1.0 INTRODUCTION

This chapter introduces the Supplemental Environmental Impact Statement (SEIS) process, provides background information on the proposed action evaluated in this Draft SEIS (DSEIS), summarizes the requirements met by the DSEIS, and explains the approach used to develop the DSEIS.

This DSEIS was prepared to meet the requirements of the August 30, 2007 decision of the U.S. District Court for the District of New Hampshire in the case *Conservation Law Foundation v. Federal Highway Administration and New Hampshire Department of Transportation* (Civ. No. 06-cv-45-PB (D.N.H)). The District Court directed the New Hampshire Department of Transportation (NHDOT) and the Federal Highway Administration (FHWA) to prepare a SEIS specifically addressing the effects of the potential induced population and employment growth estimates prepared by a Delphi Panel on: 1) the performance of the 2005 Selected Alternative from the 2004 FEIS in reducing traffic congestion; 2) traffic on secondary roads; and 3) air quality.

This DSEIS/reevaluation serves as a supplement to the April 2004 *Interstate 93 Improvements Salem to Manchester Final Environmental Impact Statement* (2004 FEIS) (FHWA-NH-EIS-02-01-F). The DSEIS has been prepared in accordance with Council on Environmental Quality (CEQ) and FHWA regulations for implementing the National Environmental Policy Act (NEPA). The DSEIS incorporates a comprehensive reevaluation of the 2004 FEIS. In accordance with FHWA regulations, the comprehensive reevaluation was used to determine whether any project information should be updated and revised as part of the SEIS process.

1.1 Background

1.1.1 Project History

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 the Massachusetts/New Hampshire State line in Salem and I-93/I-293 junction in 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 southern 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 segment of I-93 by proceeding from south to north over a period of years with completion by the year 2001-2002. However, as NHDOT proceeded, the environmental resource agencies registered their concern that an in-depth corridor-wide environmental study that considered all alternatives would be necessary to gain environmental approvals.

In 1991, FHWA and NHDOT initiated preliminary design and environmental evaluation work for Salem to Manchester I-93 improvements within the framework of an EIS. A Notice of Intent

to prepare an EIS for the project was published in the Federal Register on February 21, 1992. As the EIS moved forward, questions were raised as to 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, 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 patterns.

In 1999, with the development of the Statewide Transportation 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. A new Notice of Intent to prepare an EIS was published in the Federal Register on October 27, 2000.

The development of the 2002 Draft EIS (2002 DEIS) involved a comprehensive public participation program, which included the creation of a local Advisory Task Force (ATF) to assist NHDOT in identifying issues and possible solutions regarding the project's purpose and need. The development of the 2002 DEIS also included numerous resource agency coordination meetings and public information meetings. Following the spirit and intent of 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. The basic project purpose was to improve transportation efficiency, and reduce safety problems associated with the approximately 18-mile segment of I-93 from Salem to Manchester. The reasonable range of alternatives agreed on by the agencies included the No Build alternative, Transportation Systems Management (TSM) and Transportation Demand Management (TDM) measures, widening I-93 to four-lanes in each direction, widening I-93 to three lanes in each direction, a combination of four lane and three lane widening, and expanded bus service. In September 2002, the I-93 Improvements DEIS was issued.

After circulation of the 2002 DEIS, joint public hearings with the U.S. Army Corps of Engineers (ACOE) and the New Hampshire Department of Environmental Services (NHDES) were held on November 12, 2002 at Salem High School, and on November 14, 2002 at McLaughlin Middle School in Manchester. In August of 2003, after review of the revised and expanded project mitigation package, the U.S. Environmental Protection Agency (EPA) indicated that, based on the proposed mitigation, they did not intend to veto the project. In a letter dated December 30, 2003, the ACOE confirmed the Selected Four-Lane Alternative as the Least Environmentally Damaging Practicable Alternative (LEDPA) and that the minimization measures and proposed mitigation were appropriate to the scope and degree of proposed impacts, and meet the requirements of the 404(b)(1) Guidelines necessary for permitting the project. The FEIS was developed to respond to comments on the 2002 DEIS, and included additional interagency coordination to resolve issues and conduct additional studies or analysis, as appropriate. In April 2004, the I-93 Improvements FEIS was issued.

The 2004 FEIS identified the Selected Alternative as widening I-93 from the existing two-lanes in each direction to four-lanes in each direction from Salem to Manchester. The Selected Alternative also includes improvements to existing interchanges, the replacement of 18 red-listed bridges[1] and the construction of new park-and-ride lots. The 2004 FEIS included a comprehensive mitigation and enhancement package for the Selected Alternative developed with extensive interagency review of the proposed mitigation options (See Chapter 11 of the 2004 FEIS). The 2004 FEIS made 87 mitigation and enhancement commitments, including:

- Protection of approximately 1,000 acres of land as part of compensatory wetland and floodplains mitigation.
- Funding of $3 million for the NHDES Drinking Water Supply Land Grant Program to be used to purchase property rights to aid in the protection of water quality around Massabesic Lake, which is used to supply drinking water to Manchester, and parts of Derry and Londonderry.
- Funding of $3.5 million for a Community Technical Assistance Program to help I-93 corridor municipalities manage growth related issues.
- Extensive stormwater treatment measures.
- Participation in ongoing regional chloride studies. NHDOT has dedicated $4.5 million for salt reduction, including $2.5 million available to I-93 corridor municipalities to fund salt reduction.

On June 28, 2005, FHWA issued a Record of Decision (ROD) approving the Selected Alternative (referred to as the "2005 Selected Alternative" in this DSEIS) for implementation.

1.1.2 Delphi Panel

To facilitate the assessment of induced growth and land use change attributable to the I-93 project for the 2004 FEIS, NHDOT and FHWA utilized an expert panel methodology called the Delphi Technique. This section explains the concept of induced growth and summarizes the Delphi Panel process.

Definition of Indirect Land Use Effects/Induced Growth

Indirect effects are defined by CEQ as "effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water or other natural systems, including ecosystems" (40 CFR 1508.8(b)). For transportation projects, induced growth is attributed to changes in accessibility caused by the project that influences the location and/or magnitude of future development (Transportation Research Board, 2002). Typically, induced growth is quantified as the incremental change in future development with the project in comparison to the future without the project (e.g. the No Build alternative). In general, the widening of an existing roadway is less likely to cause induced growth than the construction of a

[1] New Hampshire's red-list identifies bridges requiring interim inspections due to known deficiencies, poor conditions, weight restrictions, or type of construction. These structures are inspected twice yearly.

new roadway or interchange (Transportation Research Board, 2002). This is because with an existing road, access to an area already has been established and the widening represents merely a marginal incremental change in access.

Delphi Panel Process

A Delphi is a structured process in which participants (the Panel) provide their assessment of likely future events (in this case the impacts of potential transportation investments) by responding to several rounds of questionnaires or surveys. A moderator tallies and summarizes the results of each round and provides these results back to the panelists. The Panel members are then given an opportunity to revise their initial analyses based on a review of their fellow panelists' work. The Delphi is considered complete when the responses in repeated rounds of questioning do not markedly change. The panelists typically conduct their work independently in an effort to allow for fully reflective responses to the survey question and subsequent responses. The results of the Delphi technique may be summarized through measures of central tendency. Ideally, panelists will reach a consensus.

For the 2004 FEIS, a 16 member panel was assembled and included individuals familiar with the corridor and the Study Area who were knowledgeable in the area of real estate, planning, environmental policy, etc. The Delphi Panel was tasked with projecting the potential change in population and employment in the 29-community secondary study area based on their best professional judgment. The panelists were directed to explain the rationale for their estimates in memos that were anonymously presented to the other panelists. After reviewing the work of their peers, the panelists had the opportunity to revise their population and employment estimates. Detailed information about the Panel's work is included in the "I-93 Manchester to Salem Expert Panel Analysis Final Report, December 28, 2001 (revised January 22, 2002)" and is summarized in Section 4.12 of the 2004 FEIS.

After two rounds of estimates for both the No Build and Build scenarios, the panelists could not reach consensus. Therefore, the results of the Delphi Technique process were summarized through the calculation of the Panelist's Blended Average Allocation (PBAA)—the average of the median and the mean. The blended average method gives some weight to very high and low outlying values, but gives less weight to these values than using a mean. The PBAA is a convenient measure to consider the opinions of the Panel, but it is important to note that it does not represent a group consensus. The individual panelists' findings represent "informed opinions" which cross a broad spectrum ranging from large additional increases in growth if the highway is widened to no additional increase in growth associated with the widening.

Traffic Sensitivity Analysis

In response to comments on the 2004 FEIS, a traffic sensitivity analysis was performed using the Delphi PBAA population and employment projections as input to a traffic analysis. A summary of the results of this analysis was published in the ROD. A summary of the results of the traffic sensitivity analysis is provided in Chapter 4: Traffic and the full text is located in Traffic Written Reevaluation/Technical Report, Appendix A-1.

1.1.3 Court Order

In February 2006, the Conservation Law Foundation (CLF) brought suit in U.S. District Court for the District of New Hampshire against FHWA and NHDOT challenging the ROD and alleging violations of National Environmental Policy Act, 42 U.S.C. § 4321 *et seq*. and the Federal-Aid Highway Act, 23 U.S.C. § 101 *et seq*. The case was decided on cross motions for summary judgment. The District Court entered its decision on August 30, 2007 in *Conservation Law Foundation v. Federal Highway Administration and New Hampshire Department of Transportation* (Civ. No. 06-cv-45-PB (D.N.H)).

The District Court rejected the majority of the claims raised by CLF, including those related to the elimination of rail as an alternative for further study during scoping, the assessment of direct impacts on air quality, the assessment of cumulative impacts, water quality, and wildlife, claims related to the Federal Aid Highway Act, segmentation, the adequacy of the proposed mitigation measures and the public involvement process. The Court found that these issues were considered adequately by FHWA and NHDOT during the NEPA process and that their decisions on these issues were not arbitrary and capricious.

The Court held that the traffic projections in the 2004 FEIS relied on an outdated population growth forecast from New Hampshire's Office of Energy and Planning (OEP). As a result, the court determined that FHWA and NHDOT failed to consider in the 2004 FEIS how the "substantial additional traffic that results from the use of the more recent forecasts affects both their assessment of the Four Lane Alternative as a traffic congestion reduction measure and the impact that the additional traffic will have on secondary roads and air quality issues." The Court order directed NHDOT and FHWA to prepare a focused SEIS:

> "…that specifically considers how the Delphi Panel's population forecasts affect Defendants' analysis of both the effectiveness of the Four Lane Alternative as a traffic congestion reduction measure and the indirect effects of the additional population predicted by those forecasts on secondary road traffic and air quality issues."

1.2 Requirements Met by this SEIS

The I-93 Improvements DSEIS is being prepared to meet the following requirements:

- Provide additional studies as directed by the Court Order.
- Comply with NEPA requirements regarding the preparation of a SEIS.
- Comply with FHWA's regulations regarding conducting a focused reevaluation of a FEIS.

To ensure that the DSEIS satisfies all relevant legal requirements, this document addresses the specific issues of concern identified by the District Court, updates new project information identified during the reevaluation of the 2004 FEIS and satisfies NEPA requirements associated with preparing a SEIS.

1.2.1 Additional Analysis Required by the Court Order

As described in Section 1.1.3, the District Court directed NHDOT and FHWA to prepare a focused SEIS specifically addressing the effects of the induced population and employment growth estimates prepared by the Delphi Panel on: 1) the performance of the 2005 Selected Alternative from the 2004 FEIS in reducing traffic congestion, 2) traffic on secondary roads, and 3) air quality issues. Additional traffic and air quality analysis studies were conducted to meet the requirements of the Court Order. The results of these studies are documented in the administrative record and incorporated into this DSEIS.

1.2.2 NEPA Requirements

CEQ NEPA regulations (40 CFR 1502.9 (c)(1)) require a federal agency to prepare a SEIS if:

- The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or

- Significant new circumstances or information relevant to environmental concerns have a bearing on the proposed action or its impacts.

The FHWA regulations for the preparation of a SEIS (23 CFR 771.130) are similar to the CEQ regulations. The FHWA regulations state that the SEIS needs to address changes to the proposed action or new information or circumstances relevant to environmental concerns that would result in significant environmental impacts not evaluated in the 2004 FEIS. The new circumstances or information that should be addressed in a SEIS include any physical or environmental changes to the proposed action or mitigation, and compliance with new or revised environmental regulations. A SEIS is not required to restate information presented in a FEIS, but rather incorporates by reference information from the FEIS that has not changed.

1.2.3 Reevaluation of the 2004 FEIS

Under FHWA's regulations (23 CFR 771.129), FHWA is required to prepare a written reevaluation of a FEIS whenever major events to advance a proposed action have not occurred within three years of the approval of the FEIS, or the last major FHWA approval or grant. Since the issuance of the 2004 FEIS in April 2004 and the ROD on June 28, 2005, several major events to advance the I-93 project have occurred, including final design and right-of-way acquisition work. Nonetheless, FHWA has conducted a reevaluation of the 2004 FEIS as part of this DSEIS in order to provide an up-to-date consideration of the 2005 Selected Alternative and its effects on the environment. The primary purpose of the reevaluation process is to determine whether any changes in the project; changes in the existing physical or regulatory environment, including project design, concept and scope; or changes in the affected environment, impact analysis and proposed mitigation measures would result in the need to update technical information from the 2004 FEIS.

Typically, FHWA uses a reevaluation process to determine whether an existing EIS is valid or a SEIS is required. In this case, however, the District Court order specifically required the

preparation of a SEIS. Therefore, the reevaluation process was not used to decide whether a SEIS should be prepared. Rather, the reevaluation process was used to assess whether issues in addition to those addressed by the court ruling warranted attention in the SEIS given the time that had elapsed since the 2004 FEIS. Therefore, the results of both the reevaluation and the analyses required by the court ruling comprise this SEIS, and this document serves as both the SEIS and reevaluation report. Pursuant to CEQ and FHWA regulations, this document is subject to the same distribution and public review requirements as the previously published DEIS and FEIS, except that scoping is not required (23 CFR 771.130(d)).

1.3 Approach to Preparing the Draft SEIS

This section describes the analysis framework used meet the requirements of the Court Order with respect to population and employment inputs in traffic modeling for the DSEIS, and the methodology used to conduct the reevaluation of the 2004 FEIS.

1.3.1 Analysis Framework

To address the Court Order requirement to evaluate the effects of the population and employment growth estimated by the Delphi Panel on traffic and air quality, NHDOT and FHWA decided that the New Hampshire Statewide Model was the best available traffic modeling tool for this purpose. Two population and employment scenarios were evaluated. For one set of analyses (Scenario 1), the Delphi Panel's blended average population and employment estimates were used as inputs in the Statewide Model. The DSEIS also includes traffic modeling based on the latest official state population and employment projections (Scenario 2). The remainder of this section provides more information on the rationale for the two analysis scenarios used in this DSEIS, the updated New Hampshire Statewide Model and the framework for assessing the impacts of the possible tolling of I-93 southbound between Exit 1 and the State line.

Rationale for Two Population and Employment Scenarios

The Delphi Panel was an innovative attempt to estimate population and employment change for the 2004 FEIS. However, with the benefit of time and hindsight a number of problems with the Delphi process and results make the process and its results unreliable for predicting future traffic operations. These problems include:

- There was a lack of consensus among the Delphi Panel members regarding the potential indirect land use effects of the project. The Delphi process is most effective when the panel members reach or approach consensus. The I-93 Improvements Delphi Panel members not only did not reach a consensus, but diverged widely in their view of the effect of the project. For example, the estimates of the change in the study area population from the No Build to the Build condition ranged from zero to 64,600. The estimates of induced employment ranged from zero to 57,650. The Delphi PBAA is a convenient way of reconciling the divergent growth estimates of the individual panelists. The PBAA provides a single number for analysis purposes, but it is misleading in that it suggests consensus by the Panel, when in fact no such consensus was reached.

- It is now known that the level of growth predicted by the Delphi PBAA is probably unrealistically high. For example, the PBAA 2020 build condition population for the New Hampshire portion of the study area is 64,986 persons or 15 percent higher than the current OEP population forecast prepared in 2007.

- There was no upper limit (cap) on the total amount of population or employment growth the panelists could allocate to a given town. By estimating growth for individual towns and summing the results, the Delphi process inherently overestimated growth. In comparison, a standard demographic method (such as used by OEP) utilizes a control total (cap) where the total population of a state or region is established first and then allocated down to the town level.

- No planning agency has adopted or relied upon the Delphi PBAA growth estimates.

- The Delphi Panel results are now outdated because they were based on input from panelists in 2000-2001. OEP and the New Hampshire Economic and Labor Market Information Bureau (ELMI) have prepared revised population and employment projections based on updated information since the completion of the Delphi Panel process. Since 2000, more recent demographic information strongly indicates that the expected growth pressures on southern New Hampshire have either not materialized or have waned. The long term rate of growth for southern New Hampshire has been lowered. The Delphi Panel PBAA growth estimates do not reflect these trends.

- At the time the Delphi Panel was convened in 2000-2001, induced population growth was a nascent concept in environmental documentation, and continues to evolve. Subsequent studies and information have demonstrated that the potential effect of infrastructure improvements (widened roadway vs. new roadway) is likely less than was expected at that time.[2] Transportation is one component in land use decision making, but is not usually the most important component. Other factors include market demand, site suitability, capital availability, economic feasibility, and the regulatory environment.[3] Widening of an existing roadway will not automatically lead to population growth. For example, the Maine Turnpike (I-95) in York and Cumberland counties was widened by one lane in each direction between 2000 and 2004. U.S. Census data shows that York and Cumberland counties grew substantially less in the year following the completion of the widening (2005-2006) than they did in the year before the widening (2000-2001), and share of statewide population growth represented by these two counties decreased from 65 percent before the widening to only 17 percent after.

To meet the specific requirements of the Court Order while also providing an analysis that corrects the deficiencies of the Delphi PBAA in the DSEIS, NHDOT and FHWA decided to provide two population and employment scenarios:

[2] See for example: David Hartgen. Highways and Sprawl in North Carolina. 2003. http://www.johnlocke.org/acrobat/policyReports/highways-report.pdf

[3] Urban Land Institute. Influence of Transportation Infrastructure on Land Use. 2004. http://www.fhwa.dot.gov/planning/tranlanduse.pdf

- Scenario 1 Delphi PBAA
- Scenario 2 Official State Projections

To directly address the requirements of the court order in the DSEIS, the Scenario 1 analysis involved using the No Build and Build Delphi Panel Blended Average Allocation (PBAA) population and employment levels in the New Hampshire Statewide Model. The resulting traffic projections reflect the baseline growth and induced growth anticipated by the Delphi PBAA and were used as inputs into the air quality and noise analyses for Scenario 1. The future analysis year for Scenario 1 is 2020 to match the Delphi Panel analysis year. The base year for the DSEIS is 2005, to match the base year of the updated New Hampshire Statewide Model.

Scenario 2 was developed to use official state population and employment projections as inputs in the New Hampshire Statewide Model, consistent with the objective of the DSEIS to provide updated project information based on the latest available information. Unlike the Delphi PBAA, Scenario 2 uses control totals and a gravity model accessibility analysis to measure the potential indirect effects of the 2005 Selected Alternative on population and employment growth. Gravity models are an accepted practice for evaluating the potential indirect effects of transportation projects.[4] They are based on the observation that the overall attractiveness of an area to potential residents is partially a function of the capacity of an area for development (vacant developable land in valued and affordable locations) and accessibility to employment and activity centers. The model produces quantified results that can serve as the basis for assessing possible land use change.

Accessibility refers to "the number of opportunities available within a certain distance or travel time."[5] As movement becomes less costly, either in terms of time or money, between any two places, accessibility increases. The propensity for interaction between any two places increases as the cost of movement between them decreases. Accessibility can also be understood as the attractiveness of a place of origin (how easy it is to get from there to all other destinations) and as a destination (how easy it is to get to there from all other origins and destinations). Consequently, the structure and capacity of the transportation network affect the level of accessibility in a given area. The accessibility of places can have an impact on land value, and hence the use to which land is put. Holding all other factors constant, the gravity model formulation assumes that areas where accessibility increases as a result of a transportation project will be relatively more attractive for development than if the project had not been built.

It is important to understand that within a gravity model analysis, regional population and employment totals do not change as a result of the transportation project—only the location of growth changes. For the Scenario 2 analysis, this means that the population and employment control totals for the New Hampshire Statewide Model region (which includes all of New

[4] See for example: NCHRP Report 466: Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects (page 77) and NCHRP Report 456: Guidebook for Assessing the Social and Economic Effects of Transportation Projects (page 100)

[5] Susan Hanson, The Geography of Urban Transportation, The Guilford Press, New York, 1995, p. 4.

Hampshire and portions of Massachusetts, Maine and Vermont) are the same between the No Build and Build conditions, but the location of growth is redistributed based on the accessibility analysis. This assumption is supported by several recent studies that have contained comprehensive reviews of the literature on transportation improvements and regional development.[6] Each of these literature reviews has concluded that in an age where most metropolitan locations are connected by the interstate highway network and other major roadways, roadway improvements, such as a widening, generally do not bring new growth to a region, but instead, influence where growth and development occurs on a local level within the region.

Recent reviews of the literature conclude that:

> Beltways and urban highways more generally do not increase the overall rate of growth [in a region] but may influence where growth occurs and at what densities.[7]
>
> …highway projects affect the geographic location of economic activity by advantaging some places while causing firms and persons to shift their location choices away from other places.[8]

Studies have found that the effect of highways on land prices has been diminishing over time since early studies of the first segments of the interstate system in the 1950s. Boarnet and Haughwout (2000) note that studies have shown that incremental improvements in areas that already possess highway access have reduced the magnitude of the influence of highways on land development activity:

> As more highways are built, and the metropolitan highway network matures, the incremental effect on accessibility from new or improved highways decreases, thus accounting for a smaller change in land prices due to any access premium.
>
> New evidence suggests that metropolitan highway projects still influence land use in the way that theory predicts. The important difference between the new evidence and earlier studies is that the geographic scale of the land use effect appears to be somewhat smaller. A new highway or improvement might importantly reduce travel times in the immediate vicinity of a project, even if the

[6] Marlon G. Boarnet and Andrew F. Haughwout, *Do Highways Matter? Evidence and Policy Implications of Highways Influence on Metropolitan Development*, The Brookings Institution Center on Urban and Metropolitan Policy, 2000; NCHRP Report 423A, *Land Use Impacts of Transportation: A Guidebook*, Transportation Research Board, 1999; NCHRP Report 456, *Guidebook for Assessing the Social and Economic Effects of Transportation Projects*, Transportation Research Board, 2001; NCHRP Report 403, *Guidance for Estimating the Indirect Effects of Proposed Transportation Projects*, Transportation Research Board, 1998.

[7] Susan Handy, *Smart Growth and the Transportation Land Use Connection: What Does the Research Tell Us?* International Regional Science Review, Vol 28 pp 146-167, 2005

[8] Marlon G. Boarnet and Andrew F. Haughwout, *Do Highways Matter? Evidence and Policy Implications of Highways Influence on Metropolitan Development*, The Brookings Institution Center on Urban and Metropolitan Policy, 2000.

> resulting changes in metropolitan-wide transportation accessibility are small. Hence the land use effects of modern highway projects likely operate over a very fine geographic scale, rather close to the project. [9]

For roadway widening projects in particular, the relevant literature suggests that regional total population and employment levels will not change as a result of the project. Indirect land use effects are likely to be focused on shifts in the distribution of future growth, concentrated in areas near the project. These conclusions support the overall framework for the Scenario 2 indirect effects analysis through the use of control totals and a gravity model analysis. Additional information on the basis of the No Build and Build population and employment levels for Scenario 2 is provided in Chapter 11, Indirect Effects and the New Hampshire Statewide Model Documentation, located in Appendix A: Traffic Written Reevaluation/Technical Report.

Scenario 2 includes a 2020 analysis year for comparison to the analysis year used by the Delphi PBAA and also a 2030 analysis year in order to match the analysis year of the updated model (i.e., a 20-year horizon typically used in transportation planning).

New Hampshire Statewide Model

NHDOT maintains a statewide transportation model in order to systematically plan for future transportation needs. The purpose of the New Hampshire Statewide Model is to estimate future travel patterns and their effects on transportation infrastructure associated with changes in population and employment in the State. The New Hampshire Statewide Model was developed in 1997, and underwent substantial updates between 2005 and 2007. There are a total of 499 internal Traffic Analysis Zones (TAZs) and 29 external TAZs. The external TAZs are used to represent trips with origins or destinations outside the model area. The model area covers all of New Hampshire, and portions of Massachusetts, Maine, and Vermont.

The 2005-2007 model update process included the use of recent baseline and future year population and employment forecasts. The data sources utilized in these updates included 2000 U.S. Census data, 2005 New Hampshire OEP population projections for New Hampshire, the Massachusetts Statewide Travel Demand Forecasting Model, Maine Office of State Planning population projections for York County, New Hampshire ELMI employment forecasts, and employment growth rates from the U.S. Department of Commerce, Bureau of Economic Analysis. During the 2005 updates, extensive coordination was conducted with the regional planning commissions in the New Hampshire portion of the model area to adjust the employment forecasts based on local knowledge of upcoming developments and conditions. The update process also included changes to the highway and transit networks, and tourist trip purpose modeling (See the New Hampshire Statewide Model Documentation for detailed information, located in Appendix A: Traffic Written Reevaluation/Technical Report).

The existing conditions analysis year for the DSEIS is 2005, to coincide with the updated base year of the New Hampshire Statewide Model.

[9] Marlon G. Boarnet and Andrew F. Haughwout, *Do Highways Matter? Evidence and Policy Implications of Highways Influence on Metropolitan Development,* The Brookings Institution Center on Urban and Metropolitan Policy, 2000

Analysis Framework for Tolling Sensitivity Analysis

On December 12, 2008, NHDOT submitted an Expression of Interest to the FHWA Tolling and Pricing Team to pursue tolling on I-93 as part of FHWA's Interstate System Reconstruction and Rehabilitation Pilot Program. The pilot program allows up to three existing Interstate facilities nationwide to be tolled to fund needed reconstruction or rehabilitation (two of the three slots have already been filled by projects in other states). The proposed toll would be on I-93 southbound between Exit 1 and the State line and is conceptually envisioned to be $2 for passenger cars. The revenue generated by the proposed toll would be used to fund the construction of the I-93 improvements. At the time of the preparation of this DSEIS, the tolling proposal has not been approved by FHWA or the New Hampshire Legislature. Nonetheless, NHDOT and FHWA decided to include an analysis of the potential traffic, air quality and noise effects of tolling on I-93 in this DSEIS. While it is not certain whether or not tolling will eventually occur, the tolling analyses provided in this DSEIS disclose the potential impacts of tolling on traffic, air quality and noise.

The tolling sensitivity analysis compares the Build condition with the toll ("Build with Toll") to the Build condition without the toll ("Build without Toll"). The difference is the incremental effect of tolling on traffic, air quality and noise. Tolling was not analyzed for the No Build condition because the toll is being considered as a mechanism for funding the construction of the project. If the project is not built, NHDOT would no longer consider tolling for the corridor. In addition, tolling was not analyzed for Scenario 1 (Delphi PBAA) demographics. The net effect of tolling under Scenario 1 would be very similar to the net effect under Scenario 2. The sensitivity analysis of Scenario 2 conditions provides a reasonable basis for establishing the general pattern and magnitude of the effects of the proposed tolling on I-93.

1.3.2 Reevaluation of the 2004 FEIS

The reevaluation of the 2004 FEIS focused on identifying:

- Changes resulting from additional design refinements from the 2004 FEIS to the DSEIS;
- Changes in information or circumstances relevant to environmental concerns and bearing on the proposed project or its impacts that would result in significant environmental impacts not evaluated in the 2004 FEIS;
- Changes in the relevant regulations or laws since publication of the 2004 FEIS, resulting in new requirements that were not previously addressed;
- Changes in mitigation measures or other environmental commitments; or
- Changes in analysis methods and potential impacts based on the Court Order.

The results of the reevaluation process were used to determine what information from the 2004 FEIS to update as part of the DSEIS. The results of the reevaluation are incorporated in Chapters 4 through 15 of the DSEIS, and in the supporting technical reports.