Chapter 1
Introduction to the Project

1.1 Project Introduction

The New Hampshire Department of Transportation (NHDOT) and the Federal Highway Administration (FHWA) have prepared this Environmental Assessment/Draft Section 4(f) Evaluation (EA/4(f)) for proposed improvements to the Interstate Route 93 (I-93) corridor between the Town of Bow and the City of Concord, Merrimack County, New Hampshire. The basic purpose of the I-93 Bow-Concord project is to improve transportation efficiency and reduce safety problems within this approximately 4.5-mile segment of highway.

I-93 is the principal north-south arterial highway within New Hampshire and is part of the National System of Interstate and Defense Highways. I-93 extends a total distance of 132 miles within New Hampshire, from the Massachusetts border to the northern Vermont border. The proposed project covers a distance of approximately 4.5 miles from south of the I-93/Interstate Route 89 (I-89) Interchange in Bow to just north of the I-93/Interstate Route 393 (I-393) Interchange (Exit 15) in Concord. The segment of I-93 from Manchester to Exit 14 is also part of the Central Turnpike, commonly known as the F.E. Everett Turnpike. The project also extends along I-89 from its terminus with Route 3A (Bow Junction) approximately 4,700 feet to the west. Along I-393 the project extends from just west of the bridge over the Merrimack River to the Route 202/North Main Street intersection, a distance of approximately 4,600 feet. Refer to **Figure 1.1 Study Area Overview** that depicts the study area and the project limits.

This EA documents Part B of a three-part project development process that is being undertaken by NHDOT. The complete three-part process includes Part A, Part B and Part C with further details of the objectives of each listed in **Table 1.1 NHDOT Project Development Process for I-93 Bow Concord.**

This EA includes two volumes. Volume I includes all text and figures along with agency correspondence and comments received from the public, elected officials, agencies and organizations during development of the EA. Volume II contains the technical studies prepared for various areas of analyses.

The first chapter describes the project study area and project history, and provides a description of the overall purpose and need for this project. Chapter 2 describes the transportation improvement strategies and other alternatives that were originally considered in Part A and that led to the identification of a reasonable range of alternatives for detailed study in the Part B. Chapter 2 also details the preferred alternative. Chapter 3 describes the existing conditions in the study area, and Chapter 4 identifies the anticipated environmental impacts of alternatives studied in detail. Chapter 5 contains the Section 4(f) Evaluation. Chapter 6 identifies project commitments made by NHDOT

and FHWA to avoid, minimize, or mitigate effects of the Preferred Alternative. Chapter 7 describes the agency coordination and public participation that has taken place to date. Chapters 8 and 9 provide a list of EA document preparers and a EA document distribution list to agencies, stakeholders and individuals. Reference materials can be found in Chapter 10.

Table 1.1: NHDOT Project Development Process for I-93 Bow-Concord

Project Part	Objective
Part A Completed in 2008	Part A included defining a project purpose and need; developing a range of reasonable alternatives (conceptual level); and identifying the level of environmental documentation required to implement the project as prescribed by the National Environmental Policy Act (NEPA) of 1969.
Part B Current Phase	Part B involves additional public involvement, preliminary design of the reasonable alternatives, selection of a preferred alternative, and preparation of the appropriate environmental document to disclose potential impacts as per NEPA. Draft and final versions of the environmental document are subject to public review.
Part C Future Phase	Part C will involve final design, implementation of environmental commitments agreed to in Part B, right-of-way acquisition, and construction advertisement.
Construction Future Phases	Construction will likely occur in several phases.

This EA has been prepared in conformance with the laws and regulations of the Council on Environmental Quality (CEQ) (40 CFR 1500-1508), National Environmental Policy Act (NEPA) (42 USC 55), and FHWA (23 CFR 771); the National Historic Preservation Act of 1966, as amended; and Section 4(f) of the U.S. Department of Transportation Act (23 CFR 774). The purpose of an EA is to provide full disclosure of potential impacts, and to inform decision-makers and the public of the reasonable alternatives, which would avoid or minimize adverse impacts. This EA describes existing transportation, social, economic, cultural, and environmental resources in the study area and discusses the

potential effects of the various project alternatives, including the No-Build alternative, on these resources.

1.2 Project History

This section of I-93, in central New Hampshire was constructed in the late 1950s and early 1960s as part of the Central Turnpike, more commonly known as the F.E. Everett Turnpike and as part of the Interstate Highway System. There were no substantial improvements made to the 4.5-mile segment through Bow and Concord until 2003 when reconstruction of Exit 13 in Concord was completed. This reconstruction included a new interchange and the ability to widen I-93 to six lanes at that location; however, only four lanes were constructed. Exit 13 was reconstructed with a single-point urban interchange (SPUI), a configuration that is similar to a diamond but includes one signalized intersection that provides control for all ramp movements at a "single point".

From 2010 to 2016, four Red List bridges within the project limits were taken off the red list due to either rehabilitation or replacement. Red List bridges are identified by NHDOT as those bridges whose condition or weight restriction requires more frequent inspections, at least twice per year instead of once every two years. Red List bridges require more frequent repairs due to known deficiencies, poor condition, or load restrictions, usually the result of structural deterioration. The bridge carrying I-93 over Loudon Road (NH Route 9) at Exit 14 was rehabilitated in 2010; however, no widening was included in that project. Replacement of the two bridges carrying I-93 over I-89 in Bow was completed in 2015. These bridges were constructed to accommodate six lanes at that location; however, only five lanes were provided. The bridge carrying NH Route 3A over I-93 at Exit 12 was replaced in 2016. This bridge was constructed to accommodate up to eight lanes (four in each direction) for I-93 and three lanes on NH Route 3A.

The need to address issues along I-93 in Bow and Concord was identified in 1990 when the Bow-Concord Widening Project was first placed on the State's Ten-Year Plan. New Hampshire RSA 228:99 and RSA 240 require that the NHDOT propose a plan for improvements to the State's transportation system every two years. The purpose of the Ten-Year Plan is to develop and implement a plan allowing New Hampshire to fully participate in federally supported transportation improvement projects as well as to outline projects and programs funded with State transportation dollars. The first study of the corridor was conducted in 1991/1992 and was documented in the *I-93 Bow-Concord Feasibility Study* (published in 1992). The purpose of that study was to determine the feasibility of widening I-93 while maintaining all the existing access points. The proposed improvements from this 1992 study included the following:

- Widen I-93 to eight lanes south of I-89
- Widen I-93 to six lanes through the I-93/I-89 Interchange
- Widen I-93 to eight lanes from I-89 to I-393 (Exit 15)
- Widen I-93 to six lanes north of I-393 (Exit 15)
- Provide auxiliary lanes on northbound and southbound I-93 between Exits 13 and 14

- Reconfigure interchanges at the I-93/I-89 junction, Exits 12 through 15, and Exit 1 on I-89

The scale of these recommended improvements was not well received by the surrounding communities and none of these 1992 recommendations were implemented.

In 1998, the City of Concord embarked on a visioning effort, *20/20 Vision for Concord, NH,* which was completed in September 2001. This visioning effort included a comprehensive evaluation of the transportation system in Concord. The effort identified the importance of I-93 as a local road in addition to its role as a key commuter route and a route for recreational users. The *20/20 Vision* also developed options and recommendations for I-93.

The *20/20 Vision for Concord* process resulted in determining that a six-lane I-93 would be sufficient to handle traffic until 2020 and options were presented to shift and lower I-93 between Exits 13 and 14 to facilitate at-grade access and create open views to the Merrimack River from downtown. The desire for a pedestrian bridge over I-93 was also identified, which would require a reconfiguration of Exit 14 where Loudon Road would cross over I-93. These and other options developed by the *20/20 Vision* were included in the evaluations for this project during Part A (refer to Chapter 2, Alternatives for further details on Part A).

The City of Concord independently completed a *Concord Opportunity Corridor Master Plan* in April 2005. This master plan focused on the north-south area of Concord between downtown and the Merrimack River and developed a concept based on the *20/20 Vision* options that included specific recommendations for improvements to I-93. The Opportunity Corridor Concept recommendations included a six-lane I-93 corridor through downtown Concord, reconfigured Exits 14 and 15, an expanded Storrs Street, and a new local connection over I-93.

None of the improvements identified in the *20/20 Vision* or the *Concord Opportunity Corridor Master Plan* for I-93 have been implemented.

The current phase of the Bow-Concord project addresses the need for improvements that have been under study since the NHDOT formally recognized the need for improvements to this section of I-93 in 1986, at which time the project was included in the first Ten Year Highway Plan that was enacted into legislation.

The various Ten-Year Transportation Improvement Plans (TIP) signed into law through June 1, 2006, covering projects through to 2016, included significant funding for the improvement of I-93 in Bow and Concord. The Part A planning study was initiated to study the proposed improvements to I-93 under this funding level.

However, the TIP signed into law on June 25, 2008, covering 2009 to 2018, only included funding to fix four of the Red List bridges along I-93 in Bow and Concord. The long-term improvements to the I-93 corridor were deferred until after 2018. The TIP signed into law

on June 28, 2010, covering 2011 to 2020, continued funding for the Red List bridges only. The TIP signed into law on June 11, 2012, covering 2013 to 2022, began the restoration of corridor funding by including funds to begin Part B. The next two TIPs continued this pattern and also included funds to address bridges that have been added to the Red List.

1.3 General Description of Study Area

The segment of I-93 under study is located in central New Hampshire within the Town of Bow and the City of Concord, Merrimack County. This 4.5-mile segment of I-93 and the adjoining land area comprises the I-93 study area. The study area is depicted on **Figure 1.1**. For purposes of inventorying resources that could be impacted as a result of improving the 4.5-mile interstate, the study area is generally defined as a band 300-feet wide surrounding the corridor. The study area is expanded adjacent to the interchanges and specific areas where additional impacts are anticipated. One of these areas is along Stickney Avenue between Exits 14 and 15 where additional roadway improvements may be necessary to maintain access to this area.

This section of I-93 extends from south of the I-89/I-93 Interchange to north of I-393 where I-93 crosses over the Merrimack River. I-93 is a limited (fully controlled) access highway originally constructed in the late 1950s and early 1960s. Limited access means access to the highway is only provided at interchanges. This segment of I-93 is fed by a network of state and local roadways. Major roads include I-89, NH Route 3A, US Route 3 (Manchester/Water Street), NH Route 9 (Loudon Road), and I-393.

The study area located with the Town of Bow is comprised of a of land under a variety of uses, including residential (a mix of lot sizes) located on the south side of I-89 with local access provided by Logging Hill Road, Grandview Road and South Street. Business, commercial, and industrial uses are located on the north side of I-89 along South Street and include the Bow Mobil, Hampton Inn and the Baker Public Library. The Cilley State Forest is also located within the study area on the north side of I-89. The study area within Bow also includes the area on the east side of I-93 along NH Route 3A. Businesses located in this area include Grappone Auto and Pitco Frialator. A NHDOT-owned Park and Ride facility is located at the intersection of Route 3A, Hall Street and I-89. Important natural features within the Town of Bow area include the Merrimack River, Turkey River, and Bow Brook.

The study area within the City of Concord can be characterized as an urbanized corridor that is dominated by industrial, commercial and transportation uses with a few areas of residential and recreational uses. This land use pattern in Concord is typical of many communities in New Hampshire where commercial land uses are located along heavily traveled regional roadways, such as I-93, while most of residential development is located away from these heavily traveled roadways.

In the area near Exit 12 on I-93, businesses include the Days Inn, Dunkin Donuts and Irving Gas with local access provided by Route 3A/South Main Street. I-93 spans the Pan Am Railroad line that passes under I-93 just north of Exit 12. At this location

environmental resources present include the South End Marsh, a large open water area with forested and emergent wetland habitat located on the north side of I-93. A wetland mitigation site (owned by the NHDOT) is located on the south side of I-93 and is predominantly emergent and open water habitat. A large residential area is located on the north side of I-93 near the existing I-93 south on-ramp from Route 3A/South Main Street. Access to the residential area is provided from Route 3A/South Main Street to the residential streets of Joffre Street, Broadway and Donovan Street.

In the area near Exit 13, a large forested floodplain habitat is located between I-93 and the Merrimack River. The area is owned by the City of Concord and is known as West Terrill Park. From Exit 13, access to US Route 3/Manchester Street (east of I-93) and US Route 3/Water Street (west of I-93) is provided. Numerous businesses and office parks of various types and sizes are located on Manchester Street. US Route 3/Water Street provides direct access to S. Main Street and the downtown area of Concord. Businesses on US Route 3/Water Street within the study area include Granite State College, Burger King, Speedway gas station, The Common Man Restaurant, and the Fairfield Inn. Hall Street, intersects with Water Street providing access to other hotels in the corridor including the Best Western, Marriot Residence Inn and Comfort Inn.

The most urbanized areas in the study area are those located near Exit 14 and Exit 15. Exit 14 provides access to Loudon Road/NH Route 9 and Exit 15 provides access to I-393. Both interchanges provide direct access to the downtown area of Concord and the state capital building. Land uses within the study area are dominated by commercial, business, industrial and transportation uses. The west side of I-93 includes Burlington Coat Factory, a Unitil electrical substation, and the Concord Coach Bus Depot with access provided by Storrs Street (off of Loudon Road). Another major land use in the area is the Grappone Conference Center and Hotel located off Commercial Street. Within the study area on the east side of I-93 the landscape is dominated by “big box” retailers, such as clothing outlets, and supermarkets, including Hannaford’s, Market Basket and Shaw’s. Exit 15 also provides access to the New Hampshire Technical Institute, via I-393.

Important natural features with the study area near Exit 14 and 15 include the Merrimack River, Fort Eddy Pond, Horseshoe Pond, and their tributaries.

Also within the study area are two railroad corridors, both of which currently carry freight only. The Pan Am Railways (PAR) corridor, the “Main Line North”, which runs north-south through the study area generally parallel to I-93, crosses beneath I-93 just north of Exit 12. The Pan Am Railroad was previously part of the former Boston and Maine Railroad system that once dominated rail service in New Hampshire. The Main Line North veers northwest just north of Exit 14; however, no freight is carried on the portion north of Exit 15. The portion of the Main Line North located north of Exit 15 to the boundary of the Town of Boscawen has recently been abandoned by Pan Am Railways. The use of the Main Line North by Pan Am Railways within the project is limited to switching of cars up to five times a week. **Figure 1.2 Existing Rail Facilities** depicts the existing rail corridors in the project limits.

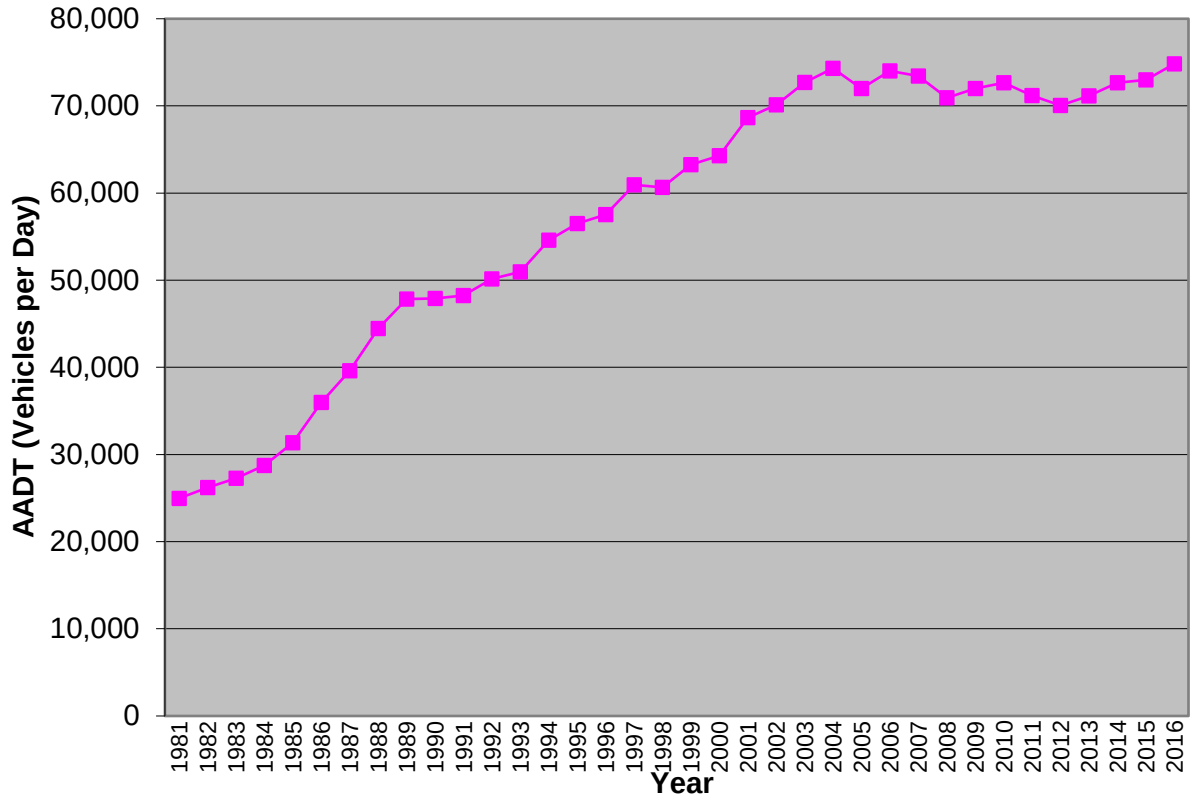
The NHDOT owns the Main Line North from the boundary of Boscawen to its terminus in the City of Lebanon. The majority of the NHDOT portion has been abandoned. Between Exits 14 and 15 the White Mountain Branch, an active line, begins as it separates from the Main Line North creating two independent rail corridors. The White Mountain Branch heads north and hugs the ramps at Exit 15 before heading north again. This rail line is owned by NHDOT. New England Southern (NEGS) operates freight service in the project area on railroad lines it leases from Pan Am Railways and NHDOT. They serve a few industrial customers located in the City of Concord on an as-needed basis and do not have regular service.

1.4 Overview of Existing Roadway Network

I-93 through Bow and Concord is a four-lane divided urban principal arterial highway, a major roadway whose primary purpose is to move high volumes of traffic, with limited access provided only at interchanges. An additional lane exists southbound from Exit 12 and extends south of I-89. South of the project limits, I-93 is a six-lane divided urban arterial highway. The posted speed limit within the project area is 55 miles per hour (mph). The design speed within the project limits varies but exceeds 60 mph in most cases. The 60-mph design speed is acceptable for urban freeways according to the American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Design Standards – Interstate System* and *A Policy on Geometric Design of Highways and Streets*.

I-93, as originally constructed in the late 1950s and early 1960s, was expected to carry 20,000 vehicles per day within its design life of 20 years. This 4.5-mile segment now serves almost 75,000 vehicles per day with peak summer travel at over 85,000 vehicles per day. **Table 1.2 Average Annual Daily Traffic Between Exits 12 and 13**, shown below, depicts the growth in average annual daily traffic (AADT) between Exits 12 and 13 from 1981 to 2016. While the traffic on I-93 has leveled over the last decade, 2016 had the highest AADT on record.

Table 1.2: I-93 Average Annual Daily Traffic between Exits 12 and 13



Just south of the I-93/I-89 Interchange, I-93 is reduced from six lanes to four lanes. This lane reduction, coupled with the traffic from I-89, results in congestion on I-93 entering and through Concord during peak periods. The traffic backup on northbound I-93 during peak periods can stretch as far south as the Hooksett Toll Booth, a distance of about seven miles from the interchange. The traffic backup on southbound I-93 during peak periods can stretch as far north as Exit 17, a distance of about five miles from the Merrimack River.

There are seven existing interchanges within the project limits. A description of each, from south to north, is discussed below.

- Exit 1 on I-89 is a partial cloverleaf interchange with all ramps located on the west side of South Street and Logging Hill Road in order to provide separation with the ramps from the I-93/I-89 Interchange. Exit 1 provides access to the local road network and northern Bow via Logging Hill Road, as well as to the South End of Concord through South Street.

- The I-93/I-89 Interchange is a modified trumpet interchange where I-89 ends at I-93. There are direct and loop ramps connecting the two Interstate routes. In addition, the extension of I-89 connects directly to NH Route 3A via a signalized at-grade intersection. This is an important regional interchange providing the

connection between I-89 and I-93, in addition to providing access to Bow and Concord via NH Route 3A. There is only 1,200 feet between the I-93/I-89 Interchange and I-89 Exit 1. The AASHTO recommended spacing between is one mile (5,280 feet).

- Exit 12 is also a partial cloverleaf interchange, but it has two sets of exit ramps from I-93. Exit 12 on I-93 connects to South Main Street (NH Route 3A). South Main Street provides access to northern Bow and the South End of Concord. The spacing between Exit 12 and the I-93/I-89 Interchange is about 3,600 feet.

- Exit 13 is a single point urban interchange (SPUI) with access to Water and Manchester Streets (US Route 3) in Concord. A SPUI terminates the ramps at a single point where a single traffic signal controls most of the movements within the intersection. To the west, Exit 13 provides access to downtown Concord by way of South Main Street. To the east, Manchester Street provides the first access across the Merrimack River in Concord. This is the main point of access to southeastern Concord and the Town of Pembroke. There is over a mile spacing between Exit 13 and Exit 12.

- Exit 14 is a diamond interchange providing access to Loudon Road (NH Route 9). Loudon Road provides access to downtown Concord and the State Capitol Building to the west and to the east across the Merrimack River to the Heights district of Concord, the commercial areas along Loudon Road as well as the State office complex. There is approximately 2,800 feet between Exits 14 and 15, and AASHTO recommends spacing of one mile between urban interchanges. There is over a mile spacing between Exit 14 and Exit 13.

- Exit 15 is a full cloverleaf interchange providing the connection between I-93 and I-393/NH 202. The extension of NH Route 202 to the west of I-93 connects to North Main Street providing access to downtown, the Northside of Concord and the State Capitol Building. Exit 15 is an important regional interchange, similar to the I-93/I-89 Interchange, connecting two Interstate routes. The spacing between Exit 14 and Exit 15 is about 2,800 feet.

- Exit 1 on I-393 is a partial cloverleaf interchange providing access to Fort Eddy Road and College Drive. Fort Eddy Road is a commercial area with several shopping malls, supermarkets and restaurants. College Drive is the main entrance to the New Hampshire Technical Institute. The spacing between Exit 1 on I-393 and Exit 15 is about 2,500 feet.

1.5 Red List Bridges

The following projects have been conducted to address Red List bridges within the project corridor from 2008 to 2016.

- Exit 14 Bridge Rehabilitation: The bridge that carries I-93 over Loudon Road at Exit 14 was rehabilitated in 2010. The rehabilitation removed the bridge from the Red List, but it is not large enough to accommodate any widening of I-93 or Loudon Road.

- I-93 Bridges over I-89 Replacement: The two bridges that carry northbound and southbound I-93 over the I-89 extension in Bow were replaced from 2013 to 2015. The two new bridges were constructed to accommodate six lanes of traffic, three lanes in each direction, as well as standard inside and outside shoulders.

- Exit 12 Bridge Replacement: The bridge that carries NH Route 3A over I-93 at Exit 12 was replaced from 2015 to 2016. The new bridge was constructed to accommodate up to eight lanes on I-93 and three lanes on NH Route 3A.

Below is a list of the six Red List bridges within the project limits, their 2017 State Priority Ranking, and how this project would address their removal from the Red List. The State Priority Ranking is based on a scoring system that considers a bridges condition, importance, risk, capacity, and type/size. The deck of the bridge consists of the horizontal surface of the bridge, the superstructure consists of the beams that support the deck, and the substructure consists of the abutments, piers, and foundations elements.

- I-393 Bridge over I-93 (Exit 15) (State Priority #7): Both the deck and substructure (piers and /or foundation) of this bridge are rated in poor condition. This bridge would be replaced as it could not accommodate the widening of I-93 that would be required for the Preferred Alternative nor any of the build alternatives evaluated.

- Southbound I-93 over Hall Street (State Priority #13): The substructure of this bridge is rated in poor condition. Also, this bridge has less than the desired vertical clearance over Hall Street. This bridge would be replaced as it does not accommodate the widening of I-93 that would be required for the Preferred Alternative nor for any of the build alternatives evaluated.

- US Route 202 over NHRR and Constitution Avenue (State Priority #15): The deck of this bridge is rated in serious condition and the substructure is rated in poor condition. Replacement of this bridge is required due to its deteriorated condition.

- I-89 over South Street (Exit 1) (State Priority #26): Both the deck and superstructure of this bridge are rated in poor condition. This bridge would be replaced as it does not accommodate the widening of I-89 that would be required for the Preferred Alternative nor any of the build alternatives evaluated.

- I-393 over Fort Eddy Road (Exit 1) (State Priority #34): The deck of this bridge is rated in poor condition. Replacement of this bridge is not required to accommodate the preferred alternative and it will be further evaluated for rehabilitation.

- Delta Drive over I-93 (State Priority #99): The deck of this bridge is rated in serious condition. This bridge would be replaced as it does not accommodate the Preferred Alternative nor the widening of I-93 that would be required for any of the build alternatives evaluated.

1.6 Safety and Roadway Geometry Issues

There are several safety issues that exist along I-93 within the project limits. Many of these issues are to be expected with a transportation system that is approaching 60 years of age. There are two main safety concerns; inadequate weaving lengths and inadequate deceleration distances.

Inadequate weaving lengths occur in several places and are a result of interchanges located too close to one another. The term weaving refers to the segment of highway between critical points where traffic is entering and exiting and the vehicle paths cross. Inadequate weaving lengths exist at the following locations:

- I-89 southbound between the Exit 1 entrance ramp and the I-93 southbound exit ramp
- I-89 northbound between the I-93 southbound entrance ramp and the Exit 1 northbound exit ramp
- I-93 southbound between Exits 14 and 15
- I-93 northbound between Exits 14 and 15
- I-93 southbound between Exit 15 loop ramps
- I-93 northbound between Exit 15 loop ramps
- I-393 eastbound between Exit 15 loop ramps
- I-393 westbound between Exit 15 loop ramps
- I-393 eastbound between Exit 15 and Exit 1 on I-393
- I-393 westbound between Exit 1 on I-393 and Exit 15

Inadequate deceleration distances exist at all four exit ramps at Exit 12. The four exit ramps have curved geometry with posted speed limits of 25 mph. The exit ramps leading to these curves are not of sufficient length for vehicles to comfortably decelerate outside the main flow of traffic on I-93 from 55 mph to 25 mph.

For the ten-year period from January 2007 to December 2016, a total of 2,195 crashes were reported to the NHDOT within the study area limits. These crashes occurred on I-93, I-89, I-393, the on and off ramps to each interstate, the intersections where the ramps terminate with other roadways, and these other roadways, all within the project limits. Of the 2,195 crashes, 512 resulted in 622 injuries, and there were 6 fatalities. One of the

fatalities was a pedestrian who was struck along Fort Eddy Road near the I-393 Exit 1 entrance ramp.

The crashes reported within the study area limits for the ten-year period January 2007 to December 2016 are presented in **Figures 1.3 to 1.6 Crash History** (for each segment). The graphical presentation of the crashes demonstrates the correlation between the deficiencies listed above and increased numbers of crashes. There are clusters of crashes within the deficient weaving areas between I-89 Exit 1 and I-93, between Exits 14 and 15, and within Exit 15.

The 6 fatalities were the result of 6 separate crashes, 2 on I-93 near I-89, 1 on I-93 between Exits 14 and 15, 1 on I-93 at Exit 15, 1 on I-393 at the Merrimack River, and the pedestrian fatality near I-393 Exit 1.

1.7 Purpose and Need for the Project

The development of the Purpose and Need for the Project was initiated during the Part A Planning Study completed in 2008. The Part A process included extensive discussions with the public and stakeholders, including a Planning Group consisting of citizens, businesses, regulatory agencies, and other community representatives. The Part A process included the public vetting of topics including: community vision, safety, mobility, economic vitality, aesthetics, natural environment, access, transportation choice, and cultural resources. From these discussions consensus was achieved on a Problem Statement for the project. Then, building on the Problem Statement, consensus was achieved on a Project Goal Statement. From these two statements, the overall Purpose and Need was developed and refined during the Part B project. The Purpose and Need for the Project is as follows:

1.7.1 Purpose

The purpose of the Interstate Route 93 Bow-Concord project is to address the existing and future transportation needs for all users of this 4.5-mile segment of I-93, while balancing the needs of the surrounding communities, by providing a safe and efficient transportation corridor for people, goods, and services.

1.7.2 Need

<u>Mobility</u>
Interstate 93 is a principal north-south arterial Interstate highway within the State of New Hampshire and is part of the National System of Interstate and Defense Highways. The segment of Interstate Route 93 under study intersects two other Interstate highways, Interstate Route 89, and Interstate Route 393, providing a vital link for east/west travel, and passes through the City of Concord, the state capital. Interstates 93, 89 and 393 carry a mix of traffic including trucks, cars, buses, and other vehicles. The Interstate Route 93 corridor serves as an important link for New England wide tourist travel to the White Mountains, Lakes Region and Vermont, a regional commuting route for the

Concord area, as well as an important local route. As one of the main arterials in the New Hampshire highway system, it is important to maintain the mobility of people, goods, and services through this corridor.

Capacity

Interstate Route 93 was constructed in the 1960s to serve 20,000 vehicles per day and now serves nearly 75,000 vehicles per day with peak summer travel at over 85,000 vehicles per day. Traffic volumes on Interstate Route 93 through Bow and Concord tripled from 1980 to 2004. Between 2004 and 2012 traffic volumes remained steady or declined slightly. Since 2012, traffic volumes on Interstate Route 93 have begun to rise with 2016 having the highest all time average annual traffic. Growth in the region is expected to occur in the coming years and place a greater burden on the transportation system. With an estimated 80,000 vehicle trips per day by the year 2035, increased congestion and increased travel times are expected implementation of management strategies or improvements such as the proposed to this important regional travel corridor.

Regional Plans

The project corridor is recognized by the State of New Hampshire and the Central New Hampshire Regional Planning Commission (CNHRPC) as a vital link for statewide travel as well as an important local route within Concord and the Central New Hampshire region. In recognition of these deficiencies, the project has been included in the State's Ten-Year Transportation Improvement Plan for years 2015 to 2024 as an unfunded priority, and is a top long-term transportation priority for the Central New Hampshire Regional Planning Commission (CNHRPC).

Safety

The approximately 4.5-mile project corridor currently contains numerous geometric deficiencies based upon current highway design standards. The deficiencies include: inadequate distances between entrance and exit ramps (causing weaving), short deceleration distances at exit ramps and short acceleration distances at entrance ramps. A review of the crash data for the period between 2007 and 2016 indicates many of the crashes occur at ramps or between ramps where the deficiencies exist, causing both property damage as well as injuries to drivers. As traffic volumes increase on Interstate Route 93, these geometric deficiencies will become more problematic and crashes are anticipated to become more frequent. The corridor also contains six bridges that are currently on the Red List of state bridges.

Transportation Choice

This project corridor currently accommodates various modes of transportation, but the project could improve access to those modes or accommodate additional modes. This in turn would make travel more efficient for all users. Commuter rail service is a possibility and bus service continues to expand in the region. Bow and Concord have networks of public trails within and near the project corridor and are actively expanding their networks in an effort to complete the Heritage Trail along the Merrimack River. The project has considered access to and augmentation of these trail systems.

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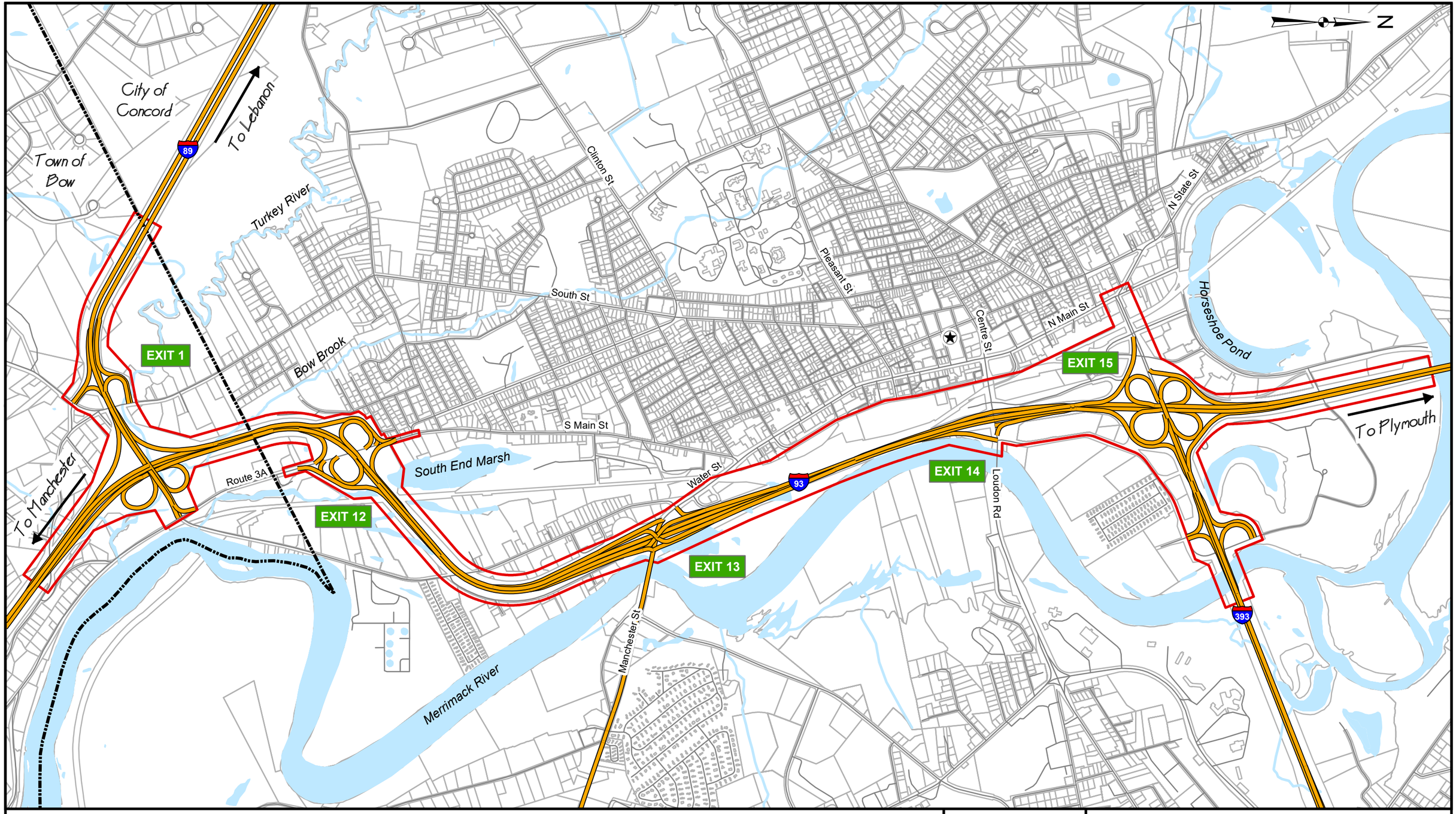

Legend

- State Capital
- Study Area
- Roadways
- Interstate
- Streams
- Rivers and Ponds
- Parcels

U.S. Department of Transportation Federal Highway Administration

New Hampshire DOT

McFarland Johnson

BOW-CONCORD I-93 IMPROVEMENTS

STUDY AREA OVERVIEW

FIGURE 1.1

DATE: AUGUST 2018

SCALE: 1"=1500'

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Figure 1.2 – Existing Rail Facilities

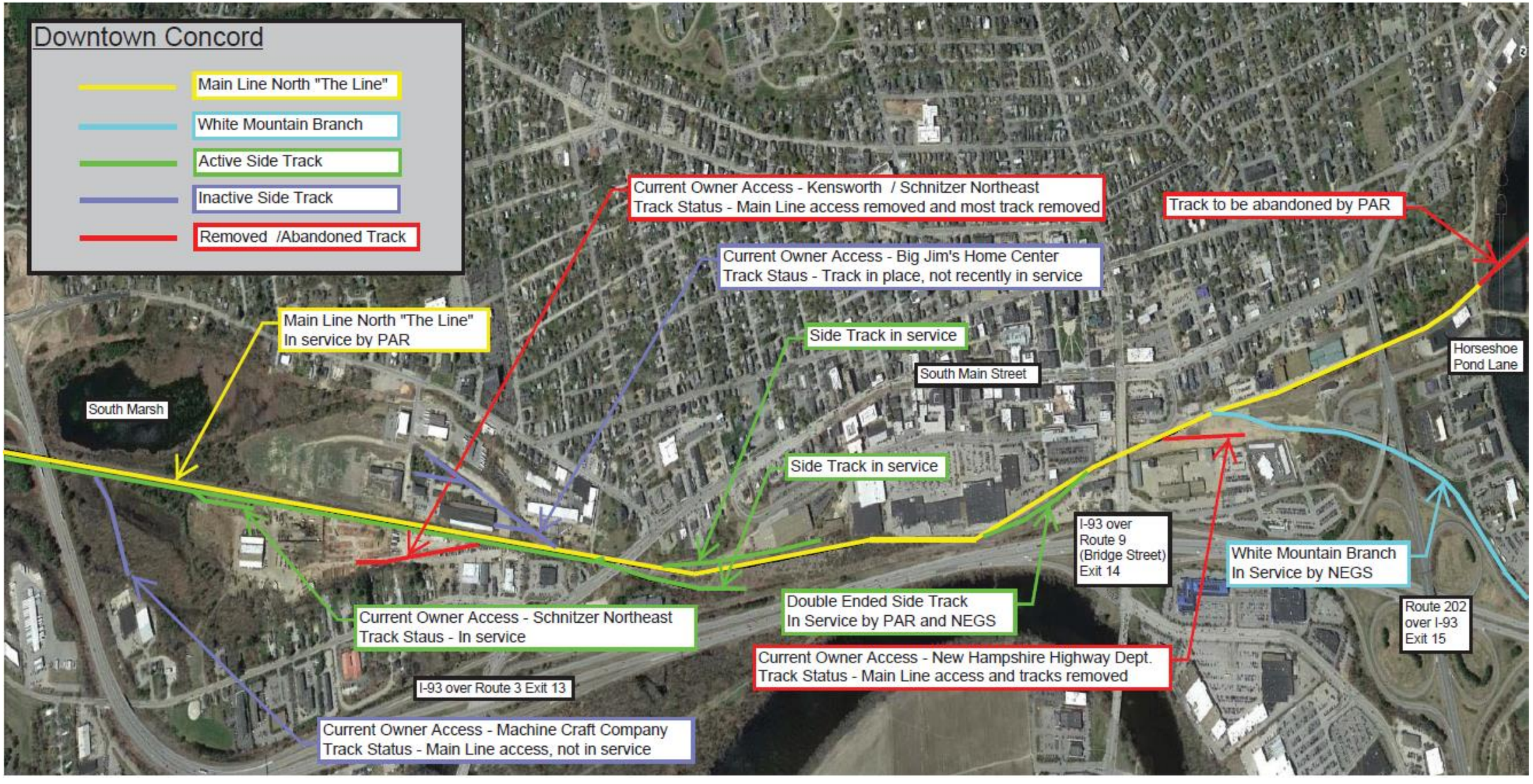


Figure 1.3 Crash History for the I-89 Area (2007 to 2016)

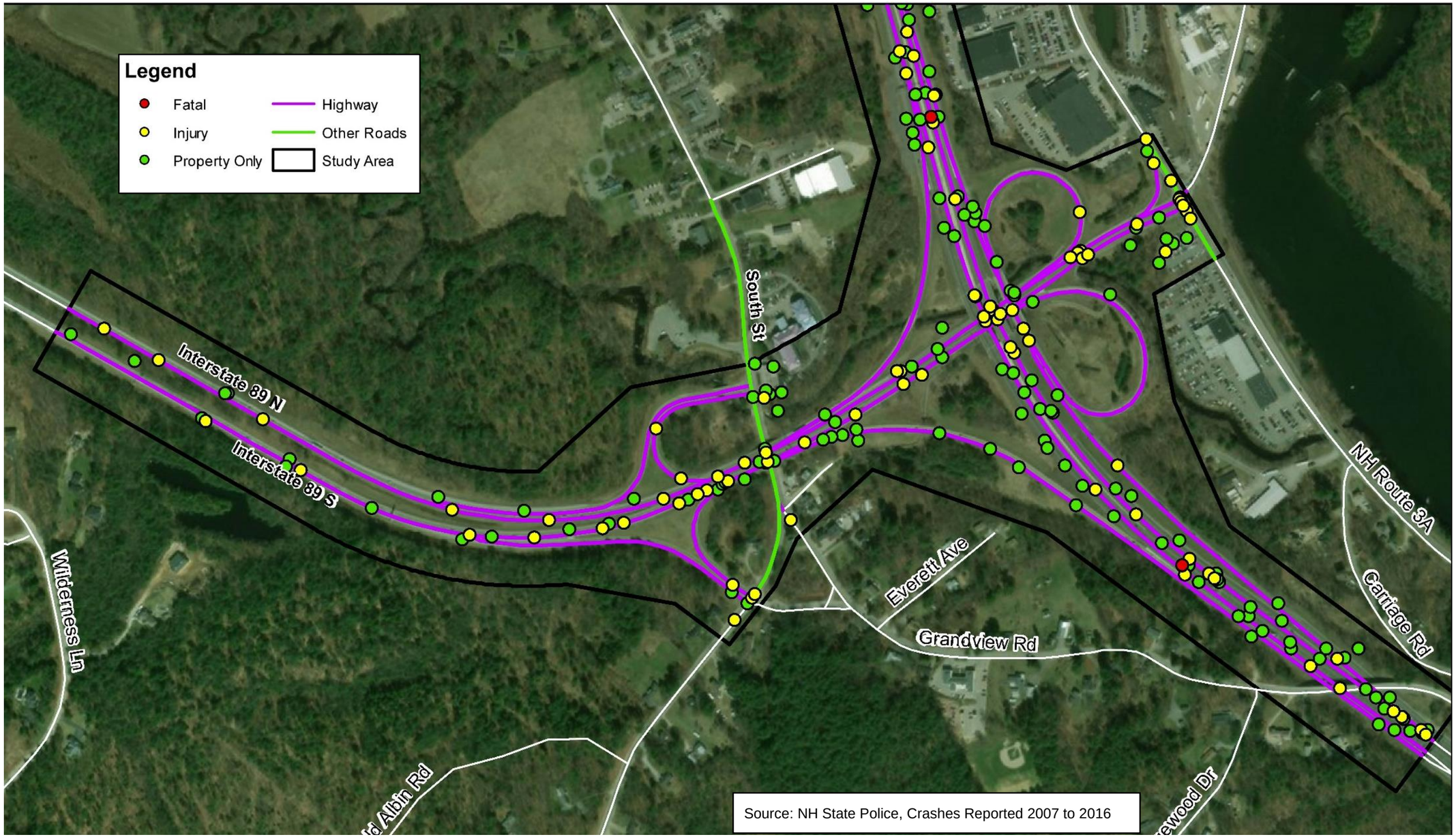


Figure 1.4 Crash History for the Exit 12 Area (2007 to 2016)

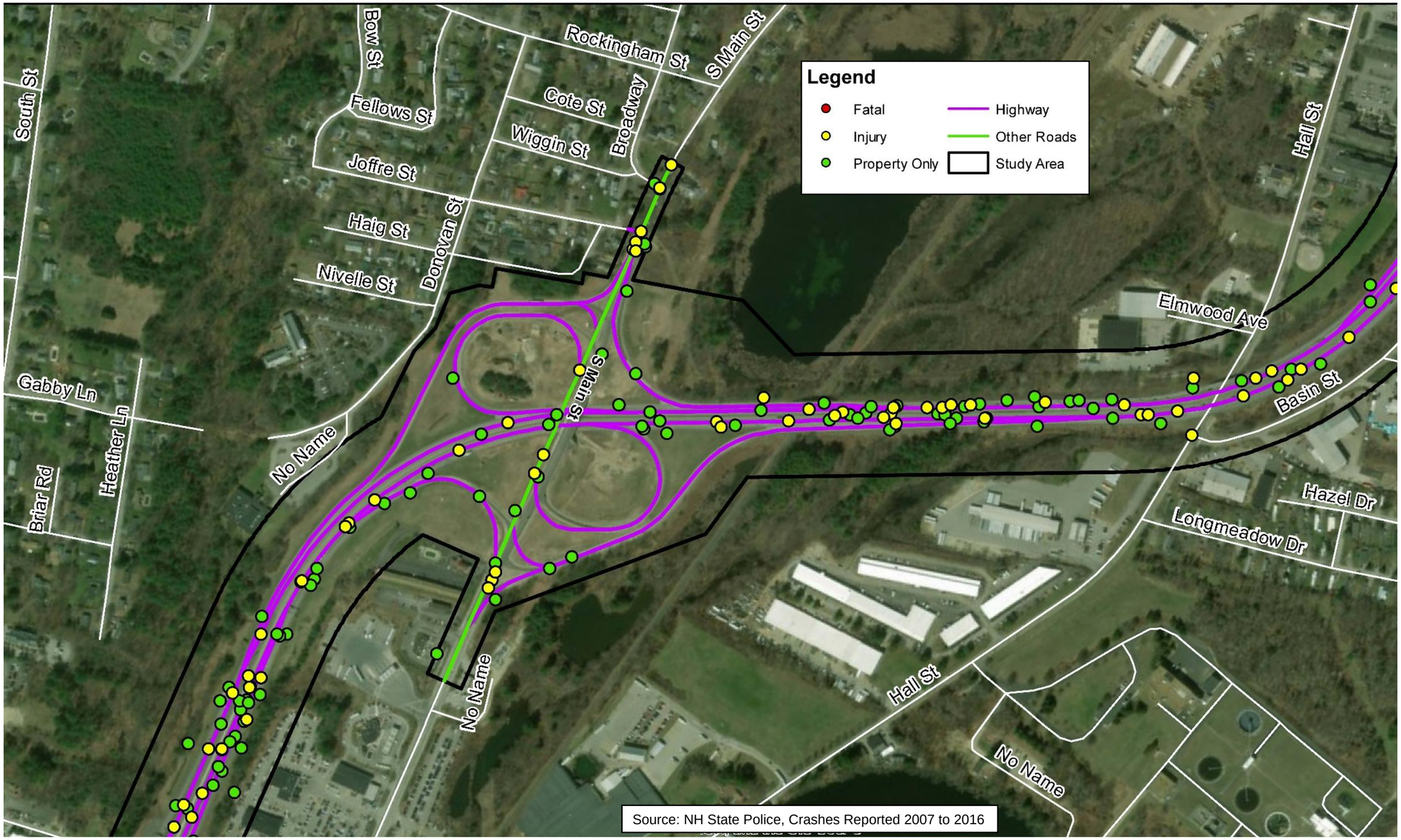
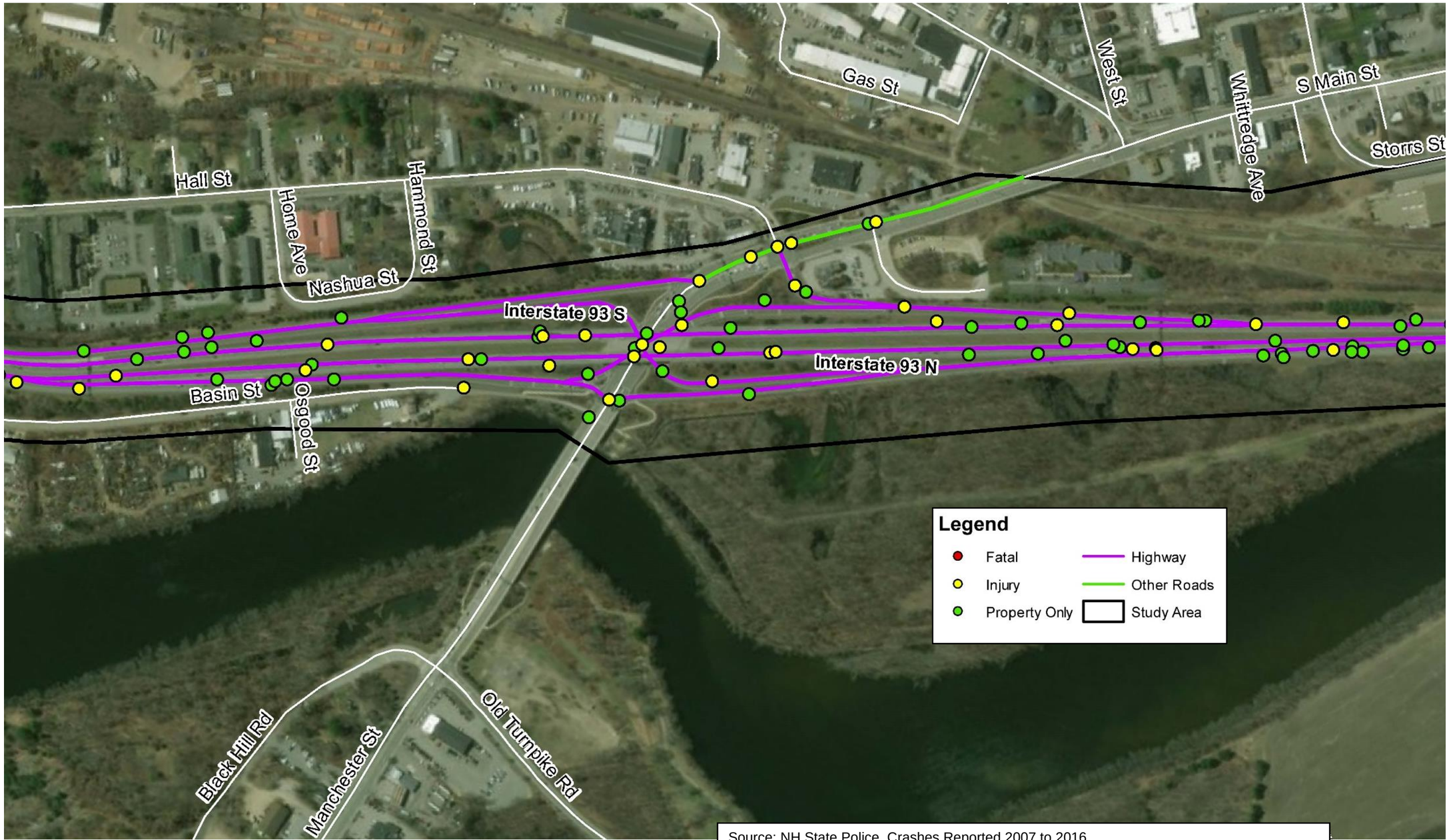


Figure 1.5 Crash History for the Exit 13 Area (2007 to 2016)



Source: NH State Police, Crashes Reported 2007 to 2016

Figure 1.6 Crash History for the Exit 14/15 Area (2007 to 2016)