

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW HAMPSHIRE

Conservation Law Foundation

v.

Case No. 06-cv-45-PB
Opinion No. 2007 DNH 106

Federal Highway Administration and
New Hampshire Department of Transportation

MEMORANDUM AND ORDER

Nearly twenty years ago, the New Hampshire Department of Transportation ("NHDOT") began to evaluate proposals to address traffic congestion and safety concerns associated with the 19.8-mile section of Interstate 93 ("I-93") between Salem and Manchester, New Hampshire. The project stalled for several years while NHDOT refined its traffic projection methodology but recommenced in 1999. In April 2004, the Federal Highway Administration ("FHWA") and NHDOT issued a Final Environmental Impact Statement proposing, among other things, to add four lanes--two in each direction--to I-93 between Salem and Manchester. On June 28, 2005, FHWA issued a Record of Decision approving the proposed alternative.

The Conservation Law Foundation ("CLF") challenges the Record of Decision, contending that NHDOT and FHWA violated the 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 parties agree that the case can be resolved on their cross-motions for summary judgment.

I. LEGAL OVERVIEW

A. National Environmental Policy Act

The National Environmental Policy Act ("NEPA") is implicated when an agency proposes "a major Federal action[] significantly affecting the quality of the human environment."¹ 42 U.S.C. § 4332(2)(C). NEPA requires an agency contemplating a major federal action to take a "hard look" at alternatives and environmental consequences before undertaking the action.²

¹ Regulations promulgated by the Council on Environmental Quality ("CEQ") provide guidance for the implementation of NEPA. See 40 C.F.R. §§ 1500-1518. In addition, FHWA has promulgated its own NEPA regulations. See 23 C.F.R. Part 771. Both sets of regulations are entitled to substantial deference. Andrus v. Sierra Club, 442 U.S. 347, 358 (1979); Conservation Law Found. v. Fed. Highway Admin., 24 F.3d 1465, 1480 (1st Cir. 1994).

² The federal agency must also cooperate with state and local agencies to reduce duplication between NEPA and state and local requirements. 40 C.F.R. § 1506.2(b)-(c). Such cooperation may include: joint planning processes, joint environmental

Baltimore Gas & Elec. Co. v. Natural Resources Defense Council, Inc., 462 U.S. 87, 97 (1983). To this end, the agency ordinarily must prepare an Environmental Impact Statement ("EIS") that includes, among other things, a rigorous, objective evaluation of all reasonable alternatives to the proposed action--including the alternative of no action--and, for alternatives which were eliminated from detailed study, a brief discussion of why they were eliminated. 40 C.F.R. § 1502.14. The EIS must also include a discussion of the direct and indirect environmental effects of the proposed action and its alternatives. 40 C.F.R. § 1502.16. Direct effects are effects caused by the action that occur at the same time and place. 40 C.F.R. § 1508.8. Indirect effects are effects "which were caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8.

research and studies, joint public hearings, joint environmental assessments, and joint environmental impact statements. 40 C.F.R. § 1506.2(b)-(c). It appears from the Administrative Record that FHWA and NHDOT cooperated with respect to all of these processes. Thus, for purposes of simplicity, in the sections below dealing with such cooperative actions, I use the collective term "Defendants" when referring to FHWA and NHDOT even though FHWA alone is ultimately responsible for the issuance of the Record of Decision.

Indirect effects "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 and other natural systems, including ecosystems." 40 C.F.R. § 1508.8. Agencies must address a proposed action's indirect effects in an EIS if they are reasonably foreseeable,³ sufficiently definite,⁴ and significant.⁵ Dubois, 102 F.3d at

³ "Reasonable foreseeability means that 'the impact is sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision.'" Dubois v. U.S. Dep't of Agric., 102 F.3d 1273, 1286 (1st Cir. 1996) (quoting Sierra Club v. Marsh, 976 F.2d 763, 767 (1st Cir. 1992)).

⁴ Whether an indirect effect is too speculative to require analysis depends on several factors:

With what confidence can one say that the impacts are likely to occur? Can one describe them "now" with sufficient specificity to make their consideration useful? If the decisionmaker does not take into account "now," will the decisionmaker be able to take account of them before the agency is so firmly committed to the project that further environmental knowledge as a practical matter will prove irrelevant to the government's decision?

Sierra Club, 769 F.2d at 877-78.

⁵ An indirect effect's significance depends on both its "context" and "intensity." 40 C.F.R. § 1508.27. Among the factors that may be relevant to a significance determination are: (1) "[t]he degree to which the proposed action affects public health or safety;" (2) "[t]he degree to which the possible effects on the human environment are likely to be highly

1286; Sierra Club, 769 F.2d at 878 (citation omitted).

Before work on an EIS begins, the federal agency proposing the project must engage in a "scoping" process. 40 C.F.R. § 1501.7. To initiate the process, the agency invites the participation of other federal, state, or local agencies, and other interested parties, including those who might object to the action on environmental grounds. 40 C.F.R. § 1501.7(a)(1). During the scoping process, the agencies and outside parties work cooperatively to identify the significant issues to be analyzed in depth in the EIS and to eliminate insignificant issues from further study. 40 C.F.R. § 1501.7(a)(2)-(3).

At the close of the scoping process, the agency begins to prepare the EIS. Environmental impact statements are generally prepared in two stages. 40 C.F.R. § 1502.9. First, the agency works with cooperating agencies to prepare a Draft Environmental Impact Statement ("DEIS"). 40 C.F.R. § 1502.9(a). After preparing the DEIS, the agency must obtain comments from "any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved or which is

controversial;" and (3) "[t]he degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks." Id.

authorized to develop and enforce environmental standards." 40 C.F.R. § 1503.1(a)(1). Additionally, the agency must request comments from the public and affirmatively solicit comments from interested persons. 40 C.F.R. § 1503.1(a)(4).

After the DEIS is released, the agency must prepare a Final Environmental Impact Statement ("FEIS"). 40 C.F.R. § 1502.9(b). In preparing the FEIS, the agency must accept and consider public comments on the DEIS--both individually and collectively--and include responses to those comments in the FEIS.⁶ 40 C.F.R. §§ 1503.4(a)-(b). The agency must supplement either the DEIS or FEIS--via a Supplemental Environmental Impact Statement ("SEIS")--in the event of "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(c)(1)(ii).

The agency must wait at least thirty days after notice of

⁶ Possible responses are to: (1) modify alternatives including the proposed action; (2) develop and evaluate alternatives not previously given serious consideration by the agency; (3) supplement, improve, or modify its analyses; (4) make factual corrections; (5) explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response. 40 C.F.R. § 1503.4(a).

the FEIS is published in the Federal Register⁷ before it may make or publish a decision. 40 C.F.R. §§ 1606.10(a)-(b). Before it makes its decision, the agency may solicit public comments on the FEIS. 40 C.F.R. § 1503.1(b). Additionally, other agencies or persons may comment on the FEIS before the agency makes its decision. 40 C.F.R. § 1503.1(b).

The agency must publish a Record of Decision ("ROD") when it makes its decision. 40 C.F.R. § 1505.2. In addition to announcing the decision, the ROD must, among other things, identify all alternatives considered and specify which alternative or alternatives were considered environmentally preferable. 40 C.F.R. §§ 1505.2(a)-(b). The agency may also discuss preferences among alternatives based on relevant factors such as economic and technical considerations as well as agency statutory missions. 40 C.F.R. §§ 1505.2(b). The ROD must also state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not. 40 C.F.R. § 1505.2(c).

⁷ Each week, the Environmental Protection Agency must publish a notice in the Federal Register of the environmental impact statements filed during the preceding week. 40 C.F.R. § 1506.10(a).

The agency must adopt and summarize a monitoring and enforcement program where applicable for any such mitigation. Id.

B. The Federal-Aid Highway Act

The Federal-Aid Highway Act ("FAHA") requires, among other things, that the Secretary of Transportation adopt design standards for the interstate highway system which, "as applied to each actual construction project, shall be adequate to enable such project to accommodate the types and volumes of traffic anticipated for such project for the twenty-year period commencing on the date of approval . . . of the plans, specifications, and estimates for actual construction of such project." 23 U.S.C.A. § 109(b).

FAHA also requires that "possible adverse economic, social, and environmental effects relating to any proposed project on any Federal-aid system [be] fully considered in developing such project," and that "the final decisions on the project [be] made in the best overall public interest, taking into consideration the need for fast, safe and efficient transportation, public services, and the costs of eliminating or minimizing such adverse effects." 23 U.S.C. § 109(h).

II. FACTUAL OVERVIEW⁸

Interstate 93 is a north-south principal arterial Interstate Highway, portions of which run through the state of New Hampshire. Administrative Record ("AR") 21402. Interstate 93 was built in the 1960s and early 1970s, and the 19.8-mile section from Salem to Manchester (the "Project Area"), which currently consists of two lanes in each direction, has not been substantially widened since it was built. AR 21404.

In 1988, in order to address perceived problems associated with traffic congestion, NHDOT began to evaluate conceptual widening alternatives for the southerly section of the I-93 corridor. AR 21405. In 1991, Defendants initiated preliminary designs and environmental analyses of alternatives and impacts. Id. The process was later delayed for several years, however, while NHDOT refined its traffic projection methodology. Id.

A. The Statewide Model

In 1999, with the development of the traffic model nearing completion, NHDOT restarted the environmental review process by

⁸ The Administrative Record exceeds 28,000 pages and spans nearly 20 years. I describe here only those portions of the record that pertain to CLF's legal arguments.

initiating preliminary engineering and environmental studies. Id. To assist in analyzing regional transportation needs, Defendants employed the traffic projection model developed by NHDOT during the Project's hiatus (the "Statewide Model"). AR 21779. The Statewide Model estimates future travel demand based on data collected on highway, rail, and bus systems; land use; and socio-economic characteristics. AR 21779, 26442, 26810. It then predicts travel behavior and travel demand based on these inputs and additional information developed by the New Hampshire Office of Energy and Planning ("OEP") regarding population and employment data extrapolated from the 1990 Census and local master plans. AR 26442-43, 26810. The Statewide Model also uses data such as the number of households in each traffic analysis zone, broken down by vehicle availability, income level, and number of workers. AR 26773. The Statewide Model is a "trip based" model that consists of many "sub-models." AR 21779, 26443. The I-93 sub-area is one such sub-model. Id. Details of the sub-models were developed in consultation with the appropriate regional planning commissions, local officials, and others. Id.

Defendants used the Statewide Model to forecast traffic on I-93 for the year 2020 ("the Design Year").⁹ AR 21780, 26443. Defendants' 2020 traffic projections for the I-93 sub-area were checked against the traffic projections provided by both the Southern New Hampshire Planning Commission's travel demand model and the Nashua Regional Planning Commission's model, and the correlations were found to be acceptable. AR 21780, 26443. FHWA also engaged an in-house expert in transportation planning from FHWA's Eastern Resource Center in Baltimore, Maryland to independently evaluate the Statewide Model and provide further validation for the data outputs. AR 10442-43. The expert concluded that the traffic volume output appeared valid and that the Statewide Model displayed a "sophisticated level of development." Id.

B. Scoping Phase

The I-93 transportation improvement project proceeded in two phases: (1) the scoping phase, in which Defendants worked cooperatively with other federal and state agencies to determine

⁹ A design year is a future year--typically ten to twenty years from the start of construction--used to estimate the probable traffic volume for which a highway is designed. 23 C.F.R. § 772.5(a).

a reasonable range of alternatives to consider in detail during the second phase; and (2) the EIS phase, in which Defendants considered the alternatives identified during the scoping phase, selected a preferred alternative, solicited comments from agencies and the public, and in which FHWA ultimately issued a ROD.

On May 31, 2000, Defendants published a "Scoping Report" for the I-93 project. AR 4846-5082. According to the report, the project's purpose was to "improve transportation efficiency, and reduce safety problems associated with [the] approximately 18-mile segment of I-93 between Salem and Manchester." AR 4861.

In detailing the congestion and safety problems on I-93 in the Project Area, the report noted that I-93 had been expected to carry 20,000 vehicles per day over the course of its twenty-year design life when it was constructed. AR 4857. By 1997, however, traffic volumes in excess of 100,000 vehicles per day had been recorded between Exit 1 and the Massachusetts state line, with segments north of Exit 1 carrying between 60,000 and 80,000 vehicles per day. Id. By 2000, when the report was prepared, motorists were experiencing traffic congestion and substantial delays during weekday peak traffic hours. AR 4862.

The report also indicated that traffic operations were expected to deteriorate further under future conditions as traffic volumes increased. Id. Traffic forecasts for the year 2020 predicted average daily traffic ranging from approximately 73,000 vehicles per day between Exits 3 and 4 to as high as 137,000 vehicles per day between Exit 1 and the Massachusetts state line. Id. This level of traffic, the report stated, will result in much greater congestion along I-93, at its interchanges, and along nearby local roads. Id. The additional delays experienced by motorists, according to the report, are expected to expand to more hours of the day and to a greater number of days during the year. Id. The report also predicted that the delays will increase the frequency of accidents, which already numbered 1,227 during a five-year study period from January 1995 to December 1999.¹⁰ AR 4863.

Defendants indicated that they would consider options such as widening the highway to either three or four lanes each way, reactivating rail service, and implementing other transportation

¹⁰ This figure was later updated in the FEIS, which indicated that a total of 2,427 accidents occurred between the Massachusetts state line and I-293 during the eight-year period from January 1995 through December 2002. AR 21554-55.

strategies such as improving bus transit service. AR 4861.

Defendants also noted that bus or rail service alone would likely not be adequate to address the transportation needs and safety deficiencies within the corridor. Id.

In July 2000, a "Board of Directors" comprised of officials from numerous federal and state agencies was formed as part of an environmental streamlining process ("Streamlining Process") for the I-93 project. The purpose of the Streamlining Process, which was conducted pursuant to Section 1309 of the Transportation Equity Act for the 21st Century ("TEA-21"), Pub. L. 105-178, 112 Stat. 107 (1998), was to coordinate environmental review processes between various agencies and to expedite federal highway and transit projects through coordination of environmental reviews, analyses, opinions, and obtaining necessary permits, licenses, or approvals. AR 7602, 7607. In addition to FHWA and NHDOT, agencies such as the United States Environmental Protection Agency ("EPA"), the Army Corps of Engineers, the New Hampshire Department of Environmental Services ("NHDES"), and the New Hampshire Department of Fish and Game ("NH Fish & Game") worked cooperatively to streamline the environmental review and permitting process.

On November 13, 2000, Defendants published a "Rail Alternatives Evaluation Report" ("RAER") discussing operations, costs, and 2020 ridership projections for passenger rail service in the Project Area. AR 6777-7098. The purpose of the RAER was to explore the possibility of providing commuter rail service to Boston, Massachusetts in order to relieve congestion on I-93. AR 6794-96. The RAER examined four rail alternatives along three basic alignments: (1) commuter rail service along the New Hampshire Main Line (the "West Rail Corridor" from Manchester to Lowell, Massachusetts via Bedford, Merrimack, and Nashua); (2) commuter rail service along the Manchester and Lawrence Branch (the "East Rail Corridor" from Manchester to Lawrence, Massachusetts) with two optional alignments near the Manchester Airport; (3) two light rail services along the I-93 highway right-of-way beginning near either Exit 5 or the Manchester Airport, and continuing along I-93 south of Exit 1 and connecting either to Lawrence, Massachusetts (the "I-93 Basic Rail Corridor") or to the Anderson Transportation Center in Woburn, Massachusetts (the "I-93 Enhanced Rail Corridor"). AR 6777-7098.

The RAER examined two key components: operational requirements and infrastructure needs. AR 6796. The operational

component focused on the identification and development of rail transit operating assumptions and a preliminary operating plan for each rail alternative. Id. The infrastructure component evaluated existing conditions along the rail corridors, including data relative to general corridor characteristics, track structure, undergrade bridge structures, grade crossings, and signal and communications systems. AR 6796-98. This process also included an operating plan that described each corridor and its connection to the existing passenger rail system, station locations, and service possibilities. AR 6798.

On January 22, 2001, Defendants published a "Rationale Report," identifying transportation alternatives to be carried forward into the EIS. AR 8242-8437. The Rationale Report presented an evaluation of each alternative considered as well as the rationale for eliminating specific alternatives from further consideration pursuant to NEPA's "reasonable range of alternatives" selection requirement. AR 8251. Defendants concluded--on the basis of the data from the RAER and the Statewide Model--that rail would not be considered in further detail during the EIS alternatives analysis because it would not divert enough traffic from I-93 to eliminate the need to widen

the highway. AR 8342.

In reaching this conclusion, Defendants reasoned that although rail--and other options such as high occupancy vehicle lanes--would help shorten periods of congestion on I-93, serious congestion problems would nonetheless remain. Id. For instance, Defendants' projections for the segment of I-93 between Exit 1 and the Massachusetts state line in the year 2020 revealed that even the rail transit combination with the largest projected ridership--i.e., Enhanced Rail with two general purpose lanes and an already existing bus service--would generate only 3,365 daily southbound trips. AR 8322, 8325. According to the report, this new ridership would only divert 2,263 vehicles from I-93, leaving a daily southbound vehicle volume of 67,550 on the segment between Exit 1 and the Massachusetts state line. AR 8325. Projections for the same segment during the most congested three hours of the day (the "Peak Period") were similar. AR 8326. The transit combination most effective in decreasing Peak Period vehicle volume diverted only 1,856 vehicles, leaving a Peak Period vehicle volume of 21,716. Id.

The Rationale Report also concluded that the addition of rail to any of the alternatives studied in the report would not

improve the Level of Service ("LOS") at any segment of I-93 in the Project Area during the hour of the year that is customarily used when developing highway designs (the "Design Hour").¹¹ AR 8336. While even the most effective rail option would leave all segments of I-93 at LOS F during the Design Hour without the

¹¹ LOS is a qualitative measure describing operational conditions within a traffic stream. AR 5035. LOS is determined by considering such factors as speed and travel time, density or freedom to maneuver, traffic interruptions, comfort and convenience, and safety. AR 5035. LOS ranges from A to F, with A representing the best operating conditions, C representing stable flow conditions, E indicating that the roadway is operating at capacity, and F indicating failing conditions. AR 21552-21553. State highway design standards specify that freeways such as I-93 should be designed to produce LOS D or better during the Design Hour. AR 21777.

The general unit of measure used to quantify roadway usage is average daily traffic ("ADT"), which is defined as the total traffic volume during a given time period divided by the number of days in that period. AR 21550. A more specific unit of measure is known as average annual daily traffic volume ("AADT"). AR 21550. AADT is determined by dividing the total yearly volume by the number of days in the year. Id. AADT can also be estimated in terms of hourly traffic volume, which is the primary datum used in evaluating and designing roadways. Id. For instance, peak hour volume is a measurement that represents traffic volume at the most congested hour of the year ("the Peak Hour"). However, designs based on peak hour traffic would be inefficient given the size of the road that would be required. Similarly, merely using the AADT condition of a roadway would result in an inadequate design because the roadway's capacity would be exceeded much of the time. Accordingly, industry practice dictates that the Design Hour should be the hour of the year with the thirtieth highest hourly traffic volume. AR 21550-51.

addition of new lanes, the Rationale Report concluded that the widening of I-93 to four lanes each way would result in 2020 Design Hour operating conditions of LOS E between Exit 1 and the Massachusetts state line, LOS D between Exits 1 and 3, and LOS C north of Exit 3. AR 8336.

C. EIS Phase

1. Delphi Study

After identifying the alternatives that would be considered in detail, Defendants began to draft a DEIS for the I-93 project. During this time, in 2001, NHDOT commissioned a study ("the Delphi Study") to better understand the indirect growth-inducing effects of widening I-93 in the Project Area. For the Delphi Study,¹² NHDOT convened a panel ("the Delphi Panel") of sixteen people comprised of local planning board members, real estate brokers, regional planners and experts from academia, business, and non-governmental organizations. AR 11871.

¹² A Delphi Study uses a highly structured method for collecting and refining group opinions. The Delphi method was developed in the 1950s by the RAND Corporation to obtain group opinions regarding the state of Soviet nuclear capabilities. Bogdan Dziurzynski, FDA Regulatory Review and Appeal Process: A Delphi Inquiry, 51 Food & Drug L.J., 143, 146 (1996).

The panel assessed the I-93 project's impacts on a town-by-town basis for twenty-nine Northern Massachusetts and Southern New Hampshire communities in and around the Project Area, estimating future population and employment growth for the year 2020 both with, and without, a four lane expansion of I-93. AR 21963-65. The Delphi Study was conducted in two phases. The first phase assessed the likely growth within the New Hampshire communities in and around the Project Area that would result if I-93 were not widened, and the second phase forecast the additional population growth that was likely to occur if the road were widened by four lanes. AR 21964. In each phase, the panel evaluated potential land use changes by allocating population and employment growth among the twenty-nine communities over the course of several rounds of questionnaires or surveys. Id. A moderator tallied and summarized the results of each round and returned the results to the panel members for an opportunity to revise their initial analyses based on a review of their fellow panelists' work. AR 21963, 21965. Each phase was complete when the responses to repeated rounds of questioning did not markedly change. AR 21963. At the end of each phase, the panelists' allocations were summarized using a "blended" average to

represent the collective work of the panel. AR 21965.

The Delphi Panel was presented with briefing materials that included a recent OEP population growth forecast for 2020. AR 9731-32. The OEP forecast presented to the Delphi Panel predicted that 465,652 people will be living in the New Hampshire communities in the Project Area in 2020. AR 9732. After considering the OEP forecast, the Delphi Panel ultimately adopted a somewhat higher baseline population forecast ("baseline population growth forecast") of 474,375. AR 11760, 26445.

The Delphi Panel also produced a forecast for the additional population growth that the panel predicted would occur if I-93 were widened ("induced population growth forecast"). Focusing on the New Hampshire communities in the Project Area, the panel's forecast predicted that the population in the area would grow by 35,317 additional people, or approximately seven percent, if the road were widened to four lanes each way. AR 11760, 26445. The Delphi Panel forecast a total induced population increase of 40,629 when the six northern Massachusetts communities adjacent to the Study Area were included. Id.

2. DEIS and FEIS

Defendants published the DEIS on September 13, 2002. AR

13829. They later refined their analysis of relevant issues, responded to comments on the DEIS, and issued the FEIS on April 28, 2004. AR 21381. In the FEIS, Defendants set forth their selected alternative: widening I-93 to four lanes in each direction for the entire length of the Salem-Manchester corridor (the "Four Lane Alternative"). AR 21403-04. In selecting the Four Lane Alternative, Defendants relied on the Statewide Model's 2020 traffic projections. 21779-80. The FEIS concluded that if the highway were not widened (the "No Action Alternative"), all segments of the I-93 study corridor would either operate at capacity or in failing conditions--LOS E or F--during the Design Hour in 2020. AR 21781. Additionally, the Statewide Model projected that the congestion would worsen during peak hours, and that there would be more peak hours of congestion. Id. In contrast, projections for the Four Lane Alternative suggested that I-93 would operate at LOS E south of Exit 1, LOS D between Exits 1 and 2, and LOS C or better north of Exit 2. AR 21783. Defendants also concluded that the Four Lane Alternative would reduce traffic on secondary roads by causing trip diversions from those roads onto I-93. AR 21783.

The FEIS also assessed the direct effects of the Four Lane Alternative on air quality, water quality, and wildlife. With respect to air quality, the FEIS discussed both regional and local effects. It explained that Defendants had based their assessment of the project's regional air quality effects on an analysis that had been conducted pursuant to the Clean Air Act's Transportation Conformity Rule.¹³ AR 21573. In accordance with

¹³ The Transportation Conformity Rule is codified at 40 C.F.R. §§ 51.390 and 93. It is intended to "ensure[] that transportation plans, programs and projects do not produce new air quality violations, worsen existing violations, or delay the timely attachment of national ambient air quality standards (NAAQs)." 62 Fed. Reg. 43780 (August 15, 1997). As a general rule, transit projects that receive funding under FAHA or that require FHWA approval are subject to the conformity process. 40 C.F.R. 93.102. The Rule covers specific transportation-related pollutants for which NAAQs exist such as ozone, carbon monoxide, and nitrogen dioxide. Susan Shaheen, Randall Guensler & Francisca Mar, *Concurrent Air Quality Analysis Under the National Environmental Policy Act and Transportation/Air Quality Conformity*, Transportation Quarterly, Fall 1995, at 56. Transportation planning agencies must employ travel demand and vehicle emission rate models to ensure that transportation plans and regionally significant projects contained in plans such as the I-93 project will not exceed emissions budgets established in the state's air quality management plan. *Id.* at 56. If a project is subject to a conformity determination, the proposing agency must demonstrate that the project will not cause or contribute to any new violations of air quality standards, exacerbate existing violations, or interfere with the timely attainment or required interim emissions reductions necessary for attainment. See generally Conservation Law Found., 24 F.3d at 1477 (describing conformity requirements); Shaheen, Guensler &

the rule, the Four Lane Alternative was included in the state's Transportation Improvement Plan, which was reviewed by EPA and approved by the United States Department of Transportation pursuant to the conformity process. AR 21573. As a result, the FEIS concluded that "a regional analysis outside of that completed for the conformity determination is not necessary."

Id.

With respect to the local analysis, Defendants calculated maximum carbon monoxide concentrations at receptor locations for each intersection using then-current (1997) traffic conditions, as well as estimated conditions for the project's expected year of completion (2010) and the design year (2020) both with and without the proposed widening. AR 21793-97. The local analysis predicted that carbon monoxide concentrations for both the Four Lane and No Action Alternatives would be below NAAQs for carbon monoxide. AR 21801. Defendants did not take traffic generated by the Delphi Panel's population growth forecasts into account when they made their air quality predictions. AR 21793-21800.

Mar at 60.

The FEIS analyzed the project's effects on water quality by assessing impacts to surface water, AR 21802-38, aquatic life, AR 21838-48, groundwater, AR 21849-66, and flood plains, AR 21866-99. Notably, Defendants studied the potential effects of additional sodium and chloride that could be released into area waters due to the increased level of deicing required to maintain additional highway lanes. AR 21810. To document existing chloride concentrations, the analysis consisted of extensive sampling of fourteen streams during the 2002-2003 winter season. AR 21811. The data indicated that under the current conditions, chloride concentrations during the winter months may occasionally exceed acceptable levels in several streams. AR 21593. However, in general, the data revealed that few streams appeared to consistently have much higher chloride concentrations downstream from I-93 relative to upstream concentrations. AR 21592. Thus, Defendants reasoned that, with the exception of Dinsmore Brook,¹⁴

¹⁴ Dinsmore Brook has two branches, with the main branch originating about one mile northeast of Exit 3 and flowing through the Exit 3 Interchange area into Cobbetts Pond. AR 21586. The other smaller branch originates just north of Exit 3 within the median of I-93. The entire watershed area of Dinsmore Brook is estimated to be about 200 acres in size and includes about one mile of the I-93 Roadway. AR 21586.

these elevated concentrations appeared to be influenced more by upstream sources as opposed to I-93. AR 21593. These upstream sources included salts used in water softening treatment systems, road salt used and stored in open piles on commercial parking lots, and road salt applied to municipal roadways. Id.

The FEIS also described an analysis that NHDOT conducted to estimate the future potential concentrations of chloride and sodium in streams attributable to I-93, both under the No Action Alternative and the Four Lane Alternative. AR 21811. The analysis indicated that under the Four Lane Alternative, future chloride concentrations could exceed acceptable levels in four streams: a tributary to Harris Brook, the south and north tributaries to Canobie Lake, and Dinsmore Brook.¹⁵ AR 21830. Defendants noted that Policy Brook currently has elevated chloride levels and a predicted future concentration that

¹⁵ The tributary to Harris Brook is a small tributary with a watershed of about 330 acres that runs along the west side of I-93 for about 3,500 feet before emptying into Harris Brook, which is located south of the Massachusetts state line. AR 21583-84. The south tributary to Canobie Lake is a small stream that originates just west of I-93 with a 165-acre watershed that includes about 2,000 feet of the existing I-93 roadway. AR 21585. The north tributary to Canobie Lake is similar in size to the south tributary, with a 160-acre watershed that covers 2,500 feet of the existing I-93 roadway. AR 21586.

approaches the maximum acceptable level.¹⁶ AR 21830.

The FEIS noted that the I-93 project will include extensive mitigation measures, including as many as fifty different extended detention basins and twenty-four grass swales to address water quality issues. AR 21831. In addition to the basins and swales, the FEIS described NHDOT's plans to institute enhanced maintenance measures and use technology to give maintenance staff real-time pavement temperature and moisture data in order to prevent unnecessary salt application, and to use salt brine--a mixture of water and salt--which contains twenty to twenty-five percent of the salt typically applied to a highway at the beginning of a storm, yet more efficiently prevents the build up of ice and snow on asphalt. AR 21833-34. The FEIS also described NHDOT's decision to participate in a Total Maximum Daily Load ("TMDL") study to evaluate and manage the various sources of chloride pollution in the affected watersheds.¹⁷ AR

¹⁶ Policy Brook flows parallel to the east side of I-93 within 500 feet of the northbound lane for about one mile before it empties into the Spicket River just north of the Massachusetts state line and encompasses a drainage area of about 3,500 acres. AR 21584.

¹⁷ "A TMDL is a specification of the maximum amount of a particular pollutant that can pass through a waterbody each day

21836. Finally, the FEIS noted that NHDOT will be required to obtain a Section 401 water quality certification¹⁸ from the state and a Section 404 wetlands permit¹⁹ from the United States Army Corps of Engineers in order to construct the I-93 project. AR

without water quality standards being violated." Sierra Club, Inc. v. Leavitt, 488 F.3d 904, 908 (11th Cir. 2007) (citations and internal quotation marks omitted). "States must establish a TMDL for every pollutant that prevents or is expected to prevent a waterbody from attaining applicable water quality standards." Id. (citing 40 C.F.R. § 130.7(c)(1)(ii)). "Once a TMDL is established, the state (as well as the federal government) strives to decrease the amount of the pollutant to which that TMDL applies so that the TMDL is not exceeded." Id.

¹⁸ Section 401 of the Clean Water Act states in pertinent part: "Any applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate . . . that any such discharge will comply with the applicable provisions of sections 1311, 1312, 1313, 1316, and 1317 of this title. . . . No license or permit shall be granted until the certification required by this section has been obtained or has been waived. . . . No license or permit shall be granted if certification has been denied by the State . . ." 33 U.S.C. § 1341.

¹⁹ Regulations promulgated under Section 404 of the Clean Water Act provide that "No discharge of dredged or fill material shall be permitted if it . . . [c]auses or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard . . ." 40 C.F.R. § 230.10.

21412.

With respect to effects on wildlife, Defendants investigated the entire Project Area for the purpose of documenting wildlife corridors and wildlife habitats of concern as well as locating threatened or endangered plant and animal species. AR 21643. As a result of the investigation, Defendants compiled a comprehensive list of wildlife species observed, listing both where they were observed and the way they were observed--i.e., auditory or visual observation. Id.

Defendants also conducted a survey during the winter and spring of 2003 to examine the distribution and abundance of New England cottontails--a species that the United States Fish and Wildlife Service is considering listing as threatened or endangered--and their habitat within the I-93 study corridor. AR 21652. The study included an intensive search for all suitable habitats along the Project Area that involved track inventories, livetraps, and DNA analysis of fecal pellets. Id. Defendants found that the area immediately adjacent to I-93 contains few sites that are suitable habitat for New England cottontails. Id. Additionally, Defendants found no New England cottontails on any of the sites along the project corridor or mitigation sites. Id.

The study only identified New England cottontails on one site, which is located north of the Project Area. Id.

The FEIS also considered the indirect effects of the induced population growth forecast by the Delphi Panel on land use, AR 21960-87, surface water, AR 21831, groundwater, AR 21863-64, flood plains, AR 21871, wetlands, AR 21891, and wildlife, AR 21918. As discussed above, the panel projected population and employment growth for each city and town in the Project Area. AR 21966. Defendants then used this data to identify the extent of residential and commercial development that could be expected in the affected communities as a result of anticipated population growth. AR 21969-87. Defendants further explained that, for the most part, they could offer only a qualitative assessment of the environmental effects of induced growth because such environmental effects would depend to a great extent on local land use regulations and decisionmaking. AR 21831, 21863, 21880, 21918.

3. Traffic Sensitivity Analysis

Following publication of the FEIS, Defendants continued to receive comments from members of the public and other federal and state resource agencies. Some of the commenters expressed

concern as to whether the Delphi Panel's population and employment forecasts had been properly accounted for in Defendants' traffic projections. AR 23608-09. In response, FHWA undertook a Traffic Sensitivity Analysis ("TSA"), which attempted to make alternative traffic projections using the Delphi Panel's population growth forecasts. AR 26442-26450. The TSA was not released for public comment. However, it was later referenced by Defendants in their responses to public comments on the FEIS. AR 26951.

The TSA described the population growth forecast that Defendants had used in developing the traffic projections disclosed in the FEIS and compared that forecast with the Delphi Panel's population growth forecasts. AR 26445. The comparison established that the Delphi Panel's baseline forecast for the twenty-nine New Hampshire communities exceeded the forecast Defendants had used in preparing the FEIS by 51,457 people, or approximately twelve percent. Id. It also noted that the Delphi Panel's combined forecasts of baseline population growth and induced population growth for the twenty-nine New Hampshire communities exceeded Defendants' original population growth forecast by 86,774 people, or approximately twenty percent. Id.

When the Delphi Panel's population forecast was incorporated into the Statewide Model, the TSA demonstrated that the panel's population forecast produced increases in AADT and Design Hour traffic volumes of nearly thirty percent at all segments of I-93 south of Exit 4. AR 26448. This analysis revealed that the changes in traffic would alter the predicted Level of Service during the Design Hour in 2020 from LOS E to LOS F south of Exit 1, from LOS D to LOS E between Exit 2 and Exit 1, from LOS C to LOS E between Exit 3 and Exit 2, and from LOS B to LOS C between Exit 3 and Exit 4. Id.

The TSA also examined the effect of the Delphi Panel's higher population growth forecast on Defendants' decision to exclude Rail from the Alternatives analysis. This examination revealed that the use of the Delphi Panel's population forecast produced only modest changes in Peak Period vehicle reductions on I-93 with none of the reductions occurring within the Peak Hour.²⁰ AR 26449.

²⁰ The TSA states that no vehicle reductions would occur during the Design Hour but the parties agree that this statement actually refers to the Peak Hour.

D. Record of Decision

On June 28, 2005 FHWA issued a ROD approving the Four Lane Alternative. AR 26912-58. In the ROD, FHWA described the Four Lane Alternative as the "Environmentally Preferred Alternative" because it "best balances the need to provide safe and efficient transportation with social, economic, and natural environment concerns." AR 26913.

The Four Lane Alternative consists of four lanes in each direction--northbound and southbound--beginning at the Massachusetts state line and extending 19.8 miles north through Salem, Windham, Derry, and Londonderry into Manchester, ending just north of the I-93/I-293 interchange. AR 26914. In addition to the construction of additional lanes, the Four Lane Alternative consists of improvements to the five existing interchanges along the corridor. Id. To minimize environmental harm, the ROD incorporated certain "commitments" made in the FEIS. These commitments include, among other things, the construction of new park-and-ride facilities to enhance ride-sharing opportunities and the implementation of the detention basins and grass swales discussed above to treat water runoff from the highway. AR 26920, 26922.

Additionally, to further address the chloride pollution issue and comply with water quality standards, the ROD included a commitment to employ an “adaptive management approach” that enables the I-93 project to address current transportation and safety needs without causing or contributing to water quality violations. AR 26914. The core component of this approach, according to the ROD, is to maintain salt usage at existing levels. Id. As the selected alternative entails maintenance of additional lanes on I-93 during the winter season, FHWA noted that a reduction in salt usage would be necessary. Id. To this end, Defendants developed a multi-faceted strategy to reduce salt usage that includes the technological solutions discussed above and, if necessary, implementing the proposed project incrementally by building the full footprint for the Four Lane Alternative, but paving and operating the highway only as a three lane facility until chloride pollution issues are addressed to the satisfaction of NHDES. AR 26914-15.

III. STANDARD OF REVIEW

A. Administrative Procedure Act

Neither NEPA nor FAHA provide their own standards of review.

Instead, the appropriate scope of review for claims under both statutes is the standard set forth in the Administrative Procedure Act ("APA"). See Dubois, 102 F.3d at 1284. Pursuant to the APA, "[t]he reviewing court shall . . . hold unlawful and set aside agency action, findings, and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A).

A court reviewing agency action under the APA's "arbitrary and capricious" standard must "determine whether the agency has considered the relevant factors and articulated a rational connection between the facts found and the choice made." Dubois, 102 F.3d at 1284 (emphasis, citations, and internal quotation marks omitted). "If the agency decision was based on a consideration of the relevant factors and there has not been a clear error of judgment, then the agency decision was not arbitrary or capricious." Id. (citations and internal quotation marks omitted). Although the APA standard of review is narrow and highly deferential, "it is not a rubber stamp." Id. at 1285. Rather, "the [reviewing] court must undertake a thorough, probing, in-depth review and a searching and careful inquiry into the record." Id. (citation and internal quotation marks

omitted). The “reviewing court . . . may not supply a reasoned basis for [an] agency's action that the agency itself has not given.” Id. (citations and internal quotation marks omitted).

B. Summary Judgment

“[The] rubric [of summary judgment review] has a special twist in the administrative law context.” Associated Fisheries of Me., Inc. v. Daley, 127 F.3d 104, 109 (1st Cir. 1997). As discussed above, “where the APA standard obtains, a court may set aside an administrative action only if that action is arbitrary, capricious, or otherwise contrary to law.” Id. Thus, a reviewing court’s role in a case governed by the APA is “not to resolve contested fact questions which may exist in the underlying administrative record,” but rather to “determine the legal question of whether the agency’s action was arbitrary and capricious.” See Gilbert Equip. Co., Inc. v. Higgins, 709 F. Supp. 1071, 1077 (S.D. Ala. 1989), aff’d 894 F.2d 412 (11th Cir. 1990). In short, a reviewing court “must look to see if the agency decision, in the context of the record, is too unreasonable (given its statutory and factual context) for the law to permit it to stand.” Sierra Club, 976 F.2d at 769. It is with this framework in mind that I conduct my analysis.

IV. ANALYSIS

CLF has launched a multifaceted attack on Defendants' decision to proceed with the Four Lane Alternative. Its principal arguments fall into three broad categories. First, it argues that Defendants violated NEPA by excluding rail as a possible alternative during the scoping process. Next, it contends that Defendants failed to properly assess the direct effects of the I-93 project on air quality, water quality, and wildlife. CLF then argues that Defendants based the FEIS on inaccurate traffic projections that failed to account for additional traffic projected by their experts and the resulting indirect environmental effects that the additional traffic will produce.

CLF also presents several less well-developed arguments that are difficult to categorize. Among these are its claim that the Four Lane Alternative violates FAHA because it will not produce a large enough reduction in traffic congestion to satisfy NHDOT's highway design standards. I address each category of arguments in turn.

A. Rail As An Alternative To Highway Expansion

CLF makes several distinct arguments in support of its assertion that Defendants improperly excluded rail as an alternative during the scoping process. First, CLF argues that the Defendants' decision to exclude rail was tainted by improper bias. Second, CLF contends that Defendants relied on flawed assumptions and uncoordinated, piecemeal planning to eliminate rail from consideration. Third, according to CLF, Defendants avoided their duty to assess rail through an agreement with the EPA that they subsequently breached. Finally, CLF argues that Defendants improperly treated rail as a "stand-alone alternative."

1. Prejudgment

CLF first argues that Defendants' decision to exclude rail as an alternative during the scoping process was fatally flawed because NHDOT began the process with an improper bias against rail service as an alternative to highway expansion. In support of this position, CLF points to statements made by NHDOT officials before rail ridership numbers were projected and before the publication of the RAER, which essentially indicated that

widening I-93 was their preferred alternative.²¹ CLF argues that NHDOT's prejudgment was so pervasive that its subsequent evaluation of rail was "mere window dressing" rather than the objective, rigorous analysis required by NEPA. I am unpersuaded by this argument.

While I can envision circumstances in which prejudgment could taint the NEPA review process, the record in this case reveals, at most, that NHDOT began the process with the view that highway expansion was the best way to address traffic congestion and safety issues on I-93. Courts that have addressed this issue have recognized that evidence that an agency preferred a particular alternative from the outset of the NEPA process does not, by itself, violate NEPA. Envtl. Def. Fund, Inc. v. U.S. Army Corps of Eng'rs, 492 F.2d 1123, 1129 (5th Cir 1974); Envtl. Def. Fund, Inc. v. U.S. Army Corps of Eng'rs, 470 F.2d 289, 296

²¹ According to CLF, the "most compelling evidence of NHDOT's prejudgment against rail" is a statement made by NHDOT official Jeff Brillhart during an exchange with an EPA official: "[I]f induced travel means that our [2020 traffic projections] are low, I suppose the inference is we need to do more in terms of widening the highway." AR 6486. CLF points to additional, similar statements as evidence of NHDOT's prejudgment of rail in its memorandum of law in support of its motion for summary judgment. See Doc. No. 57 at 13, n.5.

(8th Cir. 1972); Seattle Audubon Soc'y v. Lyons, 871 F. Supp. 1291, 1318 (W.D. Wash. 1994). This is particularly true in cases such as the present one, in which a state agency that is seeking approval for a major federal action is actively involved in the preparation of the EIS. As one commentator has explained in discussing this issue:

Bad faith is not proven by showing that an agency was committed to a project before it initiated its environmental study, promoted the project by speeches or letters while environmental studies were underway, used data provided by an interested party, refused to change its position after preparing an impact statement, or decorated the EIS with "rhapsodic prose." Bad faith usually is reserved in the decisions to describe conduct that would amount to a flagrant violation of NEPA's procedural provisions that would be readily reviewable in court--fraud in the preparation of a statement, outright refusal to comply, or a contemptuous effort evincing a "callous disregard" of environmental consequences.

William H. Rodgers, Environmental Law, 867-68 (2nd Ed. 1994).

CLF has failed to show improper prejudgment by NHDOT. To the contrary, the Administrative Record demonstrates that Defendants undertook a rigorous, objective analysis of rail, including three separate studies concerning rail and other mode options, before eliminating rail from further detailed consideration: (1) the Scoping Report, which examined the

condition of existing railroad facilities, the existing railroad rights of way, and identified potential constraints to providing passenger rail service, AR 3926-4025; (2) the RAER, which evaluated three separate passenger rail corridors in southern New Hampshire by summarizing the infrastructure each would require and providing ridership and revenue projections, AR 6777-7098; and (3) the Rationale Report, which considered possible alternatives at a conceptual level. AR 8242-8437. CLF has pointed to no evidence of bad faith in the conduct of these studies or in Defendants' subsequent analysis of the results. Thus, CLF's prejudgment argument fails.

2. Flawed Assumptions and Uncoordinated Planning

CLF next argues that Defendants' decision to eliminate rail service from further consideration was based on flawed assumptions and uncoordinated planning. With respect to its flawed assumptions argument, CLF contends that the rail ridership projections in the RAER--which provided the basis for Defendants' decision in the Rationale Report--were inaccurately low because they relied on two flawed assumptions: (1) a \$0.20 per mile cost of driving, and (2) a \$5.00 average daily parking cost in downtown Boston. AR 7022. I am unpersuaded by CLF's arguments.

Although these assumptions might seem arbitrarily low at first blush, Defendants explained in the FEIS why they relied on the assumptions. AR 22679-81 (responding to CLF's DEIS comments regarding the two assumptions).²² With respect to automobile operating costs, Defendants based the cost-per-mile figure on the marginal cost of operating a vehicle for commuting rather than the total cost of vehicle ownership and maintenance. AR 22680. This figure was appropriate, Defendants explained, because they did not reasonably expect rail service to substantially reduce the number of required vehicles per household because most residents will need to use vehicles to get to rail park-and-ride facilities as well as for other trips such as shopping, recreation, or transporting children to school or daycare. Id. Regarding parking costs, Defendants explained that the \$5.00 per day parking cost assumption represents the average cost to all commuters driving to Boston on a regular basis. AR 22679. These commuters include those whose parking is partially or totally paid for by employers, those who park in less expensive lots in

²² Defendants' consulting firm also explained the basis of the parking cost assumption in a September 14, 2000 memorandum to NHDOT. AR 5957.

South Boston, those who receive lower rates by paying for parking on a monthly basis, and those who carpool and share the costs of parking. Id. Consequently, Defendants explained, the average cost paid by all commuters is considerably less than the daily rates posted at Boston garage facilities. Id.

Moreover, Defendants conducted an additional sensitivity test as part of the FEIS which tripled the daily parking cost assumption to \$15. AR 26825. The results of the test demonstrated that even under the rail alternative which yielded the highest ridership, \$15 daily parking costs would only divert approximately 360 additional vehicles from I-93, and that this diversion would generally take place in the off-peak hours rather than the Design Hour. Id. Defendants reasonably concluded that this diversion was insufficient to obviate the need to widen I-93. Id.

Because Defendants articulated a rational explanation for the vehicle operation and parking cost assumptions in the Administrative Record, I decline to conclude that Defendants' determination to exclude rail from further consideration was arbitrary and capricious due to their reliance on these assumptions.

CLF also argues that Defendants' rail ridership projections were flawed because they were the result of segmented, piecemeal planning--i.e. a lack of coordination with Massachusetts. Specifically, CLF attacks Defendants' reliance on a "transit impedance" assumption that rail service would terminate in Lawrence, Massachusetts, requiring passengers traveling to Boston to change trains. AR 7022. If Defendants had coordinated with Massachusetts in developing the RAER, CLF argues, they could have learned of additional rail options in Massachusetts that could eliminate the need for passengers to change trains in Lawrence. I reject this argument.

As the First Circuit has explained, "alternatives cannot be studied *Ad infinitum*" See Seacoast Anti-Pollution League v. Nuclear Regulatory Comm'n, 598 F.2d 1221, 1232-33 (1st Cir. 1979). Here, the Administrative Record shows that Defendants conducted a thorough analysis of four rail options on three different lines, including a newly constructed line that would run in the median of I-93. CLF has not persuaded me that this analysis was deficient. To be sure, extensive coordination with Massachusetts during Defendants' evaluation of rail alternatives phase *could* have yielded other viable rail options, but in light

of the fact that Defendants studied a fair number of rail alternatives, I decline to hold that the absence of such coordination runs afoul of NEPA's requirements.²³

3. Breach of EPA Agreement

CLF argues that Defendants improperly avoided their duty to assess rail as part of the EIS alternatives analysis by entering into an agreement with the EPA and later breaching that agreement. The agreement CLF refers to is described in an EPA "sign-off" letter executed on September 21, 2001 during the

²³ CLF also argues that Defendants' assessment of rail alternatives was flawed because it failed to consider potential benefits of rail such as reducing pollution, reducing vehicle-miles-of-travel, providing transportation choice, and supporting more compact, less sprawling development patterns. CLF contends that Defendants' decision to focus only on the extent to which rail service could eliminate the need to widen I-93 rather than on these potential benefits is further evidence of their prejudgment of the project and their failure to perform a rigorous alternatives analysis. This argument is unpersuasive. The project's purpose was to improve transportation efficiency and safety on I-93. While rail has many beneficial environmental effects when compared to automobile use, these benefits did not obligate Defendants to include rail as an alternative in the FEIS if they reasonably concluded, as they did in this case, that rail would not produce enough improvement in traffic congestion to eliminate the need to widen I-93. Ass'ns Working for Avora's Rural Env't v. Colo. Dep't of Transp., 153 F.3d 1122, 1130 (10th Cir. 1998) ("it is clear that an agency need not independently evaluate alternatives it determines in good faith to be ineffective as a means to achieving the desired ends").

Environmental Streamlining Process. AR 10829-31. In the letter, the EPA agreed not to recommend that the rail alternative be studied in detail during the EIS process. Id. The EPA was clear, though, that this agreement was contingent upon NHDOT committing to conduct--and to eventually implement the results of--a bi-state transit study with Massachusetts that would analyze future rail alternatives in the I-93 corridor. Id.

CLF misapprehends the effect of this "sign-off" letter. Although the EPA participated in the Streamlining Process, Defendants, not the EPA, "bore the ultimate statutory responsibility for actually preparing the environmental impact statement." Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 201 (D.C. Cir. 1991) (citation omitted). Accordingly, Defendants do not "have to follow the EPA's comments slavishly -- [Defendants] just [have] to take them seriously." Id. Thus, the EPA had no power to "relieve" the Defendants of their statutory duty to assess alternatives. See id. A lead agency cannot "contract away" its NEPA duties during an environmental streamlining process. See id. The issue here is simply whether Defendants fulfilled their duties under NEPA--i.e., whether Defendants took the EPA's pre- and post-EIS comments seriously

and responded to them reasonably. See id.

A review of the Administrative Record yields no indication that Defendants did not take the EPA's suggestions seriously. The Record shows--as CLF points out--that Defendants responded to the EPA's pre-EIS concerns about future rail alternatives by committing to undertake a bi-state transit study with Massachusetts. This study is currently underway. AR 25951-53. While the study may not have commenced by the original date contemplated in the FEIS, and the EPA expressed concerns about this delay in its comments to both the DEIS and the FEIS, I decline to conclude that delay in beginning the study proves that Defendants did not take the EPA's comments seriously or that they otherwise violated NEPA.

4. Treating Rail as a "Stand-alone" Alternative

CLF next argues that Defendants improperly treated rail as a "stand-alone" alternative rather than as an alternative that could be adopted in combination with widening the highway. I disagree.

Defendants considered a wide range of alternatives including: (1) no action; (2) implementation of Transportation

System Management²⁴ actions such as modifying entrance and exit ramps, installing signals at entrance ramps, permitting shoulder lane use, and a number of technological solutions known as Intelligent Transportation Systems ("ITS");²⁵ (3) numerous combinations of highway widening including widening individual

²⁴ Transportation Systems Management ("TSM") refers to short range, moderate cost measures aimed at reducing congestion and enhancing safety on an existing transportation system or roadway network. AR 21430. TSM includes such measures as adding traffic signals, modifying traffic signal timing, adding or extending turn lanes, improving acceleration and deceleration lanes, restriping of existing pavement markings, and the incorporation of turn restrictions. Id.

²⁵ ITS are applications of information processing, communications, control, and electronics to improve the efficiency and/or safety of a transportation system such as a highway. AR 21439. Several ITS initiatives are currently underway in New Hampshire. Id. These include a system of electronic toll collection and a cooperative program being undertaken by New Hampshire, Maine, and Vermont to develop a regional traveler and tourism information system comprising databases containing construction, incident, accident, delay, tourism event information, weather conditions, and a system providing for public access to these information databases on the Internet. AR 21439-40. Additional ITS technology contemplated by Defendants includes information collection tools such as additional traffic flow counters, road-weather information systems, real-time vehicle location systems to track bus or maintenance vehicle progress, video cameras, and cellular phone reports from consumer volunteers, as well as information dissemination tools such as changeable message signs, highway advisory radio, Internet, cable TV, and telephone information systems. AR 21443.

segments or groups of segments to three or four lanes; (4) implementation of transportation demand management strategies such as employer-sponsored or subsidized transportation programs and congestion pricing--i.e. construction of toll facilities; (5) providing alternative modes of transportation such as passenger rail service on three potential rail corridors, bus service, park-and-ride facilities, high occupancy vehicle lanes; and (6) numerous combinations of the first five alternatives. AR 21428-21513. With respect to combinations of alternatives, Defendants considered various combinations of different numbers of general purpose lanes with HOV lanes, bus service, and rail service. AR 21512. The record in this case demonstrates that CLF is simply wrong in contending that Defendants improperly treated rail as a stand-alone alternative.

B. Direct Environmental Effects of Highway Expansion

CLF next argues that Defendants violated NEPA by failing to adequately assess the effects of the I-93 project and its alternatives in three areas: air quality, water quality, and wildlife. Under NEPA, Defendants were required to "consider every significant aspect of the environmental impact" of the I-93 project. See Vt. Yankee Nuclear Power Corp. v. Natural Res. Def.

Council, 435 U.S. 519, 553 (1978). In this section, I consider whether Defendants have fulfilled this duty.

1. Air Quality

a. Failure to Assess Impacts of Mobile Source Air Toxics

CLF argues that Defendants violated NEPA by failing to assess the public health and environmental effects of certain pollutants known as mobile-source air toxics ("MSATs").²⁶

The Administrative Record reveals that Defendants based their analysis of air quality in the FEIS on the EPA's then-current regulatory vehicle emissions model, which did not have the capability to predict select MSAT emissions. AR 26943. The record also shows that the EPA did not announce the availability of a model that could predict these MSAT emissions--MOBILE6.2--until May 2004, after the FEIS had been published. Id. Nevertheless, despite the belated availability of MOBILE6.2, and in response to comments on the DEIS and FEIS regarding MSATs, FHWA used the new model to conduct an MSATs analysis before it

²⁶ MSATs are emitted by motor vehicles. They include the pollutants acetaldehyde, acrolein, benzene, 1,3-butadiene, diesel particulate matter, and formaldehyde, commonly referred to as "priority MSATs". AR 26943.

issued the ROD. AR 26679. The analysis compared the I-93 project with a similar hypothetical highway improvement project. Id. Using this approach, together with data on the I-93 project, FHWA estimated that MSATs produced on the section of I-93 in the Project Area will be reduced by approximately eighty percent by 2020, regardless of whether I-93 is widened or left unchanged.²⁷ AR 26680-81. FHWA concluded that anticipated reductions in MSAT emissions would be comparable under either alternative because any increases in MSAT emissions produced by the additional vehicles that will travel along the newly widened highway under the Four Lane Alternative would be offset by the reductions in emissions resulting from anticipated improvements in the flow of traffic. Id.

CLF faults FHWA's MSAT analysis both because FHWA did not perform the analysis until after the FEIS was released and because FHWA allegedly did not base its analysis on "project specific" data. Neither argument has merit. The timing of the analysis cannot be seriously questioned because MOBILE6.2 did not

²⁷ The projected reductions in MSAT emissions are expected to result from new nationwide mobile-source control programs such as reformulated gasoline and low emission vehicle standards. AR 26680-81.

become available for use until after the FEIS was released.²⁸ AR 26943. Second, while FHWA used a hypothetical highway improvement project similar to I-93 in their analysis, they also clearly considered project specific data for the I-93 project when estimating MSAT emissions under the No Action and Four Lane Alternatives. Supplemental Record ("SR") 53, AR 26377. In any event, FHWA did not even adopt interim guidance requiring the use of project specific data in the analysis of MSAT emissions until after the ROD was issued. SR 678.

b. Other Air Quality Effects

CLF also takes Defendants to task for failing to separately assess the impact of the Four Lane Alternative on air quality in Massachusetts as a part of its analysis of the project's regional air quality effects. The short answer to CLF's argument--which is warranted because CLF has presented this argument in only a skeletal form--is that the FEIS documents the fact that Defendants carefully considered the regional air quality effects of the Four Lane Alternative in the manner required by the Clean

²⁸ I do not consider whether the MSAT analysis qualifies as significant new information that should have been disclosed in an SEIS because CLF does not claim that an SEIS was required for this purpose.

Air Act's Conformity Rule. It was not arbitrary and capricious for the Defendants to assess regional air quality impacts under the rule without also separately analyzing air quality impacts in Massachusetts. See Shaheen, Guensler & Mar at 63 (explaining that "conformity analysis should more than satisfy NEPA air quality requirements").

2. Water quality

CLF next argues that Defendants failed to properly address the effects of the I-93 project on water quality. CLF first claims that Defendants used the wrong water quality standard for chloride pollution in the FEIS and the ROD because both documents incorrectly assume that Defendants may proceed with the Four Lane Alternative without violating the Clean Water Act as long as the proposed lane widening does not result in additional chloride loading into impaired waterbodies. Next, it claims that the ROD is invalid because it breaches Defendants' alleged commitments to participate in a regional TMDL study and to operate I-93 as a three lane facility until chloride pollution issues are properly addressed.

a. Clean Water Act Standards

CLF argues that § 401 and § 404 of the Clean Water Act each

require Defendants to refrain from expanding I-93 unless they can demonstrate that total chloride discharges from the expanded I-93--including both the existing four lanes and the four proposed additional lanes--will be reduced to the point that all affected waterbodies will meet state and federal water quality standards for chloride.

CLF cites no statutory, regulatory, or judicial authority for its novel interpretation of the Clean Water Act, and its theory is especially problematic in this case because the Administrative Record establishes that most of the existing chloride pollution in the region is caused by sources that are unrelated to I-93. AR 21593. I need not evaluate CLF's Clean Water Act arguments on their merits, however, because I lack jurisdiction to consider such claims in a NEPA action. NHDOT has obtained § 401 Water Quality Certification from the state. Challenges to that certification ordinarily must be brought in state court. Roosevelt Campobello Int'l Park Comm'n v. U.S. Evt'l Prot. Agency, 884 F.2d 1041, 1056 (1st Cir. 1982). Although there are limited circumstances in which a plaintiff could challenge a state's § 401 certification in federal court, CLF cannot use its NEPA claim to present such a challenge. See

Dubois, 102 F.3d at 1300-01. NHDOT has also obtained a § 404 permit from the Army Corps of Engineers. CLF remains free to challenge that permit by bringing a claim under the Clean Water Act. Because it has not brought such a claim in this case, I have no jurisdiction to entertain its arguments on this point. City of Olmstead Falls, Ohio v. Fed. Aviation Admin., 292 F.3d 261, 273 (D.C. Cir. 2002).

b. TMDL Study

CLF claims that Defendants agreed in the FEIS that NHDOT would participate in a regional TMDL study to address the issue of chloride pollution. CLF also asserts that Defendants agreed in the ROD that NHDOT would pave and operate I-93 as a three-lane facility until the issue of chloride pollution is addressed to the satisfaction of NHDES. CLF then argues that Defendants have breached these commitments because NHDOT's § 401 water quality certificate does not obligate it to fulfill its commitments with respect to chloride contamination. I find no support in the record for this argument.

Defendants acknowledged in the FEIS that a TMDL study was needed to evaluate chloride pollution in regional watersheds. AR 21836. Specifically, Defendants anticipated that NHDES would

develop "a TMDL for chloride sources in the watersheds of any waterbody that is found to meet the state water quality standards for chloride." AR 21837. According to the FEIS, "the "TMDL [would] assess, on a regional basis, the relative contribution and effect of the various sources, including I-93, other state roads, municipal roads, private roads and commercial parking lots, septic and water softening systems as well as salt storage practices by local sources on these impaired waterbodies." Id. The FEIS further states that "NHDOT will participate in this regional study and work towards implementing, on state highways, the appropriate and practicable road salt management plans that may be developed." Id. In their response to comments on the FEIS, Defendants further stated:

[U]ntil water quality issues associated with additional chloride loadings are addressed regionally, the facility will initially be paved and operated as a six-lane facility (three lanes in each direction). The fourth lane would be completed and opened to traffic when there is agreement between NHDOT and the NHDES that new technology, best management practices, and/or other considerations are sufficient for the project to be completed in compliance with conditions placed on the Section 401 Water Quality Certification.

AR 26707. These commitments are carried forward in the ROD where

Defendants agreed both “to support NHDES in conducting TMDLs, for waterbodies in the corridor . . .” and to operate I-93 as a six-lane facility until NHDOT reaches an agreement with NHDES that “new technology, best management practices, and/or other considerations are sufficient for the project to be completed in compliance with conditions placed on the Section 401 Water Quality Certification” AR 26915. The only difference between the FEIS and the ROD with respect to the TMDL study is that the TMDL study described in the ROD was narrower in scope than that contemplated in the FEIS. AR 26915. Specifically, the ROD stated that NHDOT would participate in a “waterbody-specific”--as opposed to a regional--TMDL study. Id. CLF argues that this difference “unlawfully undermines the legitimacy of the NEPA process.” I disagree.

As discussed above, Defendants indicated in the FEIS that NHDES would develop a TMDL study and that NHDOT would participate in the study. An examination of the Administrative Record reveals that NHDES decided that a waterbody-specific TMDL study would be more appropriate given the high estimated cost of a regional TMDL study. AR 20985. Moreover, the TMDL study

described in the ROD includes the waterbodies most impacted by the runoff from I-93 and thus does not materially affect Defendants' commitment to address the issue of chloride pollution associated with the project. Id. Thus, I decline to hold that Defendants' statement in the ROD that NHDOT would participate in a narrower study was arbitrary and capricious or violated a commitment in the FEIS.

The § 401 Water Quality Certification issued in this case also conforms to the commitments that Defendants made in the FEIS and ROD. In particular, it requires NHDOT to participate in a TMDL study for surface waters impaired by chloride pollution, and specifies that those studies "shall be designed to assess and quantify sources of chloride loads from all sources to watersheds in the area affected by the activity," it bars highway expansion from contributing to additional chloride loading, and it requires NHDOT to operate I-93 as a six-lane facility until TMDLs and implementation plans are in place and chloride reductions are achieved in accordance with the plans. SR 892. Accordingly, the conditions placed on the § 401 Certification for the project are consistent with the Defendants' commitments in the FEIS and the ROD.

3. Wildlife

CLF next argues that Defendants failed to adequately assess impacts on wildlife because NHDOT improperly manipulated the NEPA process by influencing the formal DEIS comments that NH Fish & Game made to the DEIS.

In support of this argument, CLF first points to draft comments on the DEIS that Wildlife Ecologist William Ingham authored and circulated to the NH Fish & Game staff. AR 24487-89. Ingham voiced concerns regarding the adequacy of the DEIS's assessment of wildlife impacts. The comments were not incorporated into NH Fish & Game's formal comments on the DEIS. Rather, NH Fish & Game's formal DEIS comments stated, *inter alia*, that because the project involves only the widening of an existing highway, "fragmentation of wildlife habitat is not an issue." AR 22335.

CLF claims that NH Fish & Game's decision not to include the concerns raised in the Ingham draft was "greatly influenced" by communications between NHDOT and NH Fish & Game Acting Executive Director Bill Bartlett regarding Ingham's draft comments. AR 24137 (stating that "NHDOT did provide . . . Bill Bartlett comments on [the Ingham draft comments]"). According to CLF,

NHDOT's communication with Bartlett constituted improper manipulation of the NEPA process because it undermined the legitimacy of an independent agency's comments on the DEIS. The only authority CLF cites in support of its position is the basic principle that "where comments from responsible experts or sister agencies disclose new or conflicting data or opinions that cause concern that the agency may not have fully evaluated the project and its alternatives, these comments may not simply be ignored. There must be good faith, reasoned analysis in response." Commonwealth of Mass. et al. v. Andrus et al., 594 F.2d 872, 884 (1st Cir. 1979) (citation omitted).

I do not take issue with this fundamental principle. However, CLF has presented no authority to support its contention that an agency such as FHWA must not only consider formal independent agency comments in the FEIS, but must also examine internal staff-level drafts of those comments. Nor does CLF point to any authority suggesting that NHDOT acted improperly by communicating with NH Fish & Game with respect to its DEIS comments. To the contrary, NEPA encourages cooperation and consultation with independent agencies throughout the process. See, e.g., 40 C.F.R. 1500.5(b); 1501.1(b). To the extent CLF

asserts that these communications were made in bad faith, it has not identified sufficient evidence to support its assertion.

C. Traffic Projections and the Environmental Effects of Additional Traffic

CLF faults Defendants for relying exclusively on an outdated OEP population growth forecast in preparing their traffic projections rather than also considering the traffic-generating effects of the Delphi Panel's baseline and induced population growth forecasts. As I will explain, I ultimately conclude that Defendants erred in failing to account for both forecasts, that the omitted information was significant, and that Defendants' errors were not harmless.

1. Baseline Population Growth

The Administrative Record reveals that Defendants based the traffic projections they disclosed in the FEIS on an OEP population growth forecast derived from 1990 Census data. AR 26442-43. Inexplicably, although Defendants gave the Delphi panelists a more recent and substantially higher OEP forecast well before Defendants issued the DEIS, they made no attempt to update their own traffic projections in either the DEIS or the FEIS to account for the revised OEP forecast. Nor did they

incorporate the Delphi Panel's somewhat higher baseline population growth forecast into their traffic projections even though it is apparent from the record that the baseline forecast was based to a significant extent on the revised OEP forecast.

Defendants have failed to explain their decision to rely on the outdated OEP population growth forecast rather than either the more recent OEP forecast given to the Delphi Panel or the Delphi Panel's baseline forecast. The OEP forecast given to the Delphi Panel is approximately ten percent higher than the original OEP forecast, and the Delphi Panel's baseline forecast is twelve percent higher than the original OEP forecast. Thus, Defendants are in no position to credibly claim that they relied on the original OEP forecast because the differences between the forecasts were inconsequential.

Nor can Defendants reasonably claim that they were entitled to rely on the outdated OEP forecast because the Delphi Panel's baseline forecast was unreasonably high. Defendants did not make such a claim at the time and even now they do not contend that the baseline forecast substantially overstates anticipated

population growth in the region.²⁹ Defendants have consistently claimed that OEP is the entity in the state with the greatest expertise in forecasting population growth. Moreover, the Delphi Panel's baseline forecast was based on a more recent OEP forecast, and it was the Defendants who commissioned the Delphi Panel. Having selected their experts, Defendants were not free to reject without explanation the most recent population forecasts prepared by the experts in favor of an earlier outdated forecast.³⁰

²⁹ Such a claim would be difficult to credibly make because, as the TSA acknowledges, the baseline forecast is within one percent of the OEP forecast that was in effect when the TSA was prepared. AR 26444.

³⁰ Defendants have sought to devalue the Delphi Panel's population growth forecasts because the panel expressed its results as blended averages rather than as consensus forecasts. I find this argument puzzling, particularly as it applies to the Panel's baseline population growth forecast. Delphi Panels have been used for many years in a variety of contexts and the National Research Council's Transportation Research Board has endorsed their use in transportation projects. Land Use Impacts of Transportation: A Guidebook, Transportation Research Board, NCHRP Report 423A (1999) at 27-35; see also Desk Reference for Estimating the Indirect Effect of Proposed Transportation Projects, Transportation Research Board, Report 466 (2002) at 72-73. Moreover, Defendants are the ones who commissioned the Delphi Panel report. If they were concerned that the use of blended averages was somehow unreliable, they could have chosen an alternative methodology. Finally, the close alignment between the panel's baseline forecast and the revised OEP forecast

Finally, it is important to bear in mind that Defendants were in possession of both the more recent OEP forecast and the Delphi Panel's baseline forecast well before they issued the DEIS.³¹ While NEPA does not require an agency to update its population forecasts whenever new forecasts become available, it ordinarily may not rely on outdated forecasts when it sets out to prepare an EIS even though more recent forecasts from the agency's own experts are readily available. Defendants' decision to do so here was error.

2. Induced Population Growth

CLF also argues that Defendants improperly failed to revise their traffic projections to account for the Delphi Panel's induced population growth forecast. Defendants respond primarily

reflected in the TSA calls this argument into doubt given Defendants' treatment of OEP forecasts as the gold standard when it comes to population forecasting.

³¹ Defendants were in possession of revised OEP population projections by June 29, 2001. AR 9731-32. The Administrative Record also demonstrates that the Delphi Panel published its final report containing its baseline population forecast on December 28, 2001 and then revised the report on January 22, 2002. AR 11750, 11760. Therefore, Defendants had both a revised OEP forecast and the Delphi Panel's baseline population forecast well before their September 13, 2002 publication of the DEIS and at least two years before they issued the FEIS on April 28, 2004.

by claiming that the panel's induced growth forecast is too speculative to be included in traffic projections.

a. Background

The idea that highway improvement can produce additional traffic, including traffic caused by induced population changes, is based on the basic economic theory of supply and demand: if highway improvement significantly reduces the cost of travel by making it more efficient, and the demand for travel is elastic, the improvement can be expected to produce more traffic. AR 5857 (a 2000 paper by Roland Nolan and Lewis Lem entitled Induced Travel: A Review of Recent Literature and the Implications for Transportation and Environmental Policy). This phenomenon, which is often referred to as "induced traffic"³² can include traffic diverted from other roads and other transportation modes, traffic that would otherwise not have occurred at all but for the improvement, and traffic produced by induced population growth. Nolan & Lem, AR 5861-62.

³² "Induced Traffic" is used in different ways in the professional literature. See generally Peter Hills, *What is Induced Traffic*, 23 *Transp. 5*, 5-16 (1996). I use the term to refer to additional traffic on an improved roadway at a given time that would not have been present if the improvement had not occurred.

The Administrative Record demonstrates that Defendants treated induced traffic from all sources, including induced population growth, as a real phenomenon that was foreseeable but difficult to reliably quantify. AR 8417. Defendants assumed when they developed the Statewide Model that the Four Lane Alternative would produce induced traffic on I-93 as a result of trip diversions and transportation mode shifts. AR 21783. Accordingly, their traffic projections are approximately seven percent higher on average for the Four Lane Alternative as compared to the No Action Alternative. Id. Defendants also used FHWA's Spreadsheet Model for Induced Travel Estimation ("SMITE") to estimate the total combined effect of induced traffic from all sources. AR 8421. In responding to comments on the DEIS, Defendants discussed their use of the SMITE spreadsheet and noted that the increase in vehicle-miles-traveled on I-93 as a result of induced traffic varied widely, ranging from seventeen to forty-one percent."³³ AR 22678.

³³ CLF presents a conclusory argument that Defendants erred in failing to account for induced traffic caused by sources other than trip diversions, transportation mode shifts, and induced population growth. I reject this argument, because I conclude that Defendants' discussion of the issue in the FEIS and their responses to public comments was adequate under the

Defendants also attempted to quantify the induced population growth that will result from the adoption of the Four Lane Alternative. Recognizing that existing quantitative and qualitative methods for forecasting induced population growth "all have their shortcomings," Defendants ultimately settled on the use of a Delphi Panel as the best available method for forecasting induced population growth. AR 8650. Although Defendants used the panel's induced growth forecast to evaluate the indirect effects of induced population growth on land use, AR 21960-21991, water quality, AR 21863-64, 21891-93, and wildlife, AR 21918, they made a conscious choice not to use the forecast to evaluate the traffic-generating effects of induced population growth on I-93, secondary roads, or air quality issues, AR 8419, AR 21800.

b. Analysis

Defendants cite several reasons to support their contention that the Delphi Panel's induced population growth forecast is too speculative to be used in traffic projections. First, although

circumstances.

Delphi Panels have been used in other transportation projects, the predictive validity of the Delphi process as a method for forecasting population growth has yet to be established. Second, although the idea that traffic improvements can produce population changes is sound, many different variables must be considered when quantifying induced population growth, and interactions among the relevant variables are extremely difficult to reliably assess. Third, although Delphi Panel forecasts can inform transportation planning when quantitative methods are unavailable, the Delphi process is entirely subjective and therefore a particular panel's forecast is ultimately no better than the quality of the data provided to the panelists and the reliability of their individual opinions. Finally, Defendants have expressed concern that the use of both the panel's induced growth forecast and its baseline forecast could potentially overstate the effect of induced population growth in the present case because the panel's baseline forecast was predicated on a revised OEP population growth forecast, and OEP presumably was cognizant of anticipated roadway improvement projects such as the

widening of I-93 when it prepared its forecast.³⁴

While I agree with Defendants that it is a mistake to assign talismanic significance to the Delphi Panel's induced population growth forecast, I cannot accept their more extreme position that they were free to entirely disregard the forecast when they prepared their traffic projections. Forecasts are always marked by a degree of uncertainty, yet NEPA often requires agencies to forecast uncertain events. See Dubois, 102 F.3d at 1286. An agency may not treat a foreseeable effect as nonexistent simply because the magnitude of the effect is difficult to quantify.

In the present case, Defendants used the same outdated OEP population growth forecast in their traffic projections for both the No Action Alternative and the Four Lane Alternative even

³⁴ I cannot find support for this last assertion in the Administrative Record. The widening of I-93 has long been a part of the state's ten-year Transportation Improvement Plan, see, e.g., N.H. Laws 1995, ch. 240; NH Laws 1998, ch. 306, and it is reasonable to assume that OEP was aware of the I-93 project when it prepared its population forecasts. Nevertheless, because Defendants used the same population forecasts for both the No Action Alternative and the Four Lane Alternative, and the record does not specifically explain whether and to what extent OEP included an allocation for induced population growth in its forecast, I cannot say whether the OEP forecast understates population growth under the Four Lane Alternative or overstates such growth under the No Action Alternative.

though commentators on the DEIS faulted Defendants for failing to modify their traffic projections to account for induced population growth forecast by the Delphi Panel. AR 22558-59. The traffic-generating effects of population changes were well understood by the Defendants as such effects can be projected through the use of the Statewide Model. Accordingly, such effects are among the least speculative effects of population growth. Defendants' willingness to consider the effects of induced population growth in other areas such as land use, water quality, and wildlife, where the effects of population growth are less well understood, belies Defendants' contention that the traffic-generating effects of induced population changes are too speculative to be considered in this case. Thus, having convened the Delphi Panel for the purpose of forecasting induced population growth, and having decided to rely upon the panel's induced growth forecast for certain purposes, Defendants were not free, at least without substantial additional explanation, to treat induced population growth as a non-existent factor in their traffic projections. Instead, Defendants should have performed the TSA, disclosed its results in the FEIS, and explained why the analysis did not affect their decision to proceed with the Four

Lane Alternative. Their failure to do so was error.

3. Significance

Defendants argue that they were under no obligation to disclose the effects of the Delphi Panel's forecasts on their traffic projections because the additional traffic that will result if the forecasts prove to be accurate is not significant. I disagree.

The TSA demonstrates that the use of the Delphi Panel's baseline and induced population growth forecasts increases the projected traffic for the Four Lane Alternative on all segments of I-93 south of Exit 4 by approximately thirty percent. AR 26448. This additional traffic changes the LOS projections for I-93 from LOS E to LOS F south of Exit 1, from LOS D to LOS E between Exit 1 and Exit 2, from LOS C to LOS E between Exit 2 and Exit 3, and from LOS B to LOS C between Exit 3 and Exit 4. AR 26448. Such changes in traffic volumes and Levels of Service can hardly be considered insubstantial.

Defendants respond by claiming that the additional traffic congestion that the TSA projects for the Four Lane Alternative is inconsequential even if it results in substantial increases in traffic volumes and unacceptable Levels of Service for certain

segments of I-93. Because any additional projected traffic that results from the use of the Delphi Panel's baseline forecast will also be experienced under the No Action Alternative, and any additional induced traffic that occurs under the Four Lane Alternative will still leave I-93 less congested than it would be under the No Action Alternative, Defendants argue that the TSA merely underscores the need for the project.³⁵ While this argument may well justify a decision to proceed with the Four Lane Alternative even if it is an imperfect solution to the traffic congestion problem on I-93, it cannot excuse a decision to withhold information from the public that leaves it with the mistaken impression that the selected alternative will be substantially more effective in achieving one of the project's

³⁵ Defendants also argue that the TSA's traffic projections are insignificant because Defendants acknowledged in the FEIS that they intended to proceed with the Four Lane Alternative even though it failed to produce a large enough improvement in traffic congestion to satisfy state highway design standards. This argument is a non-starter. The TSA establishes that projected traffic under the Delphi Panel's forecasts will be substantially worse than Defendants disclosed in the FEIS. Such information does not become insignificant simply because Defendants disclosed the fact that the Four Lane Alternative is a less-than-perfect solution to the traffic congestion problem on I-93 even under the substantially lower traffic projections disclosed in the FEIS.

two primary objectives than may actually be the case. Reliable information produced by the agency's own experts that casts doubt on the agency's statements concerning a selected alternative's effectiveness is not insignificant.

The additional traffic projected by the TSA is also significant because it will produce foreseeable indirect effects on secondary road traffic and air quality that Defendants failed to analyze in the FEIS. Defendants did a commendable job in convening the Delphi Panel and using its induced population growth forecast to evaluate the indirect effects of induced population growth on land use, surface water, ground water, wetlands, and wildlife.³⁶ However, Defendants made a conscious choice not to consider how, if at all, the traffic-generating effects of the Delphi Panel's population growth forecasts could affect either secondary road traffic or air quality. Because

³⁶ CLF claims that Defendants failed to undertake a sufficiently detailed analysis of the indirect effects of induced population growth on these subjects. I am unpersuaded by this argument. Defendants commented extensively on the effects of induced population growth on land use, water quality, and wildlife issues in the FEIS and adequately explained their reasonable conclusion that a more detailed analysis was not possible given their limited ability to predict precisely where population and employment changes will occur and how local land use regulations will affect any resulting development.

Defendants operated under the assumption that the induced population growth forecast by the Delphi Panel would not produce any additional traffic, they concluded that traffic congestion on secondary roads would be reduced under the Four Lane Alternative as a result of trip diversions onto the newly expanded highway. AR 21783. CLF's traffic consultant plausibly claims, however, that the traffic modeling Defendants used in preparing the TSA establishes that the induced population growth predicted by the Delphi Panel will produce enough additional traffic on secondary roads to more than offset any reduced traffic on secondary roads caused by trip diversions. Doc. No. 73, Attach. 3 (Declaration of Norman L. Marshall). This foreseeable effect of the Four Lane Alternative must be assessed by the Defendants in a manner that allows for public comment.

Defendants also failed to consider in the FEIS how the additional traffic that results from the use of the Delphi Panel's population growth forecasts will affect air quality issues. Because Defendants based their air quality analysis on traffic counts derived from the use of an outdated OEP population forecast that did not account for induced population growth, they did not consider how air quality will be affected by the

additional traffic that will result if the Delphi Panel's population growth forecasts are correct. Accordingly, they must revise their analysis to address the foreseeable air quality effects of the additional baseline and induced population growth forecast by the Delphi Panel.

For the reasons set forth above, the traffic-generating effects of the Delphi Panel's population growth forecasts qualifies as significant information under NEPA and Defendants' unexcused failure to disclose these effects in the FEIS was arbitrary and capricious.³⁷

4. Harmless Error

When an Article III court reviews a NEPA challenge under the APA, the law requires that "due account shall be taken of the rule of prejudicial error." 5 U.S.C. § 706. The First Circuit

³⁷ CLF argues that the FEIS also fails to account for the significant effect that the Delphi Panel's forecasts have on the viability of rail as an alternative to highway expansion. I am unpersuaded by this argument. The TSA plausibly demonstrates that rail will not produce enough trip diversions from I-93 to make rail a viable alternative to highway expansion. AR 26449. CLF has not produced sufficient evidence to call this conclusion into serious doubt. Accordingly, the Delphi Panel's population growth forecasts do not have a sufficient impact on Defendants' rail ridership projections to qualify the information as significant for this purpose.

has applied this rule to excuse harmless procedural violations of NEPA, and other circuit courts have relied on the rule in rejecting challenges to an FEIS on the ground that it failed to describe a preferred alternative or its environmental effects with sufficient specificity. See Save Our Heritage, Inc. v. Fed. Aviation Admin., 269 F.3d 49, 61-63 (1st Cir. 2001); see also Nevada v. Dep't of Energy, 457 F.3d 78, 90-91 (D.C. Cir. 2006); Laguna Greenbelt, Inc. v. U.S. Dep't of Transp., 42 F.3d 317, 527 (9th Cir. 1994). Accordingly, although Defendants did not present a harmless error argument, I consider on my own whether Defendants' failure to account for the traffic-generating effects of the Delphi Panel's population growth forecasts was harmless.

Defendants cannot rely on the fact that they discussed the issue in the TSA to excuse their failure to directly address it in the FEIS because the TSA was not subject to public comment. See Idaho Sporting Congress, Inc. v. Alexander, 222 F.3d 562, 567 (9th Cir. 2000). CLF and other interested parties did not learn either that Defendants' failure to account for the Delphi Panel's population forecasts may have resulted in an understatement of Defendants' traffic projections by as much as thirty percent, or that the added traffic would produce a failing Level of Service

south of Exit 1 and unacceptable Levels of Service between Exit 1 and Exit 3, until after Defendants released the TSA pursuant to a Freedom of Information Act request, after the close of the comment period on the FEIS. SR 913. Thus, the FEIS did not disclose sufficient information on this issue to permit meaningful public comment on either the effectiveness of the Four Lane Alternative as a traffic congestion control measure or the indirect effects that highway expansion could have on secondary road traffic and air quality issues.³⁸

³⁸ CLF has produced an affidavit from its traffic consultant suggesting that further analysis of the TSA's modeling data indicates the traffic-inducing effect of the Delphi Panel's growth forecast is so severe that the section of I-93 south of Exit 1 will experience failing Level of Service conditions well before 2020, even if the Four Lane Alternative is adopted. SR 915. The consultant also asserts that the Delphi Panel's induced population growth forecast produces enough additional traffic on secondary roads to negate the travel time benefits of expanding I-93. SR 916-19. Because CLF was unable to engage in this analysis until after it obtained the TSA, its analysis is not in the public record and Defendants have not offered a specific response. I do not know whether these assertions have merit, and ultimately it will be up to Defendants to determine whether they are credible. What is important is that by failing to release the TSA for public inspection until after Defendants had made their decision to proceed with the Four Lane Alternative, the public was not able to provide the input on traffic issues that NEPA requires.

Two purposes underlie NEPA's EIS requirement. First, the EIS process is intended to ensure that "the agency, in reaching its decision will have available, and will carefully consider, detailed information concerning significant environmental impacts" Robertson v. Methrow Valley Citizen's Council, 490 U.S. 332, 349 (1989). Second, "it also guarantees that the relevant information will be made available to the larger audience that may also play a role both in the decisionmaking process and the implementation of that decision." Id. Neither purpose would be achieved in the present case if Defendants' errors were treated as harmless. Accordingly, I conclude that Defendants' failure to take account of the traffic-generating effects of the Delphi Panel's population growth forecasts was not harmless error.

D. Miscellaneous Arguments

CLF also presents several arguments that cannot be easily categorized. It argues that Defendants violated FAHA because the Four Lane Alternative will not satisfy NHDOT's highway design standards. Additionally, CLF complains that Defendants violated NEPA by failing to consider the Four Lane Alternative in conjunction with possible improvements to I-93 in Massachusetts. Finally, it faults Defendants for failing to propose effective

mitigation measures. Because these arguments have been less well developed in the briefs, I address them in a somewhat more summary fashion.

1. FAHA

Defendants concluded in the FEIS that the segment of I-93 south of Exit 1 will operate at LOS E during the Design Hour in 2020. AR 21783. They later determined in the TSA that if the Defendants' traffic projections are modified to include the results of the Delphi Study, the segment of I-93 south of Exit 1 will operate at LOS F and the segment between Exits 1 and 3 will operate at LOS E. AR 26448. Relying on the fact that NHDOT's highway design standards generally require highways to be designed to operate at LOS D or better, see AR 21777, CLF contends that the Four Lane Alternative violates FAHA's requirement that the Secretary of Transportation adopt construction standards for the Interstate Highway System that, "as applied to each actual construction project, shall be adequate to enable such project to accommodate the types and volumes of traffic anticipated for such project for the twenty-year period commencing on the date of approval" 23

U.S.C. § 109(b).³⁹

CLF has failed to cite any statute, regulation, or case to support its conclusory assertion that the Four Lane Alternative violates § 109(b) simply because it does not conform to NHDOT's design standards. Section 109(b) requires the Secretary of Transportation to adopt construction standards, but CLF does not argue either that the Secretary has failed to adopt such standards or that the Department's existing standards are somehow inadequate. Nor has CLF presented any developed argument that FHWA's approval of the Four Lane Alternative violates federal design standards. These standards, which CLF does not even cite, do not appear to require improvements to the interstate highway system to conform to state design standards. See 23 C.F.R. § 625. Accordingly, I agree with Defendants that CLF lacks an actionable claim under § 109(b).⁴⁰

³⁹ CLF appears to cite the same data in arguing that the Four Lane Alternative is an "imprudent" alternative that NEPA bars Defendants from selecting. To the extent that CLF makes this argument, it is clearly wrong. NEPA does not impose substantive standards. Robinson, 490 U.S. at 353 (citation omitted); Sierra Club v. Marsh, 872 F.2d 497, 502 (1st Cir. 1989).

⁴⁰ For the same reasons, I reject CLF's claim that Defendants violated FAHA by choosing 2020 as the Design Year for

2. Segmentation

CLF next argues that Defendants' decision to terminate the Project at the Massachusetts border was the product of "piecemeal, segmented planning" because the Route 213 interchange in Massachusetts was a more logical terminus for the Project. According to CLF, not only did Defendants realize that the state line was an inferior project terminus, but they selected it in order to avoid having to produce an SEIS that addressed more thoroughly the impacts associated with extending the Project to Route 213. I am unpersuaded by this argument.

"[A]n EIS is of proper geographic scope if the project it analyzes connects 'logical termini,' has 'independent utility' and does not restrict 'consideration of alternatives.'" Conservation Law Found., 24 F.3d at 1472 (quoting FHWA regulations embodying these requirements, 23 C.F.R. § 771.111(f)). Here, CLF appears to argue only that the Four Lane Alternative does not satisfy the logical terminus requirement. Thus, I focus my analysis accordingly.

the I-93 project.

In considering CLF's argument, I keep in mind the following principle: "[t]hat a terminus is the *most logical* is not mandated by the segmentation analysis--that analysis requires only that a terminus be "logical." Vill. of Los Ranchos de Albuquerque v. Barnhart, 906 F.2d 1477, 1483 (10th Cir. 1990) (emphasis added). Thus, even if I were persuaded that the Route 213 interchange were a more logical terminus, CLF cannot prevail unless Defendants' choice of a different terminus was illogical. See id.

Here, Defendants offered reasons in the Administrative Record for their decision which demonstrate that their choice of terminus was logical. Specifically, Defendants explained in their response to comments to the FEIS that I-93 in northern Massachusetts consists of six lanes near the state line and is capable of providing eight lane capacity further south because Massachusetts allows travel on the right shoulders during rush hour. AR 26749-50. Thus, Defendants explained, additional highway capacity existed south of the state line, and the Project Area's four lane capacity creates an "obvious transportation bottleneck" effect which would be alleviated by widening I-93

between Salem and Manchester. AR 26775. Additionally, in a June 2002 conference, Defendants reasoned that it was appropriate to terminate the project at the state line because any work south of the Massachusetts line would be out of NHDOT's control. AR 13076-77. Thus, Defendants concluded, the state line was a logical terminus jurisdictionally. AR 13076-77. CLF has not persuaded me that these reasons are illogical or that Defendants manufactured them in bad faith simply to avoid having to prepare an SEIS. Thus, CLF's segmented planning argument fails.⁴¹

3. Mitigation

CLF also argues that because Defendants failed to conduct adequate assessments of the direct effects of the I-93 project on

⁴¹ CLF also argues that in assessing the impacts of the I-93 project, Defendants failed to adequately assess the cumulative impacts of the project in combination with two other projects: (1) the potential widening of I-93 in Massachusetts between the state line and Andover, and (2) the possible construction of a new Exit 4A on I-93 to provide access to Derry and Londonderry. I disagree. Defendants addressed impacts associated with both potential projects in the FEIS. AR 21957-59. While Defendants' cumulative impacts analysis with respect to these projects was fairly superficial, given the speculative nature of the two potential projects--and thus the lack of meaningful data available for analysis--I decline to conclude that Defendants' cumulative impacts analysis with respect to these two projects was deficient under NEPA.

air quality, water quality, and wildlife, Defendants assessment of measures to mitigate these impacts, and the mitigation measures to which they committed, were also inadequate. Because this is the sole basis of CLF's inadequate mitigation argument, and because I hold that Defendants' assessment of direct environmental impacts was adequate under NEPA and FAHA, I reject CLF's argument on this point.

IV. CONCLUSION

Defendants erred when they chose to base the traffic projections they disclosed in the FEIS on an outdated OEP population growth forecast rather than their own experts' more recent forecasts. As a result, they failed to consider in the 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.

CLF argues that Defendants' errors require them to restart the EIS process, reassess their decision to exclude rail as an

alternative to highway expansion, and reanalyze the direct and indirect environmental effects of the Four Lane Alternative on land use, water quality, and wildlife. I disagree. The Administrative Record demonstrates that Defendants made a careful study of several rail options and reasonably concluded that rail, either by itself or in combination with other alternatives, does not produce enough trip diversions from I-93 during peak traffic periods to obviate the need for the Four Lane Alternative. The TSA persuasively demonstrates that the use of the Delphi Panel's population forecasts does not alter this conclusion.

The record also establishes that Defendants engaged in a reasonably thorough analysis of both the direct and indirect environmental effects of the Four Lane Alternative on land use, water quality, and wildlife issues. No point would be served by requiring Defendants to restart the EIS process. Instead, what is required is an 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.

SO ORDERED.

/s/Paul Barbadoro
Paul Barbadoro
United States District Judge

August 30, 2007

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