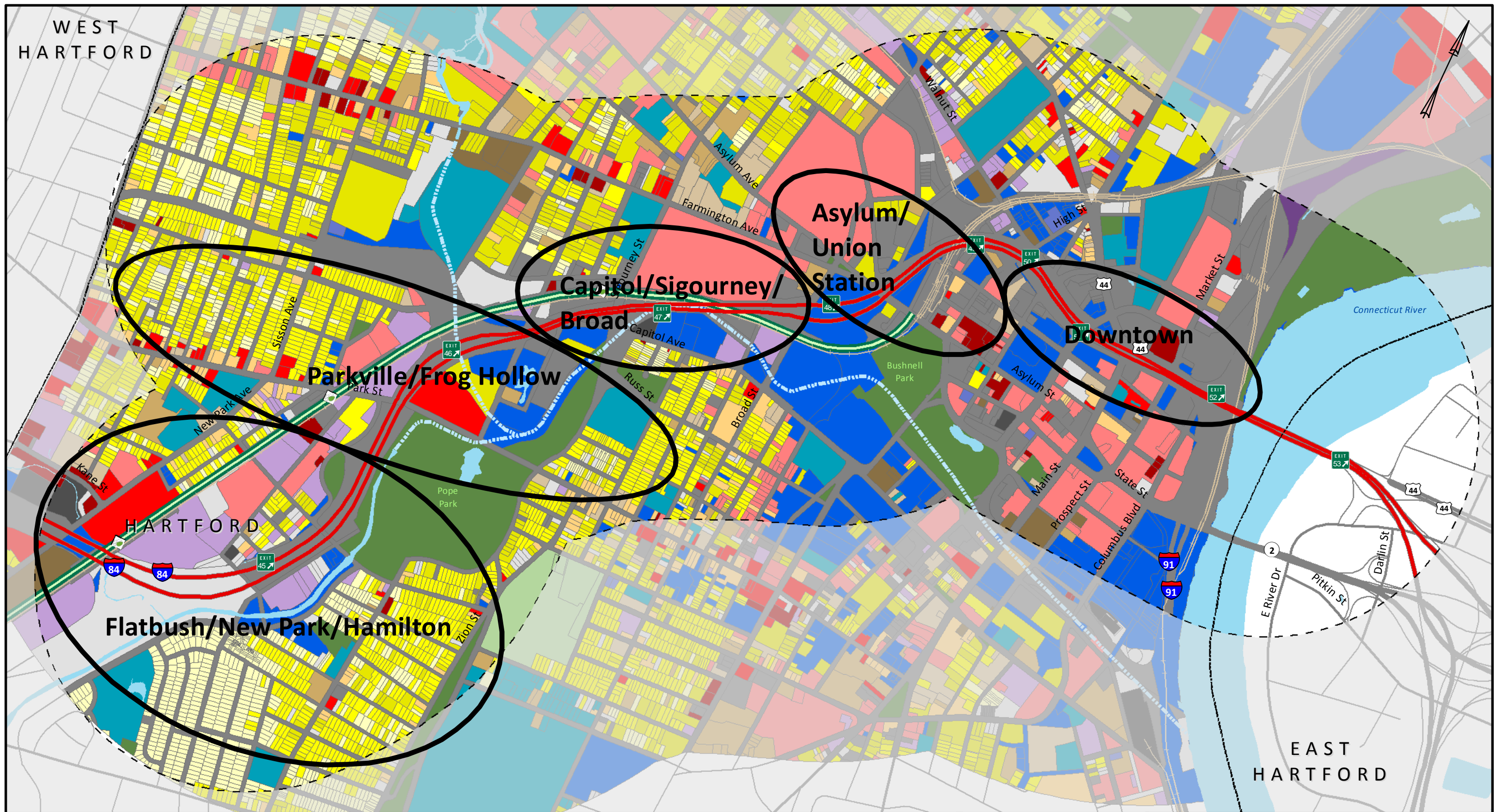
4.10.4 Asylum Avenue/Union Station

I-84 passes over Asylum Avenue and is fully exposed at this "gateway" into downtown Hartford from the west. The highway is mostly hidden behind the Amtrak rail corridor and trees in Bushnell Park from the east. Areas in the Asylum Hill neighborhood are elevated and therefore at eye level or slightly above I-84 in this location, making for a visual barrier when looking to Downtown from these locations.

4.10.5 Downtown

As I-84 crosses into Downtown beyond Union Station, it transitions to become depressed, below the local streets, with several local street overpasses. In this way the highway is less visually intrusive between High Street and Main Street. However, farther to the east, the highway is once again elevated on a viaduct structure and can be seen from both directions where Market Street passes underneath.

Viewer sensitivity and considerations of visual and aesthetic impacts are important in all viewsheds, but especially within the Capitol/Sigourney/Broad and Asylum Avenue/Union Station areas where the I-84 viaduct is particularly exposed due to a lack of vegetation and lack of surrounding built forms that would screen the highway from view.



LEGEND	I-84 Exit	Viewshed	Cemetery	Institutional	Light Industrial	High Density Residential
	CT Fastrak Station	Study Area	Park	Education	Heavy Industrial	Mixed Residential and Commercial
	I-84	City Boundary	Church	Emergency Services	Low Density Residential	Office
	Railroad	Park River Conduit	Cultural	Government	Medium Density Residential	Retail
CT Fastrak	Water					

Sources of Data: City of Hartford, ESRI

Notes: Colors/elements outside of study area muted intentionally.

0 500 1,000 Feet

The I-84 Hartford Project

Viewsheds Map

Date: 4/30/2014 Drawn By: AECOM Figure No: 4-15

4.11 Section 4(f) and Section 6(f) Lands

4.11.1 Section 4(f)

The U. S. Department of Transportation Act (DOT Act) Section 4(f) regulations govern the use of lands which are:

- Parks and recreational areas of national, state, or local significance which are both publicly owned and open to the public.
- Publicly owned wildlife and waterfowl refuges of national, state, or local significance which are open to the public to the extent that public access does not interfere with the primary purpose of the refuge.
- Historic sites of national, state, or local significance in public or private ownership regardless of whether they are open to the public.

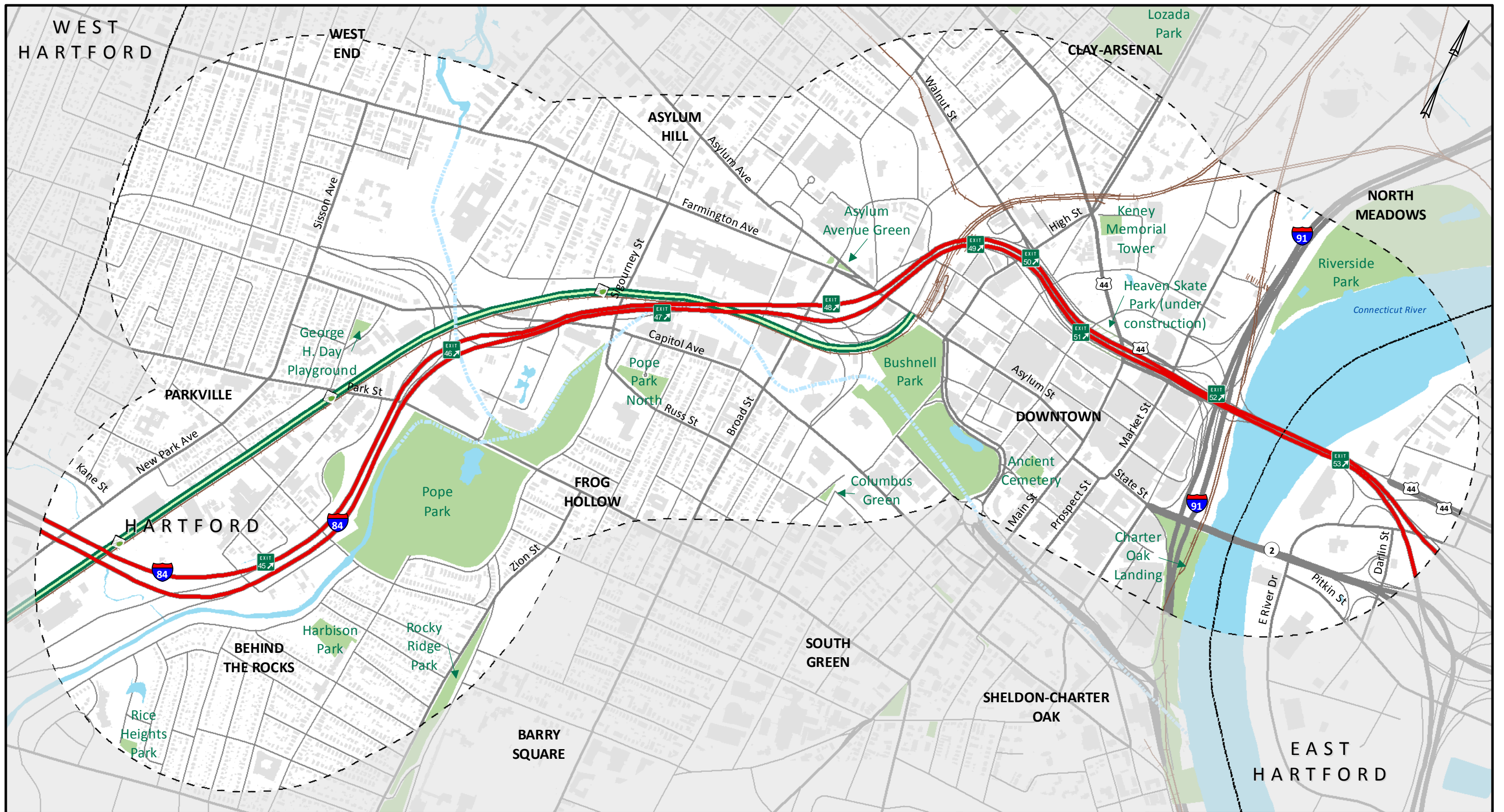
When private institutions, organizations, or individuals own parks, recreational areas or wildlife and waterfowl refuges, Section 4(f) does not apply, even if such areas are open to the public. The City of Hartford Information Services Land Use Data was consulted to develop a list of properties in the Study Area that are protected by Section 4(f). These are illustrated on Figure 4-16, following. Table 4-18, below, lists Section 4(f) resources in the Study Area.

Table 4-18: Section 4(f) Resources within the Study Area

Property Name	Owner	Type of Property
Rice Heights Playground	City of Hartford	Park/Recreation
Pope Park	City of Hartford	Park
George H. Day Playground	City of Hartford	Park/Recreation
Bushnell Park	City of Hartford	Park
Rocky Ridge Park	City of Hartford	Park
Columbus Green	City of Hartford	Park
Asylum Avenue Green	City of Hartford	Park
Keney Memorial Tower	City of Hartford	Park
Ancient Cemetery	City of Hartford	Historic Cemetery
Riverside Park & Charter Oak Landing	City of Hartford	Park/Recreation
Harbison Park	City of Hartford	Park
Heaven Skate Park (currently under construction)	City of Hartford	Recreation

Source: City of Hartford Information Services, 2013.

Use of Section 4(f) property is defined in three ways: (1) Land permanently incorporated into a transportation facility, (2) Land used for temporary occupancy, as required, for project construction-related activities, or (3) Constructive use, which involves no actual physical use of the land and occurs when the proximity impacts of a project result in substantial impairment to the property's activities, features, or attributes.



	I-84 Exit		Interstate Highway		Park River Conduit
	CT Fastrak Station		US Highway		Building Footprint
	I-84		Major Road		Water
	Study Area		Local Road		Section 4(f) Land
	City Boundary		Railroad		Recreation Area Under Construction
			CT Fastrak		

Sources of Data: City of Hartford, ESRI

Notes: Colors/elements outside of study area muted intentionally.

0 500 1,000 Feet

The I-84 Hartford Project

Section 4(f) Lands Map

Date: 4/29/2014 Drawn By: AECOM Figure No: 4-16

4.11.2 Section 6(f)

The purpose of the Land and Water Conservation Fund Act (LWCFA) (Section 6(f)): 16 U.S.C. 4601-4 to 4601-11 (P.L. 88-578) is to preserve, develop and assure the quality and quantity of outdoor recreation resources and regulate all projects which impact recreational lands purchased or improved with Land and Water conservation funds. The LWCFA provides matching grants to state and local governments provided they be used to acquire and develop public outdoor recreation areas and facilities. The intent in using this approach is to create and maintain high quality recreation areas nationwide. By providing matching funds for this purpose, the federal government is hoping to create the mechanism through which non-federal investments will be devoted to the protection and maintenance of recreational resources throughout the United States.

Section 6(f) states that “no property acquired or developed with assistance under this section shall, without the approval of the Secretary of the Interior, be converted to other than public outdoor recreation uses.” Section 6(f)(3) of the LWCFA contains strong provisions to protect federal investments and the quality of assisted resources. The law is firm but recognizes the likelihood that changes in land use or development may make some assisted areas obsolete over time, particularly in rapidly changing urban areas like Hartford. The law is set up to discourage converting park and recreation facilities to other uses by ensuring that changes or “conversions from recreation use” will bear a cost. The LWCFA contains a clear and common sense provision to protect grant-assisted areas from conversions.

The “anti-conversion” requirement applies to all parks and other sites that have been the subject of Land and Water grants of any type, whether for acquisition of parkland, development, or rehabilitation of facilities. In many cases, even a relatively small LWCFA grant (e.g., for development of a picnic shelter) in a park of hundreds or even thousands of acres provides anti-conversion protection to the entire park site. In the event that Section 6(f) lands are approved through the Department of the Interior to be put to use for another purpose, replacement in kind is typically required.

Funding for the parks and recreational areas within the Study Area are identified in Table 4-19, following. As noted above, properties that have benefited from federal funds are subject to requirements that replacement parklands within a reasonable proximity be provided. For lands acquired through the LWCFA, additional provisions under Title 36, Part 59 § 6(f)(3), known as “conversion protection” requirements, place additional restrictions on the potential conversion of recreation and conservation lands. Similar provisions under Connecticut State Statutes CSS § 7-131i-j, restrict the use of land acquired or developed by a municipality with State funds for anything other than recreation or conservation.

Table 4-19: Funding Sources for Section 4(f) Resources

Property Name	Owner	Type of Property	Funding Sources
Rice Heights Playground	City of Hartford	Park/Recreation	While DEEP has provided funds for playgrounds, no state funding record exists for this site.
Pope Park	City of Hartford	Park	Federal & State
George H. Day Playground	City of Hartford	Park/Recreation	State
Bushnell Park	City of Hartford	Park	State
Rocky Ridge Park	City of Hartford	Park	Federal & State
Columbus Green	City of Hartford	Park	Because of the size and nature, state funding is questionable and no record has been found.
Asylum Avenue Green	City of Hartford	Park	Because of the size and nature, state funding is questionable and no record has been found.
Keney Memorial Tower	City of Hartford	Park	No record of funding for Keney Memorial Tower has been found.
Ancient Cemetery	City of Hartford	Historic Cemetery	Privately funded
Riverside Park & Charter Oak Landing	City of Hartford	Park/Recreation	Federal & State
Harbison Park	City of Hartford	Park	Federal & State
Heaven Skate Park	City of Hartford	Recreation	No state funding record for this site has been found.
Old State House Park	City of Hartford	Park	Federal & State

Sources: City of Hartford Information Services, 2013;
CTDEEP, 2015

4.12 Surface and Groundwater Resources

4.12.1 Surface Water Resources

The Study Area is drained by waterways in the Connecticut River Basin, with water in the local watershed generally flowing southward and eastward towards the Connecticut River. Specifically, the North and South Branches of the Park River converge in the western portion of the Study Area to form the Park River. The Park River itself has a long history that is intimately entwined with the development and history of the City of Hartford. Originally called the Little River in the early 1600s, over time as the river began to be utilized by settlers to power local mill's and as factories were constructed along its banks, the Little River's water quality became impaired and it became known as the Mill River. For a time, due to urban runoff and the fact that pigs were once kept in pastures along the banks of the river, it began to produce horrific odors and was aptly named the Hog River.

In the 1850s, around the time Horace Bushnell was proposing to create Bushnell Park (originally called "City Park"), the river was commonly referred to as the Park River and the name has stuck ever since. The driving force behind the creation of Bushnell Park was to clean up the river and dismantle the existing factories, tanneries and other industrial development that had moved in along the rivers banks and replace them with a scenic place where the citizens of Hartford could come and relax.

Restoration and beautification of the Park River and its immediate surroundings aside, there was another major problem: flooding. The Connecticut River, into which the Park River discharges, drains an enormous area of New England to the north of the confluence of the two rivers. As a result, every year, the Connecticut River's water would rise to flood stage elevations and back up into the Park River's channel, floodplains, and associated low lying areas. Catastrophic flooding in 1936 and 1938 caused hundreds of millions of dollars (in 1930s dollars) in property damage as much of Hartford was underwater. These events in turn triggered the beginning of a process that would occur over the next forty years, the gradual interment of portions of the Park River into an enormous system of underground concrete tunnels, culverts, and associated infrastructure. At the request of officials from the City of Hartford, this process was initiated by the United States Army Corps of Engineers in an attempt to tame the river and eliminate any further flooding episodes. At its completion, the approximately nine miles of underground conduit that presently entomb portions of the river cost over 100 million dollars.

The Connecticut River itself flows southward through the State and ultimately empties into Long Island Sound. The Connecticut River is a fishery for the following species: American eel, common carp, calico bass, largemouth bass, northern pike, small mouth bass, sunfish, walleye, white catfish, white perch, and yellow perch (CT DEEP, 2013 Connecticut Angler's Guide).

The waters of Connecticut (all surface water and groundwater of the State) are assigned a Water Quality Classification by CT DEEP. The Water Quality Classifications are used to relate designated uses and the applicable standards and criteria for each class of surface and ground water resource. Major surface water resources within the study area and their associated water quality classifications are depicted on Figure 4-17, page 4-56, and listed in Table 4-20, following.

Table 4-20: Major Surface Water Resources within the Study Area

Water Body Name	Water Quality Classification
South Branch Park River	B (Recreational use: fish and wildlife habitat; agricultural and industrial supply and other legitimate uses including navigation.)
North Branch Park River	A (Potential drinking water supply; fish and wildlife habitat; recreational use; agricultural and industrial supply and other legitimate uses including navigation.)
Park River	B (Recreational use: fish and wildlife habitat; agricultural and industrial supply and other legitimate uses including navigation.)
Pope Park Pond	A (Potential drinking water supply; fish and wildlife habitat; recreational use; agricultural and industrial supply and other legitimate uses including navigation.)
Lily Pond	A (Potential drinking water supply; fish and wildlife habitat; recreational use; agricultural and industrial supply and other legitimate uses including navigation.)
Connecticut River	SB (Marine fish, shellfish and wildlife habitat, shellfish harvesting for transfer to approved areas for purification prior to human consumption, recreation, industrial and other legitimate uses including navigation.)

Source: CT DEEP. *Water Quality Standards and Classifications Factsheet*. Updated April 29, 2013.

Pursuant to the requirements of Section 305(b) of the Federal Clean Water Act, water bodies that are determined to not be supporting their designated uses in whole or in part are considered impaired, and placed on the Clean Water Act, Section 303(d) List of Impaired Waters, where they are prioritized and scheduled for restoration. The causes of impairment include those pollutants or other stressors that adversely affect the actual chemical, physical, and biological parameters of the water resource. Sources of impairment are not determined until a total maximum daily load (TMDL) assessment is conducted on a water body. Four of the water bodies within the Study Area are listed as impaired in the *2012 State of Connecticut Integrated Water Quality Report*; these are listed in Table 4-21, following.

Table 4-21: Impaired Surface Water Resources within the Study Area

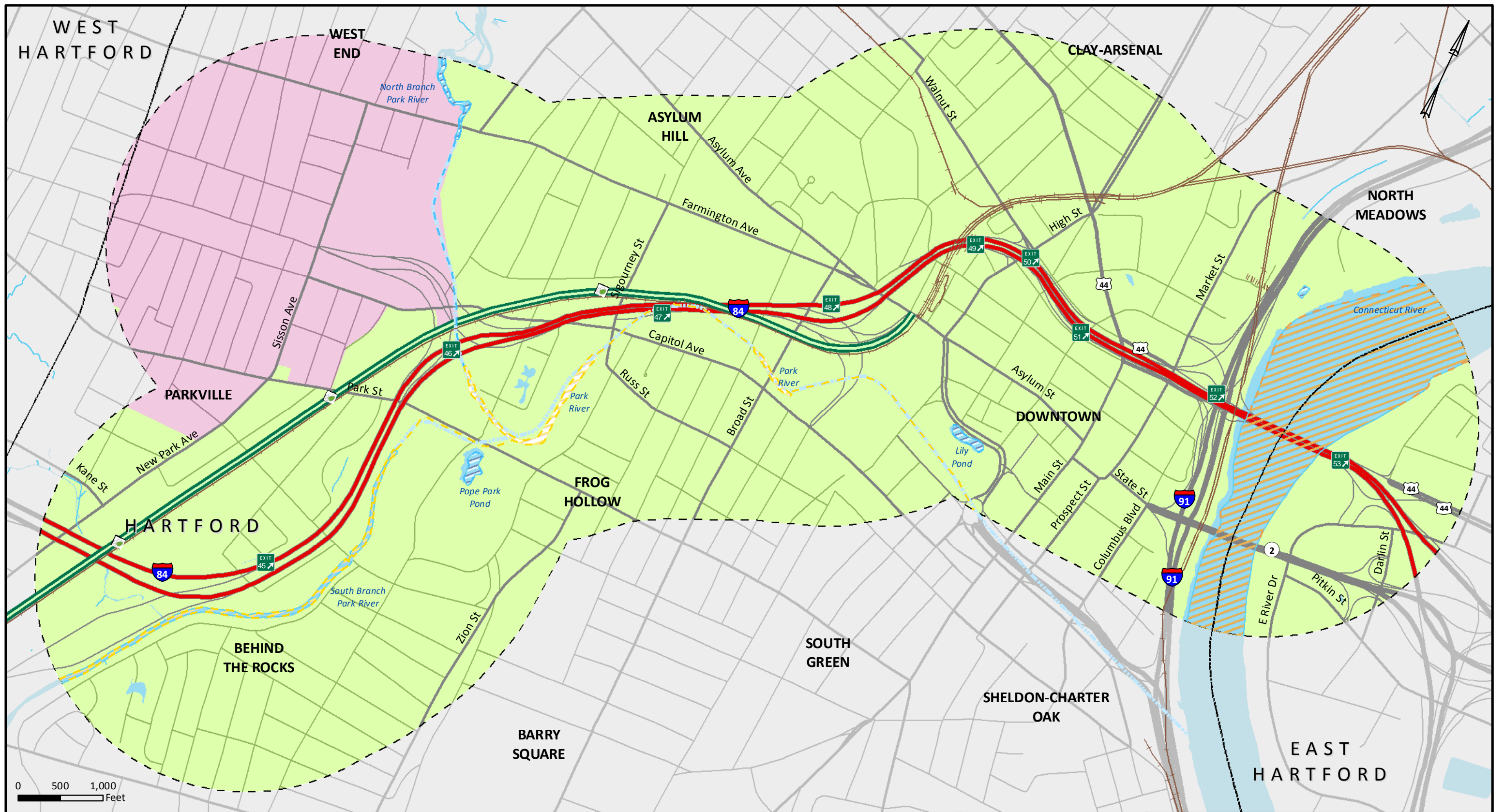
Water Body Name	Impairment
South Branch Park River	Habitat for Fish, Other Aquatic Life and Wildlife: Cause unknown. Potential sources include combined sewer outflows (“CSOs”). Recreation: <i>Escherichia coli</i> . Potential sources include non-permitted stormwater, illicit discharges, insufficient septic systems, nuisance wildlife/ pets.
North Branch Park River	Recreation: <i>Escherichia coli</i> . Potential sources include permitted and non-permitted stormwater, illicit discharges, CSOs, sanitary sewer overflow (“SSOs”), insufficient septic systems, nuisance wildlife/ pets.
Park River	Recreation: <i>Escherichia coli</i> . Potential sources include permitted and non-permitted stormwater, illicit discharges, insufficient septic systems, nuisance wildlife/ pets.
Connecticut River (from Reservoir Brook confluence, Portland, CT, upstream to the MA border)	Fish Consumption: Polychlorinated biphenyls. Recreation: <i>Enterococcus</i> . Potential sources include permitted and non-permitted stormwater, illicit discharges, CSOs/SSOs, insufficient septic systems, agricultural activity, nuisance wildlife/ pets. <i>Escherichia coli</i> . Potential sources include permitted and non-permitted stormwater, illicit discharges, CSOs/SSOs, insufficient septic systems, agricultural activity, nuisance wildlife/ pets.

Source: CT DEEP. 2012 *State of Connecticut Integrated Water Quality Report*. December 17, 2012.

4.12.2 Groundwater

The CT DEEP classifies the state’s groundwater resources into four classes and establishes groundwater quality standards and uses for each class and are defined by the CT DEEP as:

- Class GAA: Designated uses are for existing or potential public supply of water suitable for drinking without treatment and baseflow for hydraulically connected surface water bodies. The discharges are limited to: treated domestic sewage, certain agricultural wastes, and certain water treatment wastewaters.
- Class GA: Designated uses are for existing private and potential public or private supplies of water suitable for drinking without treatment and baseflow for hydraulically connected surface water bodies. Discharges are restricted to: the same as for GAA and discharge from sewage treatment facilities subject to stringent treatment and discharge requirements, and other wastes of natural origin that easily biodegrade and present no threat to groundwater.
- Class GB: Designated uses are for industrial process water and cooling waters; baseflow for hydraulically connected surface water bodies and is presumed not suitable for human consumption without treatment. Discharges are restricted to: the same as for GA (Note; same treatment standards apply), and certain other biodegradable wastewaters subject to soil attenuation.



LEGEND

- I-84 Exit
- CT Fastrak Station
- I-84
- Study Area
- City Boundary

- Interstate Highway
- US Highway
- Major Road
- Local Road
- Railroad
- CT Fastrak

- Park River Conduit
- Hydrography

Groundwater Quality

- GA
- GB

Surface Water Quality

- A
- B, B*
- SB

Surface Water Quality

- A
- B, B*
- SB

Sources of Data: City of Hartford, CT
DEEP, ESRI

Notes: Colors/elements outside of study area muted intentionally. There are no aquifer protection areas within the study area.

The I-84 Hartford Project		
Surface and Groundwater Resources Map		
Date: 4/29/2014	Drawn By: AECOM	Figure No: 4-17

- Class GC: Designated uses are assimilation of discharge authorized by the Commissioner pursuant to Section 22a-430 of the General Statutes. As an example a lined landfill for disposal of ash residue from a resource recovery facility. The GC hydrogeology and hydrologic setting provides the best safeguard to adjacent resources. Discharges are restricted to: potential discharges from certain waste facilities subject to specific permitting requirements.

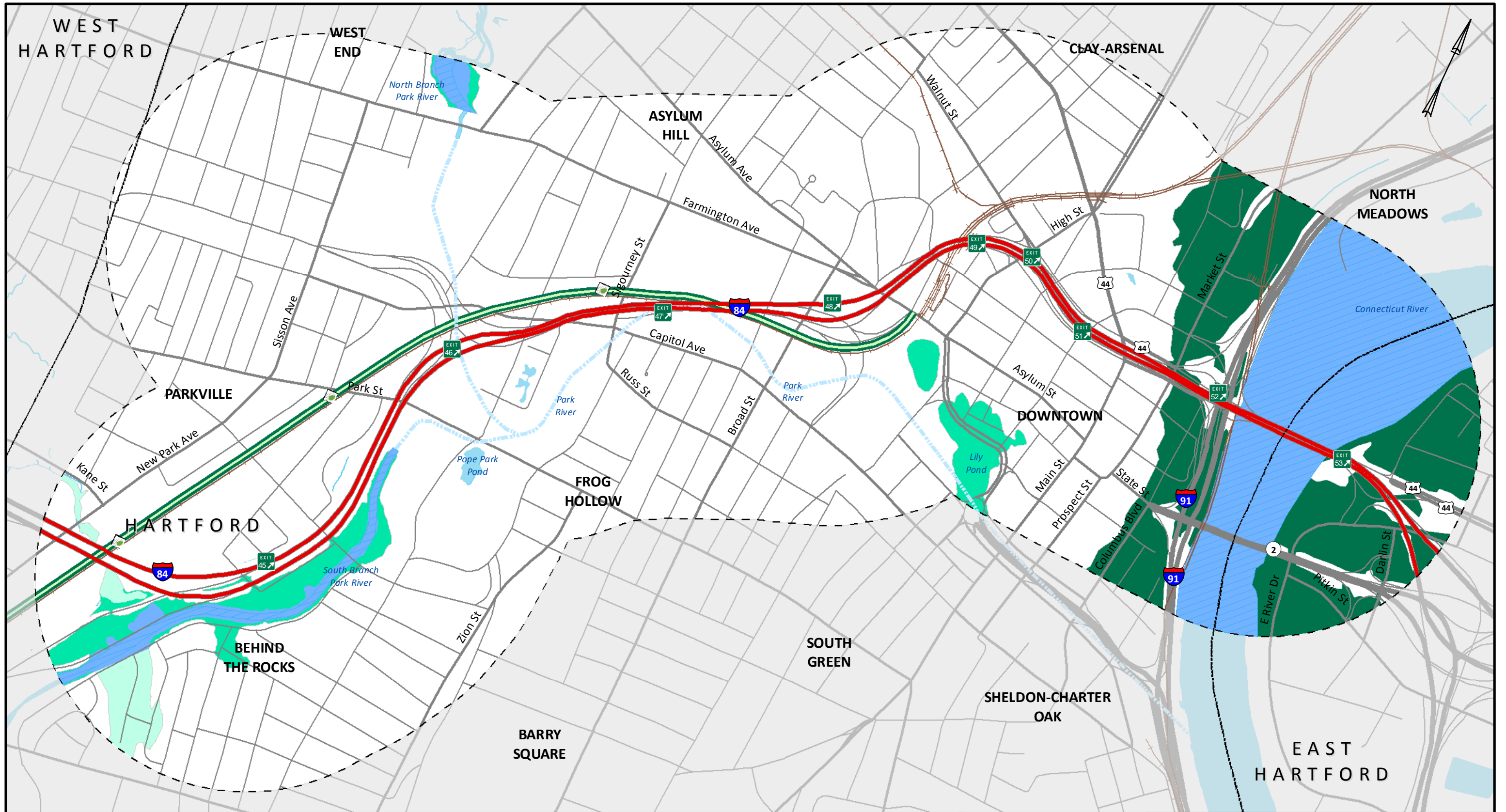
Groundwater resources within the Study Area are depicted on Figure 4-17, previous. A majority (85%) of the groundwater resources in the Study Area are classified as GB. A small area (remaining 15%) located in the northwest corner of the Study Area is classified as GA. The entire Study Area, minus the parks, is in the City sewer service area and there are no aquifer protection areas within the Study Area.

The CT DEEP Connecticut's Aquifer Protection Area Program protects major public water supply wells in sand and gravel aquifers to ensure public drinking water for present and future generations. Currently, the State of Connecticut has 127 active Aquifer Protection Areas in 80 towns that serve more than 1,000 people. CT DEEP Aquifer Protection Area regulations limit development of certain new land use activities that use, store, handle, or dispose of hazardous materials, and require existing regulated land uses to follow best management practices. There are no Aquifer Protection Areas within the Study Area.

4.13 Floodplains

A floodplain is the land area adjacent to a river, stream or other body of flowing water which is, on average, likely to be covered with flood waters resulting from a 100-year frequency storm event as mapped by Federal Emergency Management Agency (FEMA) (refer to Zones A and AE on Figure 4-18, following). Floodplains within the Study Area include lands surrounding the South Branch Park River and tributary, the North Branch Park River, and Lily Pond. A levee protects the Study Area from the Connecticut River flooding events (refer to Zone X Protected by Levee on Figure 4-18, following). All other areas are designated Zone X, and are defined as areas of minimal flood hazard.

A floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. These areas within the Study Area include the channels associated with the South Branch Park River, the North Branch Park River, and the Connecticut River (refer to Figure 4-18, following).



LEGEND	I-84 Exit	Interstate Highway	Park River Conduit	Flood Zone	X
	CT Fastrak Station	US Highway	Floodway	A	X PROTECTED BY LEVEE
	I-84	Major Road	Hydrography	AE	0.2 PCT ANNUAL CHANCE FLOOD HAZARD
	Study Area	Local Road			
City Boundary	Railroad				
	CT Fastrak				

Sources of Data: City of Hartford, CT
DEEP, ESRI

Notes: Colors/elements outside of study area muted intentionally.

0 500 1,000
Feet

The I-84 Hartford Project		
Floodplains Map		
Date: 4/29/2014	Drawn By: AECOM	Figure No: 4-18

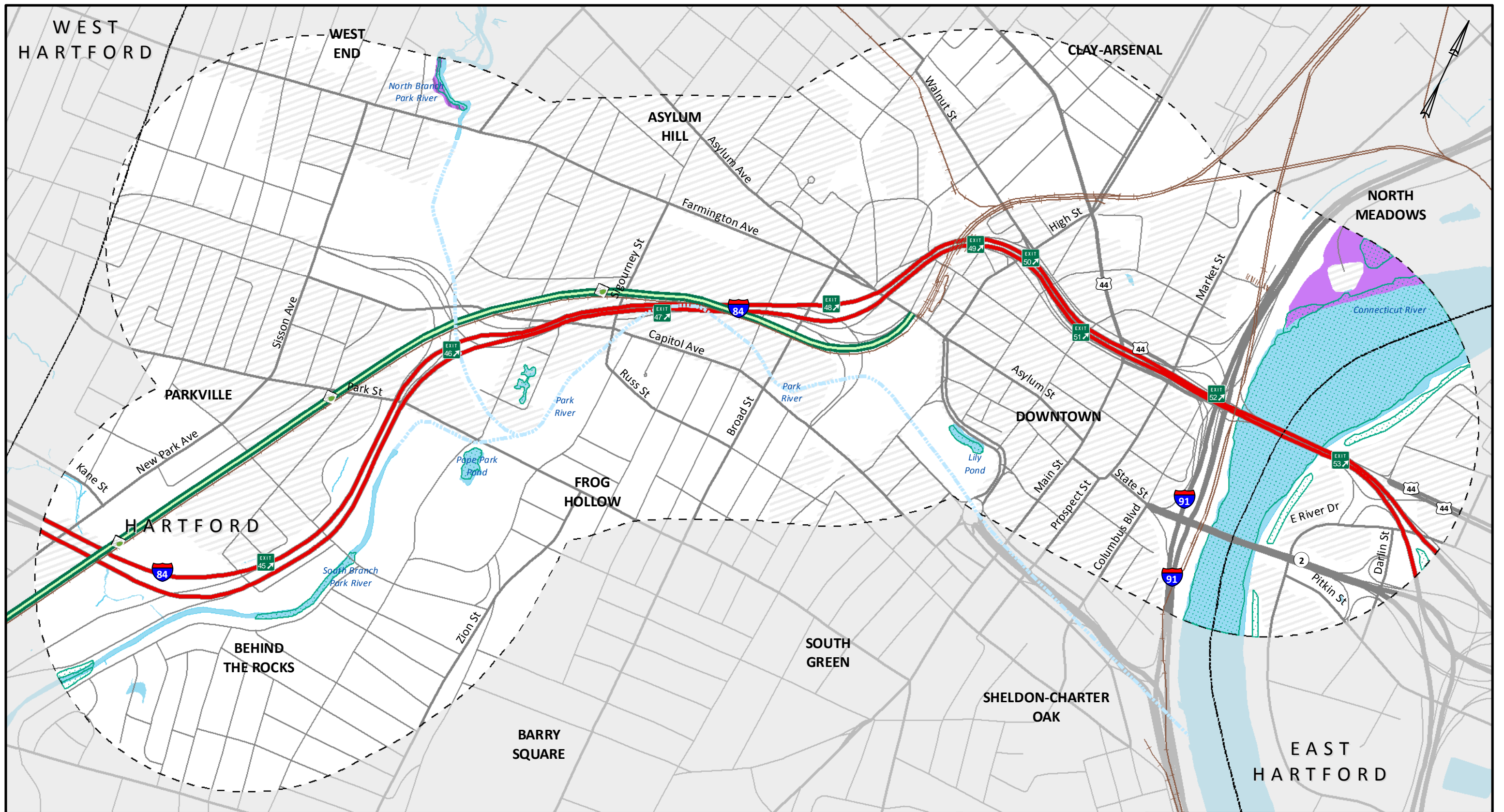
4.14 Wetlands

Pursuant to the Connecticut Inland Wetlands and Watercourses Act, Connecticut General Statutes Section 22a-36 through 22a-45, the State of Connecticut defines wetlands as land, including submerged land, consisting of poorly drained, very poorly drained, alluvial, and floodplain soils as defined by the USDA Cooperative Soil Survey. Such areas may include filled, graded, or excavated sites possessing an aquic (saturated) moisture regime as defined by the USDA Cooperative Soil Survey. The Act defines watercourses as rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and also other bodies of water, natural or artificial, public or private, contained within, flow through or border upon the state, or any portion thereof.

In accordance with the United States Army Corps Wetland Delineation Manual (Technical Report Y-78-1, 1987 USACE Manual) and the USACE New England District Wetland Delineation Datasheet and Supplemental Information (CENAE-R-PT Version 9/1/04), areas must exhibit three distinct characteristics to be considered federal jurisdictional wetlands:

- 1. Vegetation:** The prevalent vegetation must consist of plants adapted to life in hydric soil conditions. These species, due to morphological, physiological, and/or reproductive adaptations, can and do persist in anaerobic soil conditions.
- 2. Hydric Soils:** Soils in wetlands must be classified as hydric or they must possess characteristics associated with reducing soil conditions (typically resulting in redoximorphic features or gleyed soils).
- 3. Hydrology:** The soil must be inundated either permanently or periodically at mean water depths less than 6.6 feet (2 meters) or the soil must be saturated at the surface for some time during the growing season of the prevalent vegetation.

Within the Study Area, there are federal and state mapped wetlands associated with the South Branch of the Park River, the North Branch of the Park River, Pope Park Pond, Lily Pond and the Connecticut River. These are illustrated on Figure 4-19, following. The wetland information depicted on Figure 4-19 was obtained using existing data from the National Wetlands Inventory (NWI), and CT DEEP Hydric Soils and Inland Wetland Soils data.



LEGEND

I-84 Exit	Interstate Highway	Park River Conduit	National Wetlands Inventory
CT Fastrak Station	US Highway	Water	Hydric Soil
I-84	Major Road	Soil Not Rated	Alluvial and Floodplain Soils
Study Area	Local Road		
City Boundary	Railroad		
	CT Fastrak		

Sources of Data: City of Hartford, CT
DEEP, ESRI, US Fish & Wildlife Service

Notes: Colors/elements outside of study area muted intentionally.

0 500 1,000
Feet

The I-84 Hartford Project

Wetlands Map

Date: 4/30/2014	Drawn By: AECOM	Figure No: 4-19
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4.15 Endangered Species

The purpose of the Federal Endangered Species Act, passed in 1973, is to protect and recover imperiled species and the ecosystems upon which they depend. In freshwater and terrestrial ecosystems, the Act is administered by the USFWS. Per consultation with the United States Fish and Wildlife Service (USFWS) website on December 5, 2013, the Study Area does not encompass any known habitat of any federally-listed species under the jurisdiction of the (USFWS, 2013).

The Connecticut Endangered Species Act, passed in 1989, recognizes the importance of the state's plant and animal populations and the need to protect them from threats that could lead to their extinction. The overall goal of the legislation is to conserve, protect, restore and enhance any endangered or threatened species and their essential habitat. Species are listed according to their level of risk, and their status is reviewed every five years. The CT DEEP oversees the implementation of the Connecticut Endangered Species Act.

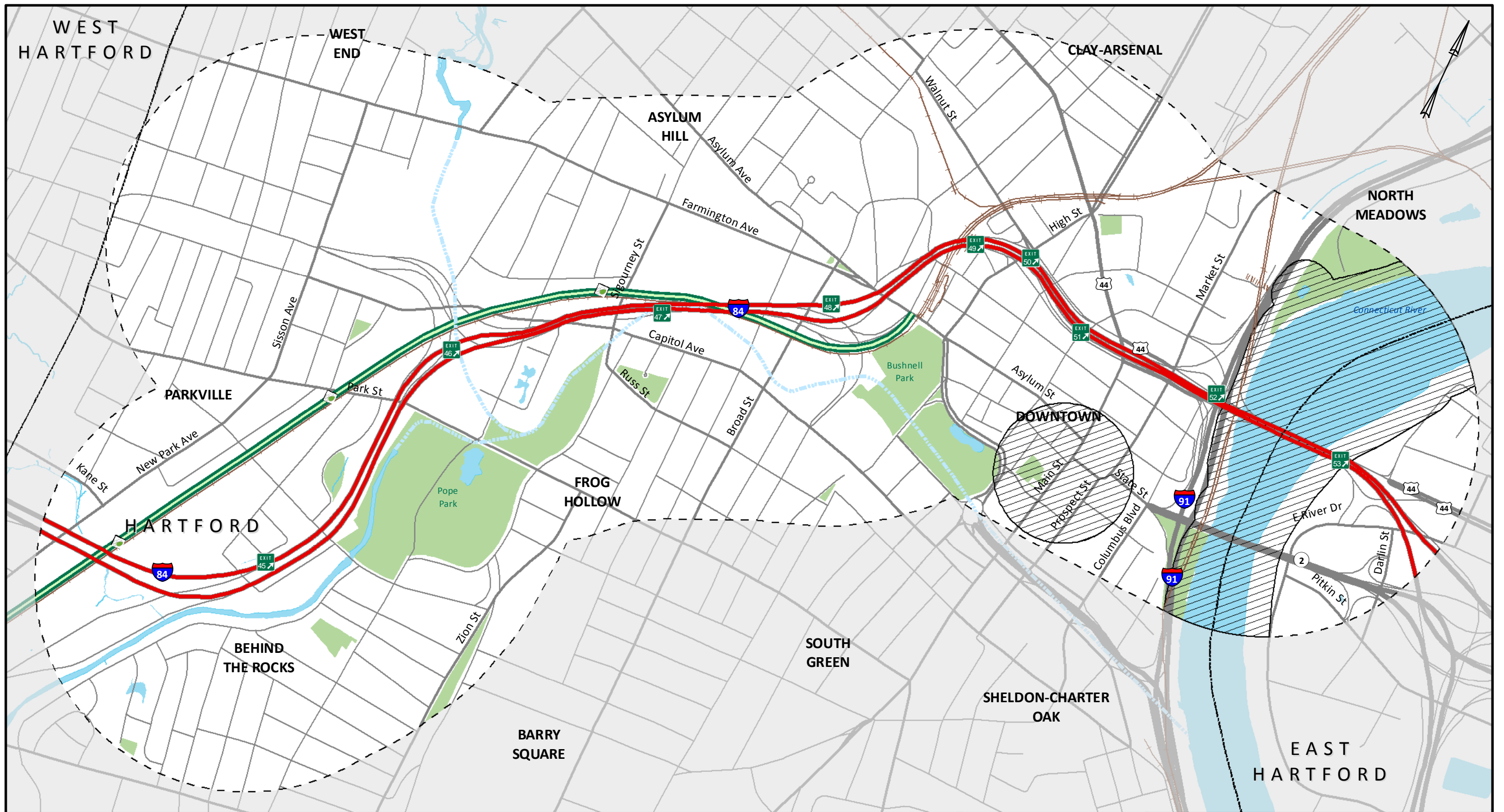
Within the Study Area there are two locations of state-listed threatened, endangered, or special concern species habitat areas. The locations are illustrated on Figure 4-20, following. Further communication/consultation will be undertaken with CT DEEP, as appropriate.

Connecticut Critical Habitats are areas that are classified as rare and specialized wildlife habitats in the state. Within the northeastern corner of the Study Area, there is a small area of critical habitat (forested floodplain). Further communication/consultation will be undertaken with CT DEEP, as appropriate.

4.16 Hazardous Material Risk Sites

The Study Area was reviewed for the potential for encountering hazardous and/or petroleum materials. In order to evaluate this potential risk, historic insurance maps and government databases were reviewed to identify properties which may pose an environmental concern. These documents were obtained from Environmental Data Resources (EDR) located in Milford, Connecticut.

Historic Sanborn Fire Insurance Maps (Sanborn Maps) of the Study Area from 1900, 1922, 1950, and 1979 were reviewed. Sanborn Maps were initially created to estimate fire insurance liabilities in urbanized areas and such contain important information that is typically used when evaluating potential historical environmental impacts. Evaluation of the Sanborn Maps obtained for this hazardous materials risk review indicate that there are numerous properties since 1900 which have the potential to have released petroleum and/or hazardous materials into the surrounding environment.



LEGEND

	I-84 Exit		CT Fastrak
	CT Fastrak Station		Park River Conduit
	I-84		Water
	Study Area		Natural Diversity Database State-Listed Species Habitat Polygon
	City Boundary		Interstate Highway
			US Highway
			Major Road
			Local Road
			Railroad

Sources of Data: City of Hartford, CT
DEEP, ESRI, USGS

Notes: Colors/elements outside of study area muted intentionally.

0 500 1,000
Feet

The I-84 Hartford Project

Threatened and Endangered Species Map

Date: 4/30/2014	Drawn By: AECOM	Figure No: 4-20
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Many of these properties are operations that associated with auto repair, automotive service stations, and manufacturing. The potential environmental concerns would typically result from poor maintenance and housekeeping practices over long periods of time or from the uncontrolled discharge of materials stored in either aboveground or underground storage tanks. Many of the historic properties identified were found to have once contained one or more gasoline storage tanks, as well as the discovery of numerous automotive service stations (identified on the Sanborn Maps as Filling Stations), many of which haven't been in operation for over 50 years. In addition, many of the historic properties were identified as auto repair shops or machine shops which typically never properly stored and disposed of petroleum and other fluids used in their operations.

Federal, State, and Local environmental databases have been compiled and summarized into a report. Those databases contain information regarding current properties which have been identified by Federal, State and local government agencies as impacting or having the potential to impact the environment. These databases include known hazardous waste sites, sites undergoing investigation and/or remediation under the Connecticut Property Transfer Act, leaking underground storage tanks (UST), regulated underground and above ground storage tanks, and spills.

Our review of the database report has identified several hundred properties within the Study Area which may have or have been identified as having impacted the surrounding environment. Many of these properties have already undergone some type of remediation (such as a removal of a leaking UST) or are currently being investigated for potential environmental impacts. Other properties have been identified as having the potential to impact the environment and as such, a future investigation will be required if the proposed action will need to disturb sites identified as having potential environmental impacts. Other potential impacts to the environment within the corridor include larger spills on I-84 as a result of motor vehicle accidents.

Because of the large number of sites listed on the various databases reviewed, and the knowledge that many of the database listings are associated with minimal discharges, the summary spreadsheet does not include the following sites:

- Facilities currently with USTs that are not identified to have had any releases into the surrounding environment
- Facilities where documentation indicates USTs were removed with no environmental impacts identified
- Sites where petroleum spills and discharges (other than gasoline) are less than 100 gallons
- Sites where gasoline and other hazardous materials are less than 50 gallons
- Sites where sewage has been discharged
- Leaking aboveground storage tanks inside basements or within secondary containment
- Properties listed on the database as Orphan sites; meaning that their specific location cannot be identified

Once further evaluation has been conducted to narrow the Study Area, the review of locations of potential environmental impacts based upon the summary spreadsheets developed for both the Sanborn Fire Insurance Maps and the EDR Database Report.

4.17 Prime Farmland Soils

Prime farmland, as defined by the United States Department of Agriculture (USDA), is the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to economically produce a sustained high yield of crops when it is treated and managed using acceptable farming methods. The Study Area contains five prime farmland soil units and three statewide farmland soil units as illustrated on Figure 4-21, following, and listed in Table 4-22, below.

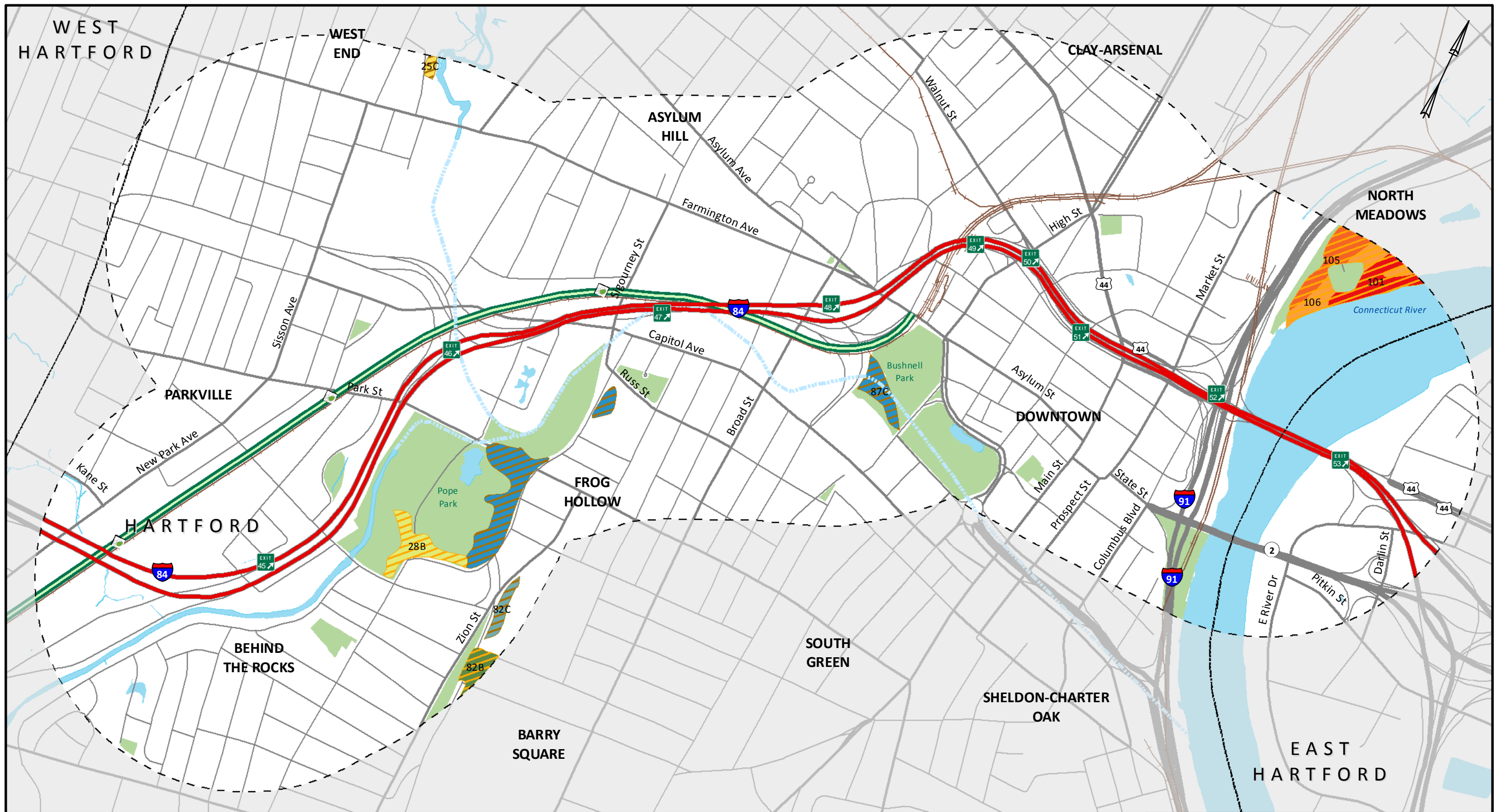
Table 4-22: USDA Prime Farmland Soils within the Study Area

Soil Map Unit Symbol	Name	Percent Slope	Prime or Statewide Importance
28B	Elmridge fine sandy loam	3-8	Prime
82B	Broadbrook silt loam	3-8	Prime
101	Occum fine sandy loam	Nearly level	Prime
105	Hadley silt loam	Nearly level	Prime
106	Winooski silt loam	Nearly level	Prime
25C	Brancroft silt loam	8-15	Statewide
82C	Broadbrook silt loam	8-15	Statewide
87C	Wethersfield loam	8-15	Statewide

Source: United States Department of Agriculture, *Natural Resources Conservation Service Soil Survey of the State of Connecticut*, 2003.

Prime farmland soils could be used as cropland, pastureland, rangeland, forestland, or other land. Urbanized land and water are exempt from consideration as prime farmland. Within the Study Area, prime farmland soils exist on land occupied by open space areas such as parks and playgrounds, and along the alluvial and floodplain areas associated with the Connecticut River, see Figure 4-21, following.

Farmland of statewide importance is land that is designated by the CT DEEP as areas with soils that fail to meet one or more of the requirements of prime farmland, but are important for the production of food, feed, fiber, or forage crops. They include those soils that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. While the Study Area contains soil types suitable for farming, the areas identified on the map are not actively farmed and are not protected farmland soils since they have been converted to urban uses.



LEGEND	I-84 Exit	Interstate Highway	Park River Conduit	Occum fine sandy loam	Elmridge fine sandy loam, 3-8% slopes
	CT Fastrak Station	US Highway	Park	Hadley silt loam	Broadbrook silt loam, 3-8% slopes
	I-84	Major Road	Water	Winooski silt loam	Broadbrook silt loam, 8-15% slopes
	Study Area	Local Road	Prime Farmland Soil	Brancroft silt loam, 8-15% slopes	Wethersfield loam, 8-15% slopes
City Boundary	Railroad	Farmland Soil of Statewide Importance	Sources of Data: City of Hartford, CT DEEP, ESRI		

The I-84 Hartford Project		
Farmland Soil Map		
Date: 4/30/2014	Drawn By: AECOM	Figure No: 4-21

4.18 Noise

A noise assessment is proposed to document the potential impacts associated with the I-84 Hartford Project. The traffic noise assessment would be conducted in accordance with the CTDOT's *Highway Traffic Noise Abatement Policy for Projects Funded by the Federal Highway Administration* (dated July 2011). Future noise levels from the proposed I-84 Hartford Project alternatives would be evaluated at noise-sensitive receptors identified within the Study Area. Based on an initial review and screening of the Study Area, several noise-sensitive receptors were identified including residences, parks (Bushnell Park), churches, libraries, hotels, and office buildings. Using traffic data developed for each of the project alternatives, future noise levels would be predicted at discrete sites selected to be representative of the noise-sensitive receptors identified as part of this initial screening assessment.

To document traffic noise impacts and in accordance with the CTDOT noise policy, baseline noise levels will be measured at select locations to document existing traffic noise exposure. A prediction model will also be developed using the Federal Highway Administration's (FHWA) *Traffic Noise Model* (currently TNM 2.5) to validate the measured noise levels. Using this validated approach, the prediction model will be updated to reflect each of the proposed project alternatives. The future traffic noise levels at the representative modeling sites would be predicted using traffic data that reflects the highest volumes typically with Level of Service (LOS) "C" or better. The traffic prediction model would reflect the proposed terrain and roadway edge conditions to accurately reflect any structural shielding and attenuation. If the future traffic noise levels are predicted to exceed the FHWA and CTDOT noise abatement criteria (NAC), candidate mitigation measures would be identified and evaluated using the "feasibility and reasonableness" criteria included in CTDOT's noise policy.

To assess the noise impacts due to temporary construction activities, FHWA Roadway Construction Noise Model (RCNM) will be used to determine the areas of potential adverse effects and the types of control measures that may be required to mitigate these impacts.

In the event the railroad line is relocated as part of the preferred alternative for the I-84 Hartford Project, a noise assessment would be completed in accordance with FRA's Noise and Vibration Assessment Methodology. The FRA uses the Federal Transit Administration (FTA) Noise and Vibration Impact Assessment procedures outlined in "Transit Noise and Vibration Impact Assessment," May 2006. FRA's Railroad Noise Emission Compliance Regulation (49 CFR Part 210) prescribes compliance requirements for enforcing railroad noise emission standards adopted by the EPA (40 CFR Part 201). While not a rule or standard, the guidance is intended to satisfy NEPA documentation and assist project sponsors in addressing predicted construction and operation noise and vibration during the design process. Construction noise would also be evaluated using FRA and FTA guidelines should the railroad track be relocated as part of the Preferred Alternative for this project.

4.19 Air Quality

An air quality assessment is proposed to document the potential impacts associated with the I-84 Hartford Project. This detailed assessment would be prepared to demonstrate that the proposed project alternatives comply with the most current National Ambient Air Quality Standards (NAAQS) established by the US Environmental Protection Agency (EPA). Additionally, this detailed analysis is intended to demonstrate that the project complies with the 1990 Clean Air Act Amendments (CAAA) particularly the transportation conformity rule (TCR), which includes compliance with the provisions of the Connecticut State Implementation Plan (SIP).

The Project is located in Hartford County, which is currently designated by the US Environmental Protection Agency (EPA) as marginal nonattainment for ozone (O₃) and a maintenance area for carbon monoxide (CO) due to violations before 1996. Therefore, the project must demonstrate transportation conformity on a project level that future regional emissions for six criteria pollutants (including CO, ozone, particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead (Pb)) under the proposed Build Alternatives do not increase over future No Build or No Action Conditions. Similarly, the project must also demonstrate that concentrations at localized hot spots or congested intersections do not exceed the NAAQS for carbon monoxide for which the region is currently a maintenance area.

The air quality effects expected during temporary construction activities would also be described qualitatively with a focus on mitigation measures. Typical air quality mitigation measures may include good housekeeping such as dust suppression and control methods to minimize fugitive dust on dry and windy days.

The air quality assessment proposed for the Project will demonstrate that this project does not interfere with the attainment or maintenance of the NAAQS and that it does conform to the provisions of the Connecticut SIP.

4.20 Consistency with State Plan

The Conservation & Development Policies: The Plan for Connecticut for 2013-2018 (State C&D Plan) and the *Locational Guide Map* (LGM) were consulted to determine whether the Project is consistent with the State C&D Plan. The State C&D Plan was prepared by the Office of Policy and Management in accordance with Connecticut General Statutes Section 16a-29 and provides relevant policy statements for state agencies to assess the consistency of their proposed plans and actions with the State C&D Plan.

The State C&D Plan LGM classifies parcels as one of the following: Priority Funding Areas, Balanced Priority Funding Area, Village Priority Funding Area, Conservation Area, Protected Lands, Undesignated Lands, Local Historic District, Water, or Regional Center. Within the Study Area, parcel classifications include Priority Funding Areas, Balanced Priority Funding Areas, Conservation Areas, Local Historic District, and Protected Lands. These classifications are illustrated on Figure 4-22, following. These State C&D Plan LGM classifications are defined below:

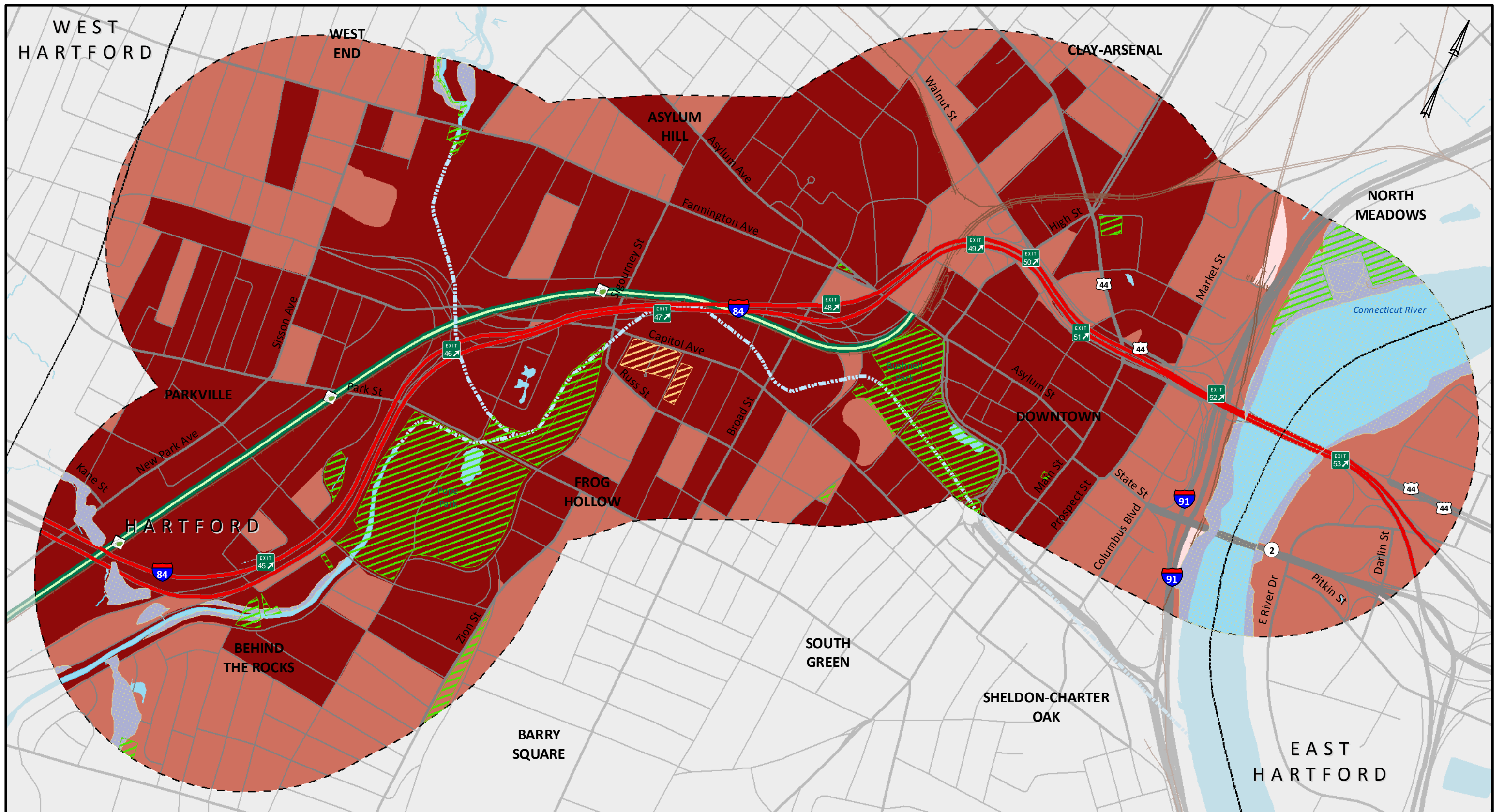
Priority Funding Areas are classified by Census Blocks that include:

- Designation as an Urban Area or Urban Cluster in the 2010 Census
- Boundaries that intersect a ½ mile buffer surrounding existing or planned mass-transit stations
- Existing or planned sewer service from an adopted Wastewater Facility Plan
- Existing or planned water service from an adopted Public Drinking Water Supply Plan
- Local bus service provided 7 days a week

Balanced Priority Funding Areas are classified as areas that meet the criteria of both Priority Funding Areas and Conservation Areas (Conservation Areas are defined below).

Conservation Areas are delineated based on the presence of factors that reflect environmental or natural resource values, and includes any one or more of the following factors:

- Core Forest Areas Greater than 250 acres based on the 2006 Land Cover Dataset
- Existing or potential drinking water supply watersheds
- Aquifer Protection Areas
- Wetland Soils greater than 25 acres
- Undeveloped Prime, Statewide Important and locally important agricultural soils greater than 25 acres
- Category 1,2 or 3 Hurricane Inundation Zones
- 100 year Flood Zones
- Critical Habitats; and
- Locally Important Conservation Areas



- LEGEND**
- I-84 Exit
 - CT Fastrak Station
 - I-84
 - Study Area
 - City Boundary

- Interstate Highway
- US Highway
- Major Road
- Local Road
- Railroad
- CT Fastrak
- Park River Conduit
- Water

- Priority Funding Area**
- 1 - 2 Criteria
 - 3 - 4 Criteria
 - 5 Criteria
 - Balanced Priority Funding Area

- Conservation Areas**
- 1 - 3 Factors
 - 4 - 5 Factors
 - Protected Land
 - Local Historic District

Sources of Data: City of Hartford, CT
DEEP, ESRI, CT OPM

Notes: Colors/elements outside of study area muted intentionally.

0 500 1,000
Feet

The I-84 Hartford Project

State Plan of Conservation and Development Map

Date: 4/30/2014 Drawn By: AECOM Figure No: 4-22

Local Historic Districts are established by the community to help ensure that the distinctive and significant characteristics of each district are protected, by having local preservation commissions review architectural changes for compatibility.

Protected Lands are lands that have some form of restriction on development, such as permanently protected open space or property in which the development rights have been acquired.

The purpose of the Project is to address structural deficiencies, improve traffic operations and safety, and reduce congestion on the I-84 mainline and interchanges in Hartford on I-84 between the Flatbush Avenue and the I-91 Interchanges. Addressing these deficiencies would allow I-84 to continue to serve as a vital link in the interstate highway system in the Northeast and provide needed access to Hartford business districts and the State Capitol. These improvements would also enhance access, safety and mobility for vehicular traffic, bicycles, and pedestrians within the Study Area. At the same time, the Project would strive to reduce the highway's footprint on the city, create linkages to existing and proposed future modes of transportation, and support the City of Hartford's economic development goals.

Therefore, the scope, purpose and proposed outcome of the I-84 Hartford Project are all consistent with the State C&D Plan's six growth management principles (GMPs), which are detailed below.

Growth Management Principle #1 (GMP 1): Redevelop and revitalize regional centers and areas with existing or currently planned physical infrastructure.

The Project would entail improvements and improve safety of an existing physical infrastructure. Improved traffic flow through the City of Hartford would help to revitalize the downtown of the State's capital and fourth largest city as well as the surrounding capital region.

Growth Management Principle #2 (GMP 2): Expand housing opportunities and design choices to accommodate a variety of household types and needs.

Because the Project would address access, safety, and mobility for vehicular traffic, bicycles, and pedestrians in the area, the Project would ultimately improve people's access to affordable and mixed use neighborhoods and connectivity to the downtown Hartford area.

Growth Management Principle #3 (GMP 3): Concentrate development around transportation nodes along major transportation corridors to support the viability of transportation options.

I-84 is an existing major transportation corridor that bisects the city of Hartford and serves as a critical east-west transportation link between New York and Massachusetts. It provides connectivity to and from Interstate 91 in Hartford and Route 2 in East Hartford. Within the Project area are the Hartford Line, formerly the New Haven-Hartford-Springfield (NHHS), high-speed rail corridor and the CTfastrak bus rapid transit system. While improving access between New York and Massachusetts is key, it is also essential that the points in between, including Hartford, are included into the economic web of the

region and market. The planning, design, construction, and operation of the I-84 Hartford Project would accommodate municipal and state plans and the needs of all users to the extent possible.

Growth Management Principle #4 (GMP 4): Conserve and restore the natural environment, cultural and historical resources, and traditional rural lands.

The Project would not result in significant impacts to natural resources, cultural and historic resources, or traditional rural lands.

Growth Management Principle #5 (GMP 5): Protect and ensure the integrity of environmental assets critical to public health and safety.

The Project would not impact public drinking water supplies and existing groundwater resources, or have any effect on surface water resources or floodplains. By improving traffic flow and reducing congestion, the Project would reduce carbon dioxide emissions and be consistent with the recommendations of the Connecticut Climate Change Preparedness Plan.

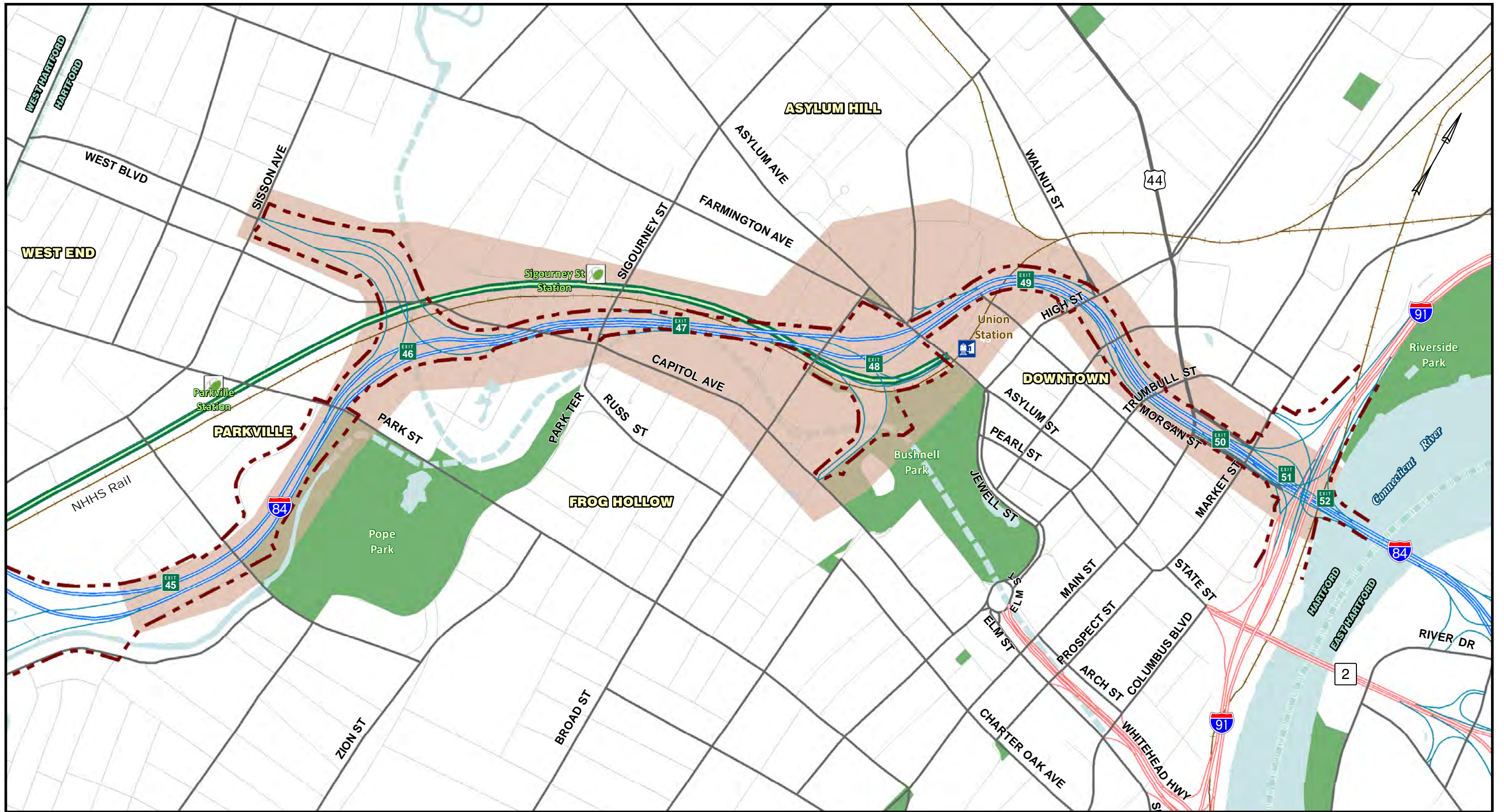
Growth Management Principle #6 (GMP 6): Promote integrated planning across all levels of government to address issues on a statewide, regional, and local basis.

The Project would comply with the goals and objectives of the local, regional, and statewide government planning organizations. The Project Team has established a Public Advisory Committee comprised of members of the civic and governmental agencies and/or organizations with responsibilities and interests in the project Study Area. The Project Team has also developed a (draft) Agency Coordination Plan to provide a framework for communicating and coordinating with the federal and state agencies that have been identified as participating and/or coordinating agencies for the environmental review of this project.

4.21 Right-of-Way and Property Impacts

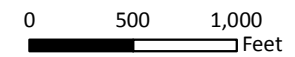
The existing right-of-way (ROW) for I-84 and its ramps has been evaluated and illustrated in Figure 4-23, following. The source for the ROW mapping is the City of Hartford GIS database. As the Project advances, detailed aerial survey will provide more accurate property and ROW lines. With a few exceptions, the existing ROW line for I-84 is located within 50 feet of the edge of pavement, creating a constrained corridor. Off-line realignment (for permanent or temporary conditions) or widening of the highway to add standard-width shoulders is likely to have ROW and property impacts. These impacts will be documented further through the Alternatives Analysis phase.

Notable areas include the area south of Park Street, where CTDOT acquired ROW for a set of interchange ramps which were not constructed. The Interchange 46 (Sisson Avenue) ramps occupy a large area which could be consolidated by redesign of the interchange. The large green space at the southwest quadrant of the Farmington Avenue/Broad Street intersection is within the I-84 ROW, as the original design of the highway included a pair of on- ramps in this location. This land is now vacant. Further development of alternatives will indicate potential areas of ROW and property impacts.



LEGEND

- - - Rights of Way
- Project Corridor
- Town/City Limit
- I-84
- I-84 Ramp
- U.S. Highway/State Road
- Major Road
- Park River Conduit
- Park
- Water
- CTfastrak
- CTfastrak Station
- I-84 Exit #
- Union Station



I-84 The I-84 Hartford Project

Rights of Way Map

Sources of Data: City of Hartford, CT Transit, City of Hartford

Date: 1/12/2015

Drawn By: TranSystems

Figure No: 4-23

4.22 Summary of Socioeconomic and Environmental Constraints

This chapter has identified the various community, cultural, and environmental resources that exist within the Study Area surrounding the Project Corridor in Hartford. Key resources and constraints are illustrated in Figure 4-24, following. While not prohibitive to development and construction, certain steps must be taken to avoid, minimize, or mitigate impacts to the community, environmental, and historic resources. Within the Study Area, there are historic and cultural resources, environmental justice communities, parks, potential contamination sites, and water resources. Each of these resources is described above and will be representative of the key issues that will need to be evaluated as the project progresses and various alternatives are developed.

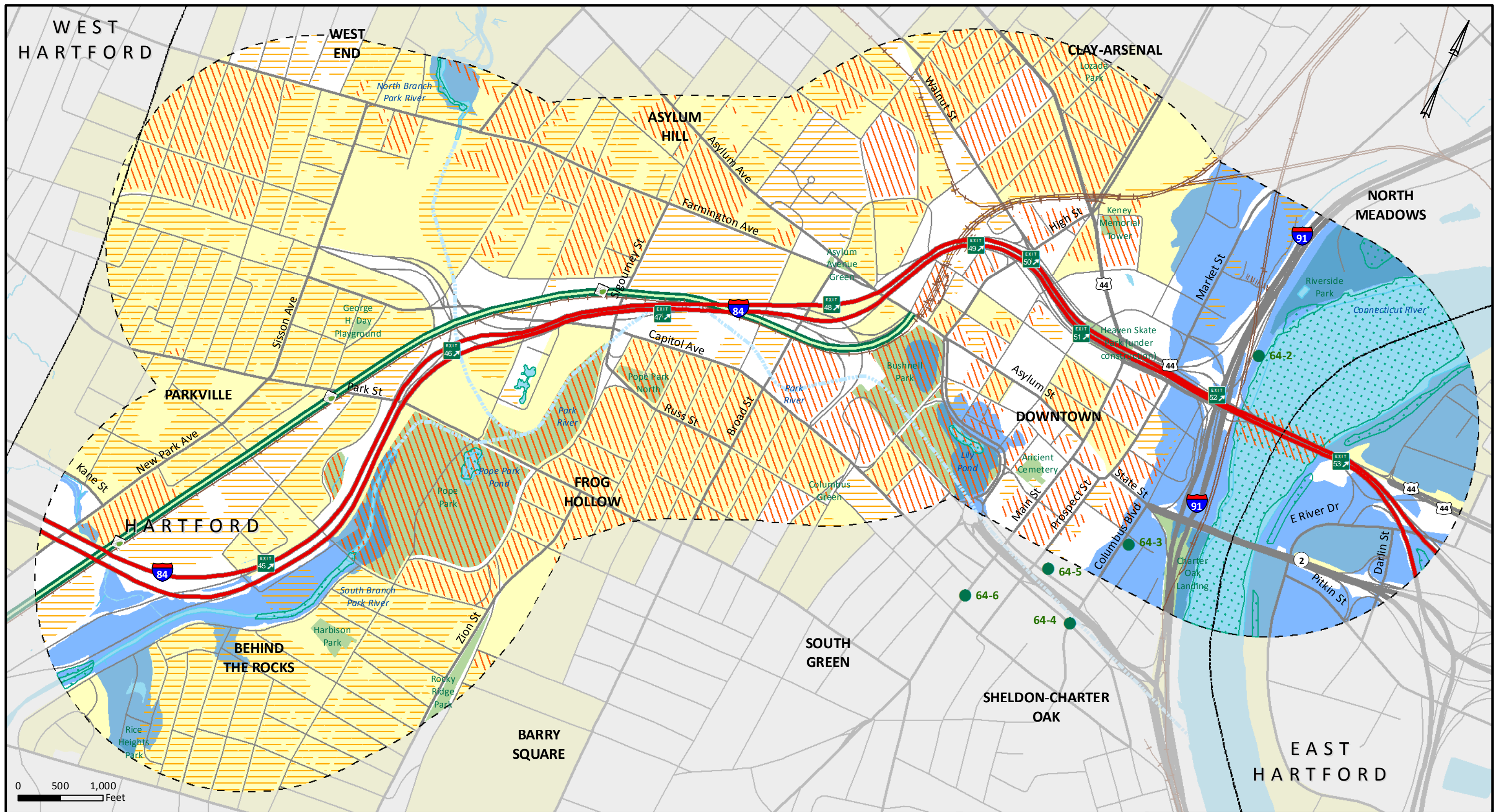
Hartford is a historic city. More than two thirds of the structures within the Study Area have been standing for more than 50 years. Some historic resources are located immediately adjacent to the I-84 right-of-way, such as Union Station, US Post Office and Federal Building, Footguard Hall, and the Bulkeley Bridge, as well as the Ann Street and Downtown North Historic Districts. Other buildings, which may potentially be listed on the historic register within the next few years, are located within close proximity to the I-84 corridor.

Within the Study Area exists potential environmental justice communities that must be addressed in the I-84 Hartford Project. These communities are numerous and varied and are defined based on low-income, minority status, limited English proficiency, and the availability of personal vehicles for transportation. Potential environmental justice communities, regardless of their definition, abut the I-84 corridor in the Behind the Rocks, Frog Hollow, Downtown, and Asylum Hill neighborhoods. Impact assessment and public outreach to these communities will play a significant role as the project progresses and applicable regulatory guidelines are followed.

The Study Area boasts several parks and recreation areas. Pope Park is located on both sides of the I-84 corridor in the Frog Hollow neighborhood. Heaven Skate Park in Downtown opened in July 2014. Also in Downtown is the State/National Register-listed Bushnell Park.

The eastern and western edges of the Study Area are filled with water resources, including the Connecticut River to the east and the Park River to the west. The flood zones for these water features extend into the I-84 corridor. The Park River Conduit crosses under I-84 near Interchange 46 and runs parallel to the corridor between Sigourney and Flower Streets.

As stated, while these potential constraints do not prohibit development in the study corridor, it is important to note that resources exist within or in close proximity to the study corridor and as the NEPA/CEPA process progresses, they will be fully evaluated. As alternatives are developed, impacts to these resources will be quantified and, in accordance with regulatory requirements, avoidance, minimization, and mitigation of these impacts will be a primary focus.



0 500 1,000 Feet

LEGEND	I-84 Exit	Interstate Highway	Railroad	Park River Conduit	EJ Population
	CT Fastrak Station	US Highway	CT Fastrak	Wetlands	Listed Historic Resource
	I-84	Major Road	Study Area	Floodway/Flood Zone	Potential Historic Resource
	Park	Local Road	City Boundary	Surface Waters	Archaeological Site

Sources of Data: City of Hartford, ESRI, CT DEEP, National Register of Historic Places, CDOT, US Census Bureau 2010

Notes: Colors/elements outside of study area muted intentionally.

The I-84 Hartford Project

Study Area Constraints Map

Date: 4/30/2014 Drawn By: AECOM Figure No: 4-24