1 Introduction

1.1 General Overview

The New Hampshire Department of Transportation (NHDOT) and the Federal Highway Administration (FHWA) have prepared an Environmental Impact Statement (EIS) for proposed improvements to the Interstate Route 93 (I-93) corridor between Salem and Manchester, New Hampshire. The basic purpose of the I-93 Salem-Manchester project is to improve transportation efficiency and reduce safety problems associated with this approximately 19.8-mile segment of highway from the Massachusetts/New Hampshire state line to Manchester.

This Final Environmental Impact Statement (FEIS) documents Phase V of the NHDOT's EIS study process and includes three volumes. Volume 1 contains all text and tables, Volume 2 contains all figures, and Volume 3 contains responses to comments on the Draft EIS (DEIS) received through the Public Hearing process as well as all Appendices. The first chapter of the FEIS describes the project study area and project history, and provides a description of the overall purpose and need for the project. Chapter 2 describes the transportation improvement strategies and other alternatives that were originally considered and that led to the identification of a reasonable range of alternatives for detailed study. Chapter 3 describes the existing baseline conditions in the study area, while Chapter 4 identifies the environmental consequences of alternatives studied in detail. Chapter 5 describes the Section 4(f) evaluation process and potential FHWA actions that would require review under Section 4(f), and discusses potential avoidance and mitigation measures. Chapters 6 and 7 provide a list of EIS preparers and a document distribution list, respectively. Chapter 8 describes the agency coordination and public participation that has taken place to date, while references cited can be found in Chapter 9. Chapter 10 gives the reader a subject index and an acronyms list. Chapter 11 identifies project commitments made by NHDOT and FHWA to mitigate effects of the Selected Alternative.

This FEIS has been prepared in conformance with the requirements of the Council on Environmental Quality (CEQ), and National Environmental Policy Act (NEPA) regulations and associated guidance documents of the FHWA. The purpose of an EIS is to provide full disclosure of potentially significant environmental impacts, and to inform decision-makers and the public of the reasonable alternatives, which would avoid or minimize adverse impacts. The EIS describes existing transportation, social,

economic, cultural and environmental resources in the study area and discusses the potential effects of the various project alternatives on these resources.

1.2 Project History and Status

The Interstate System in New Hampshire was built in the 1960's and early 1970's. The 19.8-mile section of I-93 between Salem and Manchester has not been substantially reconstructed or widened since it was first constructed in the early 1960's.

The New Hampshire Legislature formally recognized the need to widen this section of I-93 and included the project in the first State Ten-Year Highway Plan, when that plan was enacted into legislation in 1986. In 1988, NHDOT initiated the development of conceptual widening alternatives for the southerly section of the I-93 corridor in the Town of Salem. At that time, the idea was to systematically reconstruct and widen the 19.8-mile section of I-93 by proceeding from south to north over a period of years with completion by the year 2001–2002. As the process moved forward public meetings were held in 1989 in the Town of Salem for public comment on the preliminary improvement concepts. As the NHDOT proceeded, the environmental resource agencies registered their concerns relative to the NHDOT's segmented approach and strongly suggested that an in-depth corridor-wide environmental study, that considered all alternatives, would be necessary to gain environmental approvals.

In 1991, the FHWA and NHDOT initiated preliminary designs and environmental evaluations of alternatives and impacts within the framework of an EIS.

As the EIS moved forward in 1992, questions were raised as to the NHDOT's methodology for projecting future traffic volumes on I-93 and how any proposed highway improvements to I-93 would interface with the rest of the intermodal transportation network in New Hampshire. In response, the NHDOT agreed in 1993 to develop a Statewide Transportation Model, which would provide a more effective methodology for projecting future traffic volumes and for considering the interplay between highway improvements and traffic.

In 1999, with the development of the traffic model nearing completion, NHDOT restarted the EIS process by initiating preliminary engineering and environmental studies.

In 2000, the NH State Legislature via House Bill (HB) 1106 identified I-93 as a high priority project, because of the importance of this highway corridor to the region and the State. Restarting the EIS process began with the development of a public participation program including the creation of a local Advisory Task Force (ATF) in March 2000 to assist the NHDOT in identifying issues and possible solutions regarding the project's purpose and need. In addition, the tenets of environmental streamlining as outlined in the TEA-21 Federal legislation were followed in an effort

to streamline the environmental permitting process, so that improvements could be constructed and implemented as soon as possible. In the spirit and intent of this environmental streamlining, the five Federal and three State agencies participating in the review of this project signed off on the basic project purpose and need in January, 2001, and the reasonable range of alternatives to be studied in September 2001 (see Appendix A).

As an outgrowth of the streamlining process and in conjunction with the public participation program, the Resource Agency[1] meetings for this project, normally held at NHDOT headquarters in Concord, were held in the communities along the project corridor. Information related to the study was presented and distributed at these meetings. The meetings were open to the general public and public participation was encouraged through public notice. Additional meetings were also held with the Resource Agencies as part of the streamlining process and to receive guidance and feedback on issues related to the development of the EIS. These meetings resulted in additional studies or analysis, as appropriate, to address comments received from these agencies.

In September of 2002, the DEIS was published and made available to project stakeholders via direct mailings and to the general public via a project website. Concurrent with the publication of the DEIS, a Section 404 wetland permit application was submitted to US Army Corps of Engineers (USACOE) and a State wetlands permit application was submitted to the NH Department of Environmental Services (NHDES). After circulation of the DEIS, a formal Public Hearing was held over two evenings on November 12 and November 14, 2002, at the Salem High School and at the McLaughlin Middle School in Manchester, respectively. The Public Hearing was held jointly with the USACOE and the NHDES. Comments on the Preferred Alternative (as identified in the DEIS), the DEIS itself, and related issues were received at the Hearing. A summary of the hearing comments is contained in Volume 3 and in the Report of the Commissioner included in Appendix I. Further comments received through the Public Hearing with respect to the DEIS along with responses are contained in Volume 3.

Subsequent to the Public Hearing, there has been ongoing coordination with State and Federal resource agencies to address project issues. In June of 2003, in a letter of agreement on major issues of concern (included in Appendix J) to New Hampshire Governor Benson; the NHDOT, NHDES, and the New Hampshire Fish and Game Department (NHF&GD) jointly recognized the importance and need of the project, indicated satisfaction with the size and emphasis of the project mitigation and enhancement package, and pledged a collaborative effort to resolve issues of concern and to expedite the design and construction of this project.

[1] See Section 2.4.1 for a list of the environmental and cultural Resource Agencies.

In August of 2003, after review of the revised and expanded project mitigation package, USEPA indicated that they did not intend to veto the project based on the proposed mitigation (see letter included in Appendix J). In a letter dated December 30, 2003 (included in Appendix J), USACOE confirmed the Selected Four-Lane Alternative as the Least Environmentally Damaging Practical Alternative (LEDPA) and that the minimization measures and proposed mitigation are appropriate to the scope and degree of proposed impacts and meet requirements of the 404(b)(1) Guidelines necessary for permitting the project.

1.3 General Description of Project Area

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1.3.1 Study Area

The segment of I-93 under study is located in south-central New Hampshire (**Figure 1.3-1**). This segment is located within the five communities of Salem, Windham, Derry and Londonderry in Rockingham County, and Manchester in Hillsborough County. It is this segment of I-93 and the adjoining land area, through which this segment passes, that comprise the primary I-93 study area.

The study area is generally located in the Seaboard Lowland[2] section of New England, and is characterized by low rolling hills rising 100 to 300 feet above the intervening stream valleys. The present landscape character is largely the result of glaciation. Important natural features include a number of lakes and major stream systems; in particular, Canobie Lake, Cobbetts Pond, Spicket River and tributaries, Beaver Brook and tributaries, and Cohas Brook and tributaries.

The section of I-93 being studied is approximately 19.8 miles long extending from the Massachusetts border in Salem to the junction of I-93 with I-293 in Manchester (**Figure 1.3-1**). I-93 is a limited (fully controlled) access highway originally constructed in the early 1960's. At present, it consists of four lanes (two lanes northbound, two lanes southbound). The north and southbound barrels follow independent vertical profiles. There are five interchanges (Exits 1-5) along this section of I-93. The roadway right-of-way generally varies from about 150 to 500 feet in width and both barrels are on independent profiles. The median width (distance between lanes of opposing direction) is typically 70 feet or more, although as it approaches the state line it is as narrow as 30 feet. Near Exit 3, the northbound and southbound lanes diverge so that the lanes are separated by over 1,200 feet.

The I-93 highway within the study area is fed by a network of state and local roadways. Major east-west roads include NH 101 and I-293, NH 102, NH 111,

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[2] See Fenneman, 1938.

NH 111A, NH 97, and NH 38. Major north-south roads in proximity to I-93 include NH 28, NH 28 Bypass, and NH 128.

Also within the study area are two railroad corridors. Although these rail corridors lie outside the primary study area and do not currently provide passenger service, they merit consideration when assessing the current and future transportation needs of the region serviced by I-93. As elements of the transportation network, these rail corridors have the potential for addressing demand on the I-93 corridor. Both rail corridors were once part of the former Boston and Maine Railroad system **(Figure 1.3-1)**. The East Rail Corridor extends from Manchester southerly through Londonderry, Derry, Windham, and Salem to Lawrence, Massachusetts. This 28-mile rail corridor, located on the former B&M Manchester and Lawrence Branch, essentially parallels the I-93 highway corridor within the study area. The West Rail Corridor extends from Manchester through Bedford, Merrimack, and Nashua to Lowell, Massachusetts. This rail corridor, located on the former B&M New Hampshire Main Line, runs along the west side of the Merrimack River parallel to the F.E. Everett Turnpike throughout its 30-mile length. In Bedford, the rail line crosses the Merrimack River to access downtown Manchester.

For purposes of inventorying environmental resources which might be directly impacted as a result of improving the existing highway, the primary study area is generally defined as a band 500 feet east and west of the northbound and southbound lanes, and is a minimum of 1,000 feet wide, with additional width where the I-93 northbound and southbound barrels diverge. Because of the potential impacts on resources, the existing infrastructure investment, and the cost associated with new freeway construction, relocation of the existing highway outside the existing 1,000-foot corridor limit is not a consideration. The study area in the vicinity of each of the five interchange areas extends to each side of the existing I-93 right-of-way approximately 2,000 feet along the connecting roadways. The width along the connecting roadways is approximately 1,000 feet.

The north/south study area limits are based on political geographical boundaries (NH/MA state line) and previously completed improvements at the interchange of I-93 and I-293/NH 101 constructed in the early 1990's. These boundaries mark the extent of potential direct impact to environmental resources. They do not however limit the evaluation of Traffic Demand Management (TDM) measures and mass transit alternatives, which may logically have to extend further to the north or south.

For the purpose of considering the sphere of influence of I-93, the regional context of the highway was examined using data from Origin and Destination profiles collected for the project in 1992, and reaffirmed with new data collected in October and November of 2001. The total number of responses by town of origin were grouped according to order of magnitude (0 to 1 trip origins per town, 1 to 10 origins, 10 to 125, and 125 to 1,000 or more) and then plotted and graphically shaded on the map (**Figure 1.3-2**), with darker shading indicating higher numbers of trip origins. This confirms that the communities immediately adjacent to I-93 exhibit the highest propensity to serve as origins for I-93 user trips, and thus are the most directly

dependent on, and affected by, the highway. The results are illustrated graphically by the two denser shaded areas on **Figure 1.3-2**. The Origin and Destination profiles serve as a starting point for considering the area over which improvements to the highway's capacity could result in secondary impacts.

While the highway draws traffic from beyond the immediate communities through which it passes, the relative number of trip origins per unit area is more diffused the further the distance from the highway.

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1.3.2 Existing Roadway System

I-93 is a major link in the Interstate System as well as the National Defense Highway System. It extends from Boston, Massachusetts to St. Johnsbury, Vermont, just north of the New Hampshire/Vermont border. It is a principal arterial interstate highway and serves as an important transportation corridor between the greater Boston metropolitan area and the communities in south-central New Hampshire. It also provides access to the recreational areas of northern New Hampshire. The corridor is a limited access (i.e., no access between the highway and abutting private property) freeway with access along the study area segment available only from the five interchanges spaced along the corridor.

Interstate 93 (I-93), as originally constructed in the early 1960's, was expected to carry 20,000 vehicles per day within its design life of 20 years. In 1997, traffic volumes were recorded in Salem (south of Exit 1) in excess of 100,000 vehicles per day, with the segments to the north carrying between 60,000 and 80,000 vehicles per day. Operating conditions, during the peak hours of the day, are currently poor with the segments of the corridor south of Exit 4 operating at level of service (LOS[3]) E or F. Each of the interchanges also exhibits poor levels of service. Exit 4 was reconstructed in 1990 in part to eliminate the poor weave condition at the southbound ramps and the recurring hazard associated with exiting northbound traffic backing up onto I-93. Exit 3 and Exit 5 experience similar backups and congestion problems, and Exit 2 also warrants major renovations to provide safe and efficient access to the highway. Lastly, the geometry of the southbound off ramp at Exit 1 is substandard, and in need of realignment.

Since the construction of the I-93 segment under study in the 1960's, there have been a number of major projects along the I-93 corridor (e.g., involving bridges, rest areas, weigh stations). Three projects directly involving safety and traffic operational improvements have been completed: the widening of the northbound barrel at Exit 1

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[3] Level of service is a qualitative measure used to describe the operational conditions within a traffic stream and the perception of quality of traffic flow by a motorist or passenger. Level of service (LOS) generally describes these conditions in terms of such factors as speed and travel time, density or freedom to maneuver, traffic interruptions, comfort and convenience, and safety and, in so doing, provides an index to quality of traffic flow. Six levels of service are defined ranging from LOS A, representing the best operating condition to LOS F, the worst. See 2000 Highway Capacity Manual, Special Report 209 Transportation Research Board, Washington,D.C. for additional details.

required to provide safe access to the Rockingham Mall in Salem (1990), the previously mentioned reconstruction of the Exit 4 interchange to provide safe and efficient movement between I-93 and NH 102 (1990), and the addition of new guard rail and rumble strips along the entire 19.8-mile segment (2000).

The Salem rest area off the northbound barrel was reconstructed in 1993. The northbound and southbound weigh stations along I-93 in Windham were replaced in 2000. Improvements to I-293 (from the Merrimack River to the west) and the I-293/ NH 101/I-93 interchange area to the east are currently under reconstruction that began in 2001. In addition, several bridges carrying I-93 over local roadways and waterways have been reconstructed or replaced. All of these bridges, prior to construction, were deficient relative to structural condition. Construction has been ongoing since 1994. The condition of these bridges reflects, to a degree, the condition of the highway. After more than 30 years of service, the highway is showing signs of serious deterioration.

These bridges include:

- Northbound bridge over NH 111A in Windham (replaced in 1994),
- Northbound (replaced in 1994) and southbound (replaced in 1996) bridges over Bridge Street (North Lowell Road) in Windham,
- Northbound and southbound bridges over Fordway Extension in Derry (widened and rehabilitated in 1996),
- Northbound and southbound bridges over Kendall Pond Road in Derry (widened and rehabilitated in 1996),
- Northbound (replaced in 1995) and southbound (replaced in 1994) bridges over Stonehenge Road in Londonderry,
- Northbound bridge over Cohas Brook in Manchester (widened and rehabilitated in 2002),
- Northbound and southbound bridges over Bodwell Road in Manchester (widened and rehabilitated in 2002), and
- Southbound bridge over the I-293 westbound ramp in Manchester (widened and rehabilitated in 2002).

At present, there are several other highway projects affecting I-93 either under study or that will be under study in the next year, under design, or have been recently implemented. A section of NH 111 in Windham and Salem is currently under construction. The improvements are proposed in an effort to enhance safety and relieve traffic congestion along NH 111 from the I-93/Exit 3 interchange in Windham easterly to the previously improved segment of NH 111 in Salem. The Towns of

Derry and Londonderry are currently in the preliminary design/environmental evaluation process to consider alternatives and propose construction for a new interchange on I-93 to be located between Exits 4 and 5, locally referred to as "Exit 4A." The current schedule estimates completing the Final EIS in 2005 and beginning construction (assuming funding is available) in 2008.

A paving project to inlay sections of deteriorating pavement on I-93 between Salem and Manchester is being planned for construction in 2004. This project is needed to address pavement deficiencies and maintain serviceability in the interim until the I-93 full reconstruction can begin.

A fourth project involves constructing a highway corridor to provide access between the F. E. Everett Turnpike and the Manchester Airport. The Proposed Action for the proposed airport access highway allows for improved transportation service to the airport and to the surrounding industrial area from the F. E. Everett Turnpike. Construction is expected to begin in 2005 with completion anticipated in 2008. As proposed, these improvements do not include a direct connection to I-93, as was considered early in the Manchester Airport Access Road Project.

A fifth project, accomplished in the summer of 2002, included the installation of Emergency Reference Markers and signs along I-93 from the New Hampshire/ Massachusetts state line in Salem to the I-93/I-293 split in Manchester to help improve emergency response times and increase safety. This test program is part of an overall incident management plan for the I-93 corridor. The reference markers will provide direction, route, and mile location of travel information to assist motorists in identifying their location when reporting an incident.

In addition to the installation of the Emergency Reference Markers and signs, the NHDOT will initiate an evaluation of Intelligent Transportation System strategies, beginning in 2004, for use in managing traffic and incidents more efficiently and improving safety before, during, and after the widening of I-93.

Currently, NHDOT is developing final design plans and contract documents for the early construction of new park-and-ride lots and bus transit facilities (see Section 2.3.5.4) at Exit 2 in Salem and Exit 5 in Londonderry. It is anticipated that these facilities will be constructed in 2005. See **Figures 2.3-38 and 2.3-41**.

In April 2002, the NHDOT in a cooperative effort with the Massachusetts Executive Office of Transportation and Construction (MEOTC), the Merrimack Valley Regional Transit Authority, and The Junction Transportation Management Organization (TMO), implemented express bus service for New Hampshire employees working at Wyeth BioPharma in Andover, Massachusetts. The pilot project was developed to improve air quality, help in reducing traffic on I-93 and the local roadways, and provide alternative commuting options.

NHDOT has also completed a Bikeway Feasibility Study (March 2003) to identify alternative transportation corridors for pedestrian and bicycle travel between Salem and Manchester. In the area between Salem and Manchester, the study recommended the development of a rail facility located along the abandoned Manchester-Lawrence corridor, and in essence the I-93 bicycle path should not be pursued. As a result of these findings, the highway layout for I-93 has been modified to not include a bicycle path within the I-93 corridor. NHDOT will continue to work with regional and local officials to implement the Bikeway Feasibility Study recommendations.

It should also be noted that Massachusetts is in the process of completing an *I-93 Corridor Traffic Study, Andover and Methuen, Massachusetts* for the section of I-93 from the New Hampshire state line southerly through Methuen and Andover. The study considers a range of alternatives and makes recommendations for further studies and eventual construction in Massachusetts. Although the study report is not finalized, the preliminary recommendations of the Study Advisory Committee call for widening the roadway to four general purpose lanes in each direction and do not include the provision of an HOV facility. The Study also calls for improvements to the Haverhill commuter rail line to allow increased service and a cooperative study by New Hampshire and Massachusetts to consider potential options for rail service between Manchester and Boston.

In 2004, the NHDOT will embark on a Transit Investment Study in conjunction with the State of Massachusetts to consider in more detail the long-term rail and transit needs for the I-93 corridor between Manchester and Boston. The study is expected to help guide future pubic and private investment decisions involving alternative corridors and various modes of public and freight transportation. The study is expected to be completed in the spring of 2006.

1.4 Purpose and Need for the Project

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1.4.1 Purpose

The purpose of this project is to improve transportation efficiency and reduce safety problems associated with this approximately 19.8-mile segment of I-93 between Salem and Manchester. Options including reactivating rail service, improving bus transit service and other Transportation Demand Management (TDM) strategies that reduce vehicle trips on I-93 have been considered, in addition to widening the mainline and reconstructing the interchanges.

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1.4.2 Need

Interstate 93 is a north-south principal arterial Interstate highway within the State of New Hampshire and is part of the National System of Interstate and Defense Highways. I-93 in New Hampshire extends a distance of approximately 132 miles from the Massachusetts border at Salem, New Hampshire to the Vermont border at Littleton, New Hampshire. The segment of I-93 under study intersects a number of the important highway routes in southern New Hampshire. Due to population growth, development, and recreation opportunities in New Hampshire, the travel demands for I-93 between Salem and Manchester have exceeded the capacity of this existing four-lane facility for a number of years. Population and traffic projections for the next twenty years support the conclusion that the existing facility will be increasingly less able to function at the levels of service and safety for which it was

Northbound Between Rest Area and Exit 1.

originally designed. Decreases in the level of service are evident in the reduced traveling speeds, increased density of traffic flow, as well as in the traffic backups at some interchanges during commuting hours.

Traffic backups and congestion routinely occur due to traffic incidents such as accidents and vehicle breakdowns. As one of the main arterials in the New Hampshire highway system, it is important that this roadway function properly to serve all users. The New Hampshire Legislature recognized the need for improving

this highway and included the project in the State Ten-Year Highway Plan when that plan was enacted in 1986.

The purpose and need for this project was formally agreed to in a letter dated January 23, 2001, and signed by the state and federal agencies participating in the Environmental Streamlining partnership established for facilitating the study process.

Traffic Flow and Congestion

During weekday peak hours, motorists traveling along the I-93 corridor currently experience traffic congestion and substantial delay. The congestion not only results in increased travel times, but also contributes to safety problems, as the limited spacing between vehicles does not afford the motorists desired mobility – often leading to frequent and abrupt lane change maneuvers and sudden stops.

I-93 Exit 1 Northbound.

Base year Average Daily Traffic (ADT) volumes for 1997 range from approximately 61,800 vehicles per day (vpd) between Exits 3 and 4 to as high as 104,400 vpd south of Exit 1. The most recent traffic count data (2003) for the area south of Exit 1 shows the traffic volumes have increased from 104,400 vpd in 1997 to 114,000 vpd. Operating conditions during the peak hours of the day are currently poor with the segments of the corridor south of Exit 4 operating at LOS E or F. Interchange operations at Exits 1, 2, 3 and 5 also regularly break down during weekday peak hours.

Without substantial improvements, or dramatically reduced demand, traffic operations are expected to continue to deteriorate under future conditions, as traffic volumes increase. Traffic forecasts for the year 2020 show ADT's ranging from approximately 73,000 vpd between Exits 3 and 4 to as high as 137,000 vpd south of Exit 1 for the No-Build condition. This level of traffic would further increase congestion along I-93, at the corridor interchanges, and along nearby local roadways. This additional traffic would be expected to expand the period of congestion to more hours of the day and to a greater number of days during the year. Accident frequency would be expected to increase as a result of the increased level of congestion.

The ADT's along the segments of I-93 for the 1997 Existing and 2020 Design Year conditions for the No-Build condition are summarized in Table 1-1.

Table 1.1-1
I-93 Average Daily Traffic (1997 and 2020)[1]

Segment	1997 ADT (VPD)[2]	2003 ADT[3] (VPD)[2]	2020 ADT[4] (VPD)[2]
North of Exit 5	69,300	77,000	84,300
Between Exits 4 and 5	64,900	72,000	81,200
Between Exits 3 and 4	61,800	73,000	73,000
Between Exits 2 and 3	74,900	84,000	98,000
Between Exits 1 and 2	81,100	87,000	103,600
South of Exit 1	104,400	114,000	137,000

1 ADT's are based on I-93 Subarea Traffic Model
2 VPD = vehicles per day
3 2003 ADT Per Traffic Count data
4 2020 ADT assumes the No-Build condition.
Note: 2020 ADT projections reflect completion of the Windham-Salem bypass project and associated drop of about 5.000 vpd on I-93 between Exits 3 and 4.

Safety Issues/Crash Data

A review of crash data for the 19.8-mile corridor and the interchanges for the eight-year period of January 1995 through December 2002 revealed a total of 2,427 crashes. Of these, 699 crashes (29 percent) resulted in personal injury with an additional 19 crashes (1 percent) resulting in a fatality. The remaining 1,709 crashes (70) percent resulted in property damage only.

The number of crashes that occurred between 1995 and 1997 revealed a steady decline with the number of crashes each year recorded at 253, 236 and 203 respectively. However, the trend was broken in 1998 when 292 crashes – the highest during the five-year period – were recorded. The number of crashes again declined slightly in 1999 with 243 reported crashes, but rose substantially in 2000, 2001 and 2002.

The segment of I-93 between Exits 3 and 4 recorded the highest number of crashes with 675 crashes (28 percent). Three-hundred ninety-seven crashes (16 percent) were

recorded between Exit 5 and I-293. The segments between Exits 4 and 5, and between Exits 2 and 3 recorded 306 crashes (13 percent) and 284 crashes (13 percent), respectively. The segments between Exit 1 and Exit 2, and between the MA state line and Exit 1 recorded the fewest crashes with 247 (10 percent) and 234 (10 percent), respectively. The number of crashes that occurred at each of the interchanges range from a low of 36 at I-293 to a high of 49 at Exit 5. It is important to note that due to reporting practices the location, and to some degree the total number, of crashes is not, in many cases, available. Some of the crashes that have been identified as occurring along a segment of I-93 may have occurred at, or close to, an interchange.

Geometric deficiencies exist within the corridor and may be a contributing factor in some of the reported crashes. Each of the interchange areas has some ramps with less than desirable grades and some acceleration and deceleration lanes with less than desirable lengths. In addition, the mainline grades are also greater than the desirable maximum grades at several locations along the corridor. As traffic continues to grow, the existing deficiencies will become more of a problem.