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VIA E-MAIL AND FEDEX

Mr. Eric Midkiff, P.E.
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548
complete540@ncdot.gov

RE: Complete 540: Draft Environmental Impact Statement

Dear Mr. Midkiff:

On behalf of Sound Rivers and Clean Air Carolina, the Southern Environmental Law Center (“SELC”) submits the attached comments on the Draft Environmental Impact Statement (“DEIS”) for the Complete 540 project. The DEIS makes clear that this project cannot move forward in its current form. The extremely high cost of the project—over \$2 billion—coupled with the low expected travel time savings for most commuters renders the project an absurd waste of North Carolina’s transportation resources. Moreover, the DEIS makes clear that each of the toll road alternatives would do severe damage to the natural environment, including devastating massive areas of wetlands, polluting impaired water bodies and imperiling the existence of federally endangered species.

Of the 17 alternatives proposed by NCDOT, it is clear that Detailed Study Alternatives (“DSA”) 6 and 7 are the least environmentally damaging. While still tremendously destructive, they would impact significantly fewer acres of wetlands and fewer linear feet of streams than the other alternatives, and are the only alternatives that would avoid placing a federally endangered species in jeopardy. Further, while all 17 alternatives have no financial path forward, DSAs 6 and 7 are also among the most “practicable” of a range of impracticable alternatives; they rank among the lowest in terms of relocations and have one of the lowest price tags; indeed once all costs are accounted for (such as the cost of a mussel propagation facility) it is likely that DSAs 6 and 7 will be the least costly choice. Nonetheless, the community of Garner has made clear that DSAs 6 and 7 are not acceptable options, and it is imperative that NCDOT search for other alternative solutions to meet the transportation need in the study area.

The comments below call into question the advisability of proceeding further with the \$2.5 billion toll highway. The key shortcomings of the proposed toll highway and NCDOT’s review of the project include the following:

- The high price tag—\$2.1 to 2.6 billion—represents \$1.2 billion more than NCDOT has allocated to the project for the next decade, rendering the road impracticable.

- The toll highway proposal was scored in the NCDOT’s data-driven STI process using cost data that is significantly lower than current cost estimates. The project should be rescored and is unlikely to score high enough to obtain funding.
- NCDOT’s failure to project who is likely to use the toll highway and how much revenue it is likely to generate leaves serious questions about the extent to which the cost of this exclusive toll highway will be shouldered by taxpayers.
- NCDOT’s data suggest the overwhelming majority of commuters in the study area would not experience any meaningful travel time savings.
- For the commuters who will experience time savings, those benefits are expected to average 10 minutes or less, meaning the project will cost over \$200 million for every minute of time saved.
- NCDOT failed to look at a range of options that would be substantially less expensive and cause significantly less destruction to communities and the environment.
- Each toll highway alternative will force hundreds of families to relocate and physically divide existing communities.
- All toll highway alternatives would cause extensive damage to the natural environment, including direct impacts to dozens of acres of wetlands, several miles of streams, and hundreds of ponds.
- The toll highway would jeopardize the continued existence of the endangered dwarf wedgemussel, and may affect several more soon-to-be federally listed species as well as other species of concern.
- The toll highway would impact a variety of public parks and historic places—and every single highway alternative would cross the Neuse River Trail.
- The DEIS relies on methodologies that have recently been declared illegal by a Federal Court in North Carolina.

I. INTRODUCTION

The National Environmental Policy Act (“NEPA”) is the nation’s keystone environmental law designed to ensure careful decision making and a rational consideration of impacts and alternatives. It is the foundation of “a national policy of protecting and promoting environmental quality.” *Hughes River Watershed Conservancy v. Glickman*, 81 F.3d 437, 443 (4th Cir. 1996). NEPA is intended to be “action-forcing,” and it should provide the public and decision-makers with the data they need to intelligently make a considered decision about the best path forward for their communities. *N.C. Wildlife Fed’n v. N.C. Dep’t of Transp.*, 677 F.3d 596, 601 (4th Cir. 2012) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989)). Accordingly, an Environmental Impact Statement (“EIS”) must “serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made.” 40 C.F.R. § 1502.2(g).

The Complete 540 DEIS fails to fulfill the purposes of NEPA in a variety of ways. The asserted purpose and need for the project lacks support and contains built-in bias in favor of a

toll highway alternative. The DEIS further fails to fairly assess a reasonable range of alternatives in violation of NEPA requirements. In turn, this failure has led to only toll highway alternatives progressing to the detailed study stages, and each of these toll highway alternatives correspond to enormous environmental and human impacts at an unprecedented and impracticable project cost. Indeed, the entire Complete 540 NEPA process has largely been an exercise in predetermined decision-making. These many shortcomings of the DEIS are discussed in turn below.

II. BIASED AND UNSUPPORTED STATEMENT OF PURPOSE AND NEED

The Statement of Purpose and Need is essential to the NEPA process, as it guides the agencies' scope of review. 40 C.F.R. § 1502.13. As noted by the United States Court of Appeals for the Fourth Circuit, “[o]nly alternatives that accomplish the purposes of the proposed action are considered reasonable, and only reasonable alternatives require detailed study. So how the agency defines the purpose of the proposed action sets the contours for its exploration of available alternatives.” *Webster v. U.S. Dep’t of Agric.*, 685 F.3d 411, 422 (4th Cir. 2012). Because the Statement of Purpose and Need forms the basis upon which to compare alternatives, an agency is not permitted “to contrive a purpose so slender as to define competing ‘reasonable alternatives’ out of consideration.” *Simmons v. U.S. Army Corps of Eng’rs*, 120 F.3d 664, 666 (7th Cir. 1997).

The stated primary purposes of the Complete 540 project are twofold: (1) “to improve mobility within or through the study area during peak travel periods,” and (2) “to reduce forecast congestion on the existing roadway network within the project area.”¹ These two primary purposes are largely the same purpose stated different ways: improving mobility during peak travel times is essentially the converse of reducing congestion, which naturally occurs at peak travel times. The primary purposes were developed based on identified transportation needs within the study corridor, including mobility, the need to provide for high speed travel along the 540 Outer Loop, and existing and projected poor levels of service on current roadways.² The DEIS also identifies completing the 540 Outer Loop as a secondary purpose, or desirable outcome, of the project.³

As discussed below, the premises underlying the project’s purposes and needs call into question how much a toll highway through the project study area is truly needed—and demonstrate the agencies’ clear bias in favor of a toll highway despite the lack of such documented need.

A. The Statement of Purpose and Need Was Developed Using Old Data

While the project’s purpose and need statement is not on its face too narrowly defined to pass legal scrutiny, the metrics used to ascertain whether or not project alternatives meet the

¹ DEIS, at 10.

² Purpose & Need Statement (2011), at 2-3. The DEIS appears to have simplified the needs identified in the Purpose & Need Statement into two needs of (1) more route choices and (2) reducing congestion on the existing roadway network. DEIS at 12-16.

³ DEIS, at 10; Purpose & Need Statement, at 4.

stated purpose have that effect.⁴ Much of the stated need for the Complete 540 project revolves around projections of future growth in the study area and forecasts of future traffic congestion. The 2011 Purpose and Need document states, for example, that “[w]ith increases in traffic volumes projected in the future, a substantial portion of the roadway network in and near the project study area will deteriorate to LOS E or F by 2035.”⁵ The Statement, however, bases such conclusions on 2008 traffic data that was put into a 2008 traffic model.⁶ That traffic modeling tool has since been updated,⁷ yet NCDOT failed to update its traffic data or the model used to generate its forecasts that purport to justify the need for this project. The Statement of Purpose and Need, and the DEIS by extension, thus relies on traffic data more than seven years out of date, and a traffic forecast model that is now obsolete.

The U.S. Environmental Protection Agency (“EPA”) noted the outdated nature of these traffic forecasts in 2012: “The details of the traffic models and forecasts are not specifically identified in the report but appear to be generally based upon past development and population growth. Since 2009, the project study area’s growth rate has substantially decreased from the two previous decades. In the last 3 years, the growth in southern Wake County has been well below previous years and new development is reported to have stagnated.”⁸ The EPA again highlighted the lack of up-to-date information in critiquing the mobility purpose of the project, stating, “It is difficult to understand a purpose of reducing forecasted congestion when the traffic modeling, growth projections, and other assumptions are not identified in the report.”⁹

Developing a forecast from such outdated traffic data violates NCDOT’s own technical guidance, which directs that “the traffic counts used for capacity analysis purposes should have been taken no more than one year prior to the submittal date of the document.”¹⁰ Up-to-date data is imperative in the NEPA process. A long line of federal courts have held that agency reliance on data that is stale or inaccurate invalidates environmental review. *See, e.g., N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1085-86 (9th Cir. 2011) (ten-year old survey data for wildlife was “too stale” and thus reliance on it in EIS was arbitrary and capricious); *Lands Council v. Powell*, 395 F.3d 1019, 1031 (9th Cir. 2005) (six-year-old survey data for cutthroat trout was “too outdated to carry the weight assigned to it” and reliance on that data violated NEPA); *Seattle Audubon Soc. v. Espy*, 998 F.2d 699, 704-05 (9th Cir. 1993) (reliance on “stale scientific evidence” regarding owl population data without adequate

⁴ Stakeholder Report at 178 (2012 EPA Technical Assistance Comments on Draft Alternatives Development and Analysis Report) (“The purposes of the project were narrowly defined in the previous section of the report. The highway ‘threshold criteria’ as further defined and as alluded to in the report to meet purpose and need were ‘pre-disposed’ to eliminate all but new location, multi-lane toll road alternatives.”).

⁵ Purpose & Need Statement at 4.

⁶ *Id.* at 10.

⁷ *See e.g.* INST. FOR TRANSP. RESEARCH & EDUC., *History of the Triangle Regional Model*, <http://www.itre.ncsu.edu/TBM/trmsb/history.html> (last visited Dec. 29, 2015) (listing milestones, including that “2011 TRM version 5 is released and adopted for use by stakeholders”), Attachment 1.

⁸ Stakeholder Report at 177 (2012 EPA Technical Assistance Comments on Draft Alternatives Development And Analysis Report).

⁹ *Id.*

¹⁰ NCDOT, CONGESTION MANAGEMENT CAPACITY ANALYSIS GUIDELINES, at 3 (2015), *available at* <https://connect.ncdot.gov/resources/safety/Congestion%20Mngmt%20and%20Signing/Congestion%20Management/Capacity%20Analysis%20Guidelines.pdf>, Attachment 2.

discussion of scientific uncertainty violated NEPA). These courts have been clear that the quality of data must be proportional to the weight the agency assigns to it in its analysis.

Here, the inaccuracy of the traffic forecast data underlies both the purpose and need for the project and the entire analysis of alternatives. Population and economic growth are key factors in traffic forecasting. Accordingly, changes or slumps in projected growth can significantly impact projected traffic demand. Although the DEIS was published in November 2015, the traffic forecasts are derived from data more than seven years old, and on a similarly dated traffic model. As such, the traffic forecasts did not and could not have accounted for the multi-year recession and suppressed growth that began in 2008. Reliance on such stale and overly-optimistic data further inflates demand, and is a glaring oversight that violates NEPA. *Cf. 1000 Friends of Wisc., Inc., v. U.S. Dep't of Transp.*, No. 11-C-0545, 2015 WL 2454271, at *9 (E.D. Wisc. May 22, 2015).

The old traffic forecasts are further dated in consideration of Wake County's recently-released long-term transit plan, which includes quadrupled bus service within the county and adding a commuter rail line connecting Garner with Raleigh, NCSU, Morrisville, RTP, Cary, Durham, and Duke.¹¹ The increase in mass-transit options will have a direct effect on future traffic conditions, and the alleged needs for this giant toll highway should be reassessed in light of the increased future public transportation services.

B. The Statement of Purpose and Need Was Crafted Using an Illegal Methodology.

The traffic forecasts used to create the statement of purpose and need were created using a methodology that has been determined illegal by a long line of federal courts, including most recently the U.S. District Court for the Eastern District of North Carolina. *See Catawba Riverkeeper Found. v. N.C. Dep't of Transp.*, No. 5:15-CV-29-D, 2015 WL 1179646 (E.D.N.C. Mar. 13 2015), attached as Attachment 4. The DEIS purports to compare forecast traffic congestion in 2035 for "build" and "no build" scenarios, but in forecasting traffic, the DEIS relies on socio-economic projections that assumed growth that would occur *with* the Complete 540 toll highway would also occur *without* the toll road.¹² This approach necessarily overstates the level of congestion in a "no build" scenario because, as even NDCOT and FHWA admit, significant future developments and the traffic associated with them will only move forward if the Complete 540 project is built.¹³

The illegal approach has the effect both of making construction of the proposed highway appear more necessary, as well as making other, less damaging and more practicable

¹¹RECOMMENDED WAKE COUNTY TRANSIT PLAN, at 8-11(Dec. 2015), Attachment 3.

¹² DEIS at 15 & n.*.

¹³ Indirect and Cumulative Effects Report (Dec. 2014), at 76 (noting that building the toll highway will encourage faster growth, and specifically highlighting that "the planned Randleigh Farm project is more likely to begin to be developed if the Complete 540 project is constructed nearby") [hereinafter "ICE Report"]; *see id.* at 79 ("As a major new location facility, the Complete 540 project would dramatically increase access both within the project area and between locations in the project area and employment and commercial centers outside the project area. Local planners fully anticipate that the project would play a major role in influencing the land uses and intensities that will develop across the project area.").

alternatives—such as upgrades to existing roads—seem less attractive. It is not surprising that this flaw was contained in the DEIS. In an attempted appeal of the district court ruling that declared this method illegal, FHWA explained that this flawed approach to traffic forecasting was often used in NEPA analyses of highway projects around the country. FHWA cited 108 instances of other highway projects that had been analyzed using the same approach—the Complete 540 project being one of them.¹⁴ The appeal was denied by the U.S. District Court, and thus the court’s initial ruling declaring this method illegal stands. *Catawba Riverkeeper Found.*, No. 5:15-CV-29-D (E.D.N.C. Sept. 10, 2015). The case is currently on appeal to the Fourth Circuit. *See* Federal Defendants’ Notice of Appeal, *Catawba Riverkeeper Found.*, No. 5:15-CV-29-D, (E.D.N.C. Nov. 9, 2015); State Defendants’ Notice of Appeal, *Catawba Riverkeeper Found.*, No. 5:15-CV-29-D, (E.D.N.C. Oct. 21, 2015). FHWA’s apparent wide use of this flaw does not make the flaw any less illegal or misleading in the instant DEIS and supporting documents. *Izaak Walton League of America v. Butz*, 522 F.2d 945, 952 n.26 (4th Cir. 1975) (quoting *Wilderness Society v. Morton*, 156 U.S. App. D.C. 121, 479 F.2d 842, 865 (1973) (“[I]t is our firm belief that a line must be drawn between according administrative interpretations deference and the proposition that administrative agencies are entitled to violate the law if they do it often enough.”)).

The NEPA process for another highway on Defendants’ list, the Illiana Expressway, was recently determined illegal by a federal court in Illinois. *Openlands v. U.S. Dep’t Transp.*, No. 13 C 4950, 2015 WL 4999008, at *10 (N.D. Ill June 16, 2015), attached as Attachment 7. FHWA is not appealing the ruling.

C. The Purpose and Need Statement Is Impermissibly Narrow and Favors a Toll Highway over Any Other Alternative.

A secondary purpose of the project is to improve system linkage, or in other words, to complete the I-540 loop.¹⁵ As identified by the Environmental Protection Agency (“EPA”) early on in the alternatives development process, such a purpose is out of line with FHWA Guidelines and creates a clear preference for building a road and a bias against any alternatives that would not complete the I-540 loop.¹⁶ The FHWA Guidelines succinctly disapprove of such a purpose: “We don’t typically decide to link something just because we can.”¹⁷ Indeed, this guidance explains that a purpose of system linkage “does not necessarily translate to a completely new transportation facility,” and instead, “modification of an existing facility may be a viable method of improving system linkage.”¹⁸

The DEIS, however, specifically limits this purpose to construction of the specific pre-identified roadway: “[a] secondary purpose of the project is to improve system linkage in the regional roadway network *by completing the 540 outer loop around the greater Raleigh area—a*

¹⁴ Gloria Shepherd Decl., Apr. 10, 2015, *Catawba Riverkeeper Found. v. N.C. Dep’t of Transp.*, No. 515-CV-29-D, ECF No. 75-3, Attachment 5; Letter from Gloria Shepherd, FHWA, to Kate Asquith, SELC (July 10, 2015), Attachment 6.

¹⁵ DEIS at 10.

¹⁶ Stakeholder Report at 176 (2012 EPA Technical Assistance Comments on Draft Alternatives Development and Analysis Report).

¹⁷ FHWA Guidance, Version 2 (Feb. 2009) at 17, Attachment 8.

¹⁸ *Id.*

goal that has been sought for area planners by more than 40 years.”¹⁹ The system linkage goal is ostensibly a “secondary” purpose, and yet every single one of the DSAs in the DEIS completes the outer loop. Indeed, the name given to the project—*Complete 540*—underscores the focus and significance ascribed to the “secondary” purpose of completing the 540 Outer Loop. Even before adopting the catchy Complete 540 name, the 2011 Purpose and Need Statement similarly preordained that the solution would be a toll highway connecting 540 by referring to the project as the “Triangle Expressway Southeast Extension.”²⁰

The introduction to this document admits of such an impermissible focus in its first sentence, stating that the agencies proposed “transportation improvements *with a focus* on the consideration of *an extension of the Triangle Expressway (NC 540)* from NC 55 Bypass near Holly Springs to the US 64/US264 Bypass south of Knightdale.”²¹ The Statement is replete with examples illustrating that it was a foregone conclusion that the project would manifest only in the form of a highway completing the 540 Outer Loop.²² Such a fixed focus on completing the 540 Outer Loop is precisely the kind of narrow, illegitimate purpose the FHWA Guidance cautions against and should not be considered in the NEPA process.²³ Indeed, the U.S. Army Corps of Engineers and other agencies expressed concern about integrating local land use plans into any statement of purpose for the project at a 2012 interagency meeting.²⁴ Despite this flaw being brought to the attention of NCDOT early in the NEPA process, the DEIS retains this heavily-critiqued purpose.

III. INADEQUATE ALTERNATIVES ANALYSIS

NEPA requires that agencies “[r]igorously explore and objectively evaluate all reasonable alternatives.” *N.C. Wildlife Federation*, 677 F.3d at 602 (citing 40 C.F.R. § 1502.14(a)). In turn, “[a]ccurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.” 40 C.F.R. § 1500.1(b). Such accuracy ensures that agencies take a “hard look” at environmental effects of proposed projects and that relevant information is available to the public. *Glickman*, 81 F.3d at 445-46 (holding that the economic assumptions underlying an EIS are subject to “narrowly focused review” to determine whether they “impair[ed] fair consideration of a project’s adverse environmental effects”). Moreover, agencies have a duty to “insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements.” 40 C.F.R. § 1502.24. The alternatives analysis, supported by thorough scientific, expert, and public review, is intended to be the “heart” of the impact statement. 40 C.F.R. § 1502.14. Despite this mandate, the DEIS only offers one true alternative:

¹⁹ DEIS at 10.

²⁰ Purpose & Need Statement at cover page.

²¹ *Id.* at 1.

²² *E.g. id.* at 5 (project history section devoted to history of the 540 Outer Loop, not transportation needs in project area); *id.* at 16 (identifying the State Transportation Improvement Program’s identifiers for the “proposed action[’s]” associated three “freeway facility on new location” projects, which complete the 540 Outer Loop); *id.* at 19 (highlighting local governments’ resolution requesting a study of toll funding for constructing I-540 in southwestern Wake County).

²³ Stakeholder Report at 179 (2012 EPA Technical Assistance Comments on Draft Alternatives Development and Analysis Report) (citing FHWA Administrator: 7/23/03 Memorandum on Guidance on “Purpose and Need,” available at <http://www.environment.fhwa.dot.gov/guidebook/Gjoint.asp>, Attachment 9.).

²⁴ *See* Meeting Minutes, Interagency Project Meeting (Aug. 22, 2012), at 2, Attachment 10.

building an expensive, environmentally-destructive toll highway that completes the 540 Outer Loop.

As noted above, the project's Purpose and Need, which provides the foundation for the evaluation of reasonable alternatives, was crafted based on outdated and flawed data, and was designed to include an impermissible narrow purpose. The tainted Purpose and Need Statement, including its bias in favor of a toll highway completing the 540 Outer Loop, set the stage for the agencies' arbitrary and capricious alternatives analysis which prematurely rejected reasonable, non-toll highway, alternatives.

A. The Alternatives Analysis is Based on a Biased and Flawed Alternatives Screening Process.

The DEIS relies on a 2014 Alternatives Development and Analysis Report ("Alternatives Analysis") to eliminate all non-toll highway alternatives prior to detailed environmental review. The preliminary review of alternatives involved three tiers of screening, with 8 out of 10 potential alternative types eliminated at the first tier of screening (not including the required No-Build baseline alternative).²⁵ This first tier of screening was designed with a heavy bias toward construction of a new-location toll highway²⁶. The process employed misleading metrics to ensure the toll road option progressed to later screening stages; used an arbitrary method to distinguish between alternatives that would supposedly meet the project purposes as opposed to alternatives that supposedly would not; and inconsistently applied different methodologies to evaluate highway-based options as opposed to other traffic improvements and mass-transit options.

1. Misleading Metrics Arbitrarily Removed Reasonable Alternatives

The first-tier screening process relied heavily on misleading, numeric "Measures of Effectiveness," or "MOEs" to review the potential for each alternative concept to achieve travel time savings and congestion relief.²⁷ With each of these MOEs, the change from the No-Build scenario was expressed as a percentage.²⁸ Then, the different concepts were ranked for each MOE from greatest to least percentage change.²⁹ As noted by EPA, "[a]ll of these measures and the undefined Triangle Regional Model (TRM) are biased towards eliminating TDM, TSM, and Mass Transit/Multi-modal Alternative Concepts."³⁰

The different MOEs purported to help distinguish the alternatives according to the results of the MOEs. In reality, the MOEs illustrate how indistinguishable the considered alternatives

²⁵ Alternatives Development and Analysis Report (May 2014), at Table 2-9: Alternative Concepts to be Carried Forward to Second Screening [hereinafter "Alternatives Analysis Report"]

²⁶ Stakeholder Report at 178 (2012 EPA Technical Assistance Comments on Draft Alternatives Development and Analysis Report) ("The purposes of the project were narrowly defined in the previous section of the report. The highway 'threshold criteria' as further defined and as alluded to in the report to meet purpose and need were 'pre-disposed' to eliminate all but new location, multi-lane toll road alternatives.").

²⁷ Alternatives Analysis Report at 2-6.

²⁸ *Id.* at 2-9.

²⁹ *Id.* at 2-9.

³⁰ Stakeholder Report at 179 (2012 EPA Technical Assistance Comments on Draft Alternatives Development and Analysis Report).

are in terms of their ability to relieve congestion or enhance mobility. For example, the 2035 projected average daily travel speeds during the evening rush hour for the different alternatives ranged from 43.7 MPH to 47.3 MPH—a difference of less than 4 MPH between the “worst” performing alternative and the “best” performing alternative.³¹

Similarly, the best performing alternative under the travel time MOE was only marginally better than the worst performing alternative. When reviewing travel times, the Alternatives Analysis focused on a “subset of the origin and destination points . . . for closer evaluation of the MOE for project purpose.”³² The origin points chosen were Brier Creek and Research Triangle Park (“RTP”).³³ As to the projected travel times for an RTP origin during peak PM travel times, the smallest average change over the No-Build alternative was 3.5% and the greatest change was 13.7%,³⁴ or stated in minutes saved, an average of 2.25 minutes saved and 5.75 minutes saved, respectively. A difference of an average of 3.5 minutes saved between the worst and best alternatives is hardly a significant difference,³⁵ and demonstrates that the toll road highway option did not significantly outperform the other reviewed alternatives. Advancing the toll highway alternative over other alternatives, based on such slight differences, is arbitrary and capricious.

2. The Ranking System Arbitrarily Distinguished Between Successful and Unsuccessful Alternatives.

Next, the first-tier screening process used the misleading MOEs to draw false distinctions between the alternatives by dividing them into two groups: alternatives that met the purpose and need and alternatives that did not.³⁶ After ranking the alternatives from greatest to least percentage changes for each MOE, the alternatives were given different “quartile” scores according to where they fell in the rankings.³⁷ The alternatives in the top quartile were given a score of “4,” and those in the next quartile a “3” and so on.³⁸ This quartile ranking system thus had the effect of artificially inflating significance of the incremental differences among alternatives, creating the illusion that some were much more successful than others.

Traffic forecasts are inherently limited in their ability to accurately forecast future traffic. Given this level of uncertainty, the minute differences between the respective performance of the various alternatives were likely not even statistically significant.

Indeed, the Complete 540 Traffic Forecast Technical Memorandum recognized the inherent inaccuracy of traffic forecasts:

³¹ Alternatives Analysis Report at Table 2-1: Average Daily Travel Speeds in Traffic Study Area (2035)—PM Peak Period.

³² *Id.* at 2-11.

³³ *Id.* at 2-12.

³⁴ *Id.* at Table 2-2: Average Travel Times from RTP to Listed Destinations (2035) – PM Peak Period.

³⁵ The range of difference in travel times with a Brier Creek origin are similar, with the lowest average percentage change being 3.4% and the highest being 12.1%, or a difference of 2 minutes saved and up to 7.5 minutes saved. With this example, unlike the RTP example, the “best” performing alternative was Hybrid 1 and not the New Location Highway.

³⁶ *Id.* at 2-9.

³⁷ *Id.* at 2-9.

³⁸ *Id.* at 2-9.

The 2009 TRM V4 model run data was extrapolated to 2010 and shows daily assignment volumes varying (some higher and some lower) from existing count data along study area roadways. This can be attributed to a quickly changing and developing study area and very low base year volumes, which make it difficult for the regional model to completely account for all existing conditions and recent changes.³⁹

Despite the insignificant differences between the best-performing and worst-performing alternatives, the Alternatives Analysis used the quartile ranking system to prematurely discard purportedly lower-performing alternatives. Alternatives that achieved a quartile ranking of 3 or 4, were regarded as meeting the project purpose, while alternatives that were (artificially) ranked lower were discarded as unable to meet the purpose and need.⁴⁰

Under this ranking system, a project that scored well under one MOE, but marginally less well than the next project, would be described as not meeting the project purpose—even if it performed better than all other alternatives regarding another purpose. Additionally, an alternative that performed only slightly better than another alternative would be deemed to meet the project purpose, while the other alternative would be deemed to not meet the project purpose, despite an insignificant difference between the performances of the two.

For example, the Hybrid 1 Alternative received quartile rankings of 3 and 4 in every MOE except Average Speed, where it received a 2 for a projected averaged speed of 44.7 MPH.⁴¹ However, the next-best-performing alternative under the Average Speed MOE, which earned a “passing” quartile ranking of 3, was projected to achieve an average speed of 45.6 MPH.⁴² Thus, a difference of 0.9 MPH separated the Hybrid 1 Alternative from the alternatives that passed muster under this MOE. This small difference,—which cannot be statistically significant given the uncertainty of traffic forecasting—was thus used to eliminate from consideration an alternative that was otherwise competitive.

If the forecast speed for the Hybrid 1 Alternative had been a mere *one* MPH greater, it would have received a quartile ranking of “3” under this MOE and advanced beyond the first-tier screening process.

This arbitrary screening of alternatives failed to provide the objectively and holistic review of a reasonable range of solutions that NEPA requires.

3. The Screening Process Arbitrarily Used Different Methods to Assess Non-Road Building Alternatives.

The first-tier screening process applied the quantitative MOEs and corresponding methodology to road-building or road-upgrading alternatives, but failed to use the same

³⁹ Traffic Forecast Tech. Mem. (Apr. 2014), at 17; *see id.* at Table 9. Base Year No-Build Forecast Traffic Volumes.

⁴⁰ Alternatives Analysis Report at 2-7, 2-17, Table 2-7: Summary of Quartile Rankings of MOEs for Build Alternative Concepts.

⁴¹ *See id.* Table 2-1: Average Daily Travel Speeds in Traffic Study Area (2035) – PM Peak Period; Table 2-7: Summary of Quartile Rankings of MOEs for Build Alternative Concepts.

⁴² *Id.* Table 2-1: Average Daily Travel Speeds in Traffic Study Area (2035) – PM Peak Period.

methodology to assess the transportation demand management (“TDM”), transportation system management (“TSM”), and Mass Transit/Multi-Modal Alternatives. The methodology used for measuring the MOEs, the Triangle Regional Model (“TRM”), could not be used to evaluate the various MOEs as to the TDM, TSM, and Mass Transit/Multi-Modal Alternative Concepts.⁴³ Thus, these three alternative concepts were not evaluated using the same methodology as the other road-building or road-upgrading options and were thus not included in any of the tables summarizing the numeric differences between the alternatives. They did not receive relative scores nor a quartile ranking. As highlighted by the EPA in 2012, the MOEs were “biased towards personal vehicle use and alternative concepts that promote new location, high-speed highways.”⁴⁴ This use of inconsistent methodologies to evaluate different alternatives failed to allow the public to review the relative merits of these less costly and less destructive alternative concepts.

4. The Arbitrary and Flawed Alternatives Analysis Process Violates NEPA

After this arbitrary and inconsistent first tier screening process had been applied, only highway based alternatives advanced to later screening stages.⁴⁵ Thus, a wide range of alternative solutions were eliminated before any study of their feasibility or potential environmental impacts,⁴⁶ including transportation demand management, transportation system management, mass transit/multi-modal, three different alternatives to improve existing roadways and two different hybrid alternatives.⁴⁷ The Alternatives Analysis thus “stacked the deck” in favor of the toll highway, which performs poorly in comparison to the other less expensive and less destructive options, when such factors are considered.

The agencies’ methodology undercuts the very purpose of the NEPA process, which is to fully and fairly evaluate a reasonable range of alternatives and to do so in a manner that involves the public. The NEPA process, including the EIS, is designed to “serve[] as an environmental full disclosure law, providing information which Congress thought the public should have concerning the particular environmental costs involved in a project.” *Silva v. Lynn*, 482 F.2d 1282, 1285 (1st Cir. 1973). Additionally, a detailed EIS “helps to insure the integrity of the process of decision by precluding stubborn problems or serious criticism from being swept under the rug.” *Id.*; see *Dubois v. U.S. Dept. of Agriculture*, 102 F.3d 1273, 1285–86 (1st Cir. 1996) (“Thus, the EIS helps satisfy NEPA’s ‘twin aims’: to ensure that the agency takes a ‘hard look’ at the environmental consequences of its proposed action, and to make information on the environmental consequences available to the public, which may then offer its insight to assist the agency’s decision-making through the comment process.”).

The EIS must contain sufficient and necessary information to allow the public to scrutinize the agency’s review and examine the “basis for a comparison of the problems involved

⁴³ See Alternatives Analysis Report at 2-10 (average daily travel speeds); *id.* at 2-11 (travel times); *id.* at 2-14 (average daily VHT); *id.* at 2-15 (congested VMT); *id.* at 2-16 (congested VHT).

⁴⁴ Stakeholder Report at 177 (2012 EPA Technical Assistance Comments on Draft Alternatives Development and Analysis Report).

⁴⁵ Alternatives Analysis Report at Table 2-9: Alternative Concepts to be Carried Forward to Second Screening.

⁴⁶ *Id.* at 3-9.

⁴⁷ *Id.*

with the proposed project and the difficulties involved in the alternatives.” *Silva*, 482 F.2d at 1285 (quoting *Monroe Cnty. Conservation Council v. Volpe*, 472 F.2d 693, 697 (2d Cir. 1972)). Because the Alternatives Analysis for the Complete 540 project eliminated the majority of alternatives from consideration prematurely, the transportation agencies deprived the public and local decision-makers of the opportunity to meaningfully participate in the alternatives selection process and contravened NEPA. *See N.C. Wildlife Fed’n*, 677 F.3d at 601-02 (quoting *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 371 (1989)) (internal quotation marks omitted).

B. The Alternatives Analysis Fails to Analyze Traffic Patterns and Potential Time Savings.

The stated purpose of improving travel times in the study area is a legitimate goal and should help guide a thorough and rigorous examination of alternatives for the Complete 540 project. Given this goal, however, it is surprising that NCDOT has settled on a range of expensive highway options that result in such meager travel time improvements—even 20 years out. Moreover, the Alternatives Analysis fails to address two key considerations: Where are travelers in the project study area going and how will this project help them? The DEIS fails entirely to look at the percentage of traffic in the corridor that is local, i.e. moving within a town or traveling from one town in the study area to another, and the percentage that is traveling through the project area. Without some knowledge of this basic information, it is impossible to determine which alternatives will be most effective.

The DEIS states that “[i]t is expected the project could reduce travel times to the area’s major employment and commercial centers by as much as ten minutes or more.”⁴⁸ The DEIS itself contains no information on projected time-savings aside from this fleeting mention, despite time-savings already being the primary purpose of the entire project. The DEIS likewise does not elaborate on how this estimate was derived, or to which trips the estimate would apply. Indeed, as highlighted above, the “representative” trips selected for the Alternatives Analysis, with an RTP or Brier Creek origin during “PM peak” travel periods, yielded an average time savings of far less than 10 minutes under a New Location Highway alternative.⁴⁹

Many questions that would help in understanding the 10 minute time-savings estimate are left unanswered. For example, when would these time-savings be realized? Will drivers who use existing roadways, as opposed to the toll road, experience these time savings? What is the average time-savings for drivers in the study area? Which origin and destination points were considered in the DEIS’s broad “as much as ten minutes or more” time savings estimate? What percentage of drivers in the study area actually takes those trips? Such questions must be answered in order to fully evaluate the ability of different alternative solutions to meet the purpose of the project, and to fairly evaluate whether the potential time-savings can justify the high costs—financial, human and environmental—of the project.

The 2011 Purpose and Need Statement—which as discussed above, relies on outdated data—briefly notes that “more than 25 percent of residents within the project study area

⁴⁸ DEIS at 104.

⁴⁹ Alternatives Analysis at Table 2-2: Average Travel Time from RTP to Listed Destinations (2035) – PM Peak Period, Table 2-3 Average Travel Time from Brier Creek to Listed Destinations (2035) – PM Peak Period.

commute to RTP.”⁵⁰ There is no support or explanation for how this number was determined. Without more, such as pertinent information about *where* in the study area such trips to RTP originate, this percentage does little to illuminate the demand for or anticipated use of a toll highway. There is nothing in the EIS to suggest that all 25% of the commuters headed to RTP would be willing or able to pay a toll to use the project. Moreover, there is no information about the regular commutes of the remaining 75% of residents in the project study.

Travel-time savings Tables buried in an appendix to a technical report present an incomplete picture of the potential time savings associated with building the toll road. The tables provide no clue as to how the “ten minute” travel-time estimate came about. Instead, the tables show great variation in the travel time savings for various representative trips within the project area—but the savings are overwhelmingly slim. Considering all 264 trips represented in the tables, the average amount of time saved from a No-Build scenario compared to a Build Scenario in the year 2035 is a mere *3.44 minutes*. Notably, trips during the peak morning hours would save an average of only 1.75 minutes, while the time-savings in the peak evening hours would average 5.13 minutes. More than 41% of all trips studied would not experience any time-savings at all, and 231 of the trips, or 87.5% of the trips, would see *less than 10 minutes saved*. Even if the trips with at least 1 minute or more of time-savings are isolated, of which there are 154, the average time saved for those trips is 5.9 minutes. Even then, while 264 representative trips are analyzed, there is no indication of which trips are most popular. In other words, there is no explanation or analysis of what percentage of commuters travel between any given origin and destination point, thus limiting the utility of the travel time savings estimates.

In addition, it is unclear from the DEIS, but after questioning NCDOT staff at the recent public meeting it became clear that the travel time savings documented in the trip tables are limited to potential users of the proposed toll-highway. The DEIS and technical reports do not document how—if at all—travel time savings that might accrue to drivers who opt to remain on the existing, non-toll road network. This failing is significant because elsewhere the DEIS states that construction of this project will have benefits for users of the entire transportation network.⁵¹

C. The Alternatives Analysis Lacks any Documentation of Demand or Anticipated Use of a Toll Highway in the Project Area.

The DEIS also fails to document how many people it anticipates will actually use the road, a criticism raised by the EPA early when it noted that the “[r]eport does not identify social and economic demands for the project.”⁵² The response to this comment was that the population of the project area has grown and is expected to grow;⁵³ however, a potentially growing population does not necessarily mean there is a demand for a new location toll road through the project area. Similarly, the ICE Report states, without any supporting data or analysis, that “[i]t is expected that many of those who currently travel between locations in the project area and employment and commercial centers within and outside the project area would use the proposed

⁵⁰ Purpose & Need Statement at 9.

⁵¹ DEIS at 40 (“Compared with other concepts, the new highway concept provided the largest decrease in average travel times and the largest reductions in congestion on the local roadway system.”); *id.* at 85.

⁵² Alternatives Analysis Report at 6-19.

⁵³ *Id.*

facility because it would provide a faster, more direct route to these areas.”⁵⁴ There is simply no support for this statement.

Use of the road would largely be dictated by the price of tolls, which has yet to be estimated or disclosed. In other words, NCDOT appears to assume, without justification, that people will use the toll road regardless of the duration of their trip in the project area, and regardless of the toll price associated with that trip. Drivers will be even less likely to opt for paying a toll in light of the limited travel-time savings associated with the project. As the EPA highlighted in comments on an earlier draft of the Alternatives Analysis Report, “[t]here is no actual traffic data or public surveys demonstrating why commuters would leave local free roadways where there is little to no congestion and utilize a 6-lane toll facility.”⁵⁵

The current public outcry over the planned I-77 toll facility north of Charlotte underscores the North Carolina public’s disapproval of toll facilities.⁵⁶ Similar sentiments were echoed during the public hearing for the Complete 540 project on December 9, 2015. Without more information about projected actual use of the toll road, which depends on the cost of tolls, it is not at all clear that a toll road would actually improve mobility or decrease congestion. Moreover, without more information on likely users of the project it is impossible to determine if such a toll road project is financially feasible.

D. The Transportation Agencies Must Consider a Full Range of Reasonable Alternatives and Combinations of Alternatives.

Agencies have a “duty under NEPA . . . to study all alternatives that appear reasonable and appropriate for study at the time of drafting the EIS, as well as significant alternatives suggested by other agencies or the public during the comment period.” *Roosevelt Campobello Int’l Park Comm’n. v. U.S. EPA*, 684 F.2d 1041, 1047 (1st Cir. 1982) (internal quotation marks omitted). Only unreasonable alternatives can be eliminated. 40 C.F.R. § 1502.14(a). NCDOT’s initial screening of alternatives took place prior to 2011⁵⁷ and was based on outdated and flawed methodology as discussed above. This Alternatives Analysis prematurely eliminated a number of reasonable alternatives which would avoid much of the harmful environmental impacts associated with the current iterations of the Complete 540 road.

The DEIS appears to contain a large number of DSAs, but each “alternative” is simply a slight alteration of the same, new-location toll highway alternative. In fact, the 17 DSAs are fundamentally variations on three basic routes. Such tunnel vision hurts the NEPA process and prevents a fair and thorough evaluation of other, non-road building alternatives. *See California v.*

⁵⁴ ICE Report at 13.

⁵⁵ Stakeholder Report at 177 (2012 EPA Technical Assistance Comments on Draft Alternatives Development and Analysis Report).

⁵⁶ E.g. Steve Harrison, *Charlotte City Council is Now the Decider for I-77 Toll Lanes*, THE CHARLOTTE OBSERVER, Jan. 2, 2016, <http://www.charlotteobserver.com/news/politics-government/article51335005.html>, Attachment 11; Lacey Hampton & Carrie Causey, *Towns Talk Tolls*, THE HERALD WEEKLY, Dec. 10, 2015, <http://huntersvilleherald.com/news/2015/12/10/14336/towns-talk-tolls>, Attachment 12.

⁵⁷ Alternatives Analysis Report at 2-1 (incorporating results of Southeast Extension First Tier Screening Traffic Memorandum from 2011).

Block, 690 F.2d 753, 767 (9th Cir. 1982) (holding that an agency’s decision to consider only a narrow set of alternatives prohibited a “reasoned choice” by decision-makers).

As discussed above, the Alternatives Analysis screening process was severely flawed and biased against TDM, TSM, mass transit or multi-modal, and upgrade-existing alternatives. Each of these alternatives is these is more practicable and less-environmentally damaging than the toll road alternatives, and each would provide some degree of mobility improvement. Moreover, a combination of these alternative solutions could provide the best alternative to meet the project’s purpose and need while costing far less and correlating to far fewer environmental impacts. See *Davis v. Mineta*, 302 F.3d 1104, 1121-22 (10th Cir. 2002) (agency decision was arbitrary and capricious when it only evaluated alternatives “standing alone,” not cumulatively). The below sections review how these alternatives were unreasonably eliminated from consideration and why they must be considered in developing the FEIS.

1. Improvements to Existing Highways

Failure to give “substantial treatment” to this reasonable alternative—improving existing highways—without providing “adequate justification for its omission” is necessarily arbitrary and a violation of NEPA. *Southeast Alaska Conservation Council v. FHWA*, 649 F.3d 1050, 1059 (9th Cir. 2011). Yet, that is precisely what NCDOT has done here.

The Alternatives Analysis eliminated three different alternatives pertaining to improving existing roadways. These alternatives consisted of widening existing expressways in the project study area, upgrading a primary parallel arterial road, or a combination of such improvements.⁵⁸ Each of the alternatives would widen some portions of I-40, I-440 and the US 64/US 264 Bypass to 12 lanes.⁵⁹ Improve Existing Roadways 1 consists entirely of widening parts of these expressways throughout the project study area.⁶⁰ Improve Existing Roadways 2 would widen segments of NC 55 and NC 42 to six lanes in addition to widening eastern parts of I-40, I-440 and US 64/264. Improve Existing Roadways 3 would likewise widen the eastern segments of the freeways, and would widen sections of Jessie Drive and Ten Ten Road.⁶¹

For each of these, the Alternatives Analysis concludes that the road improving alternatives would not “result in a comparatively large reduction in travel times relative to the other Build Alternative Concepts.”⁶² In reality, the diminutive differences in time savings between the alternatives, as noted above, show that all the alternatives were comparable in terms of their improvements over the No-Build Alternative. Upgrade alternatives are more competitive and practicable than the faulty MOEs and quartile ranking system suggested, and their environmental impacts and feasibility should be evaluated as against the costly, destructive toll highway DSAs. In particular, upgrading existing roadways should be considered in combination with TDM, TSM, and mass transit options as discussed below.

⁵⁸ Alternatives Analysis at 2-4.

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.* at 2-25.

2. Hybrid Alternatives

The Alternatives Analysis reviewed three “hybrid” alternatives, each of which involved “a combination of constructing a roadway on new location and either widening existing expressways or upgrading a primary parallel arterial roadway between NC 55 Bypass in Apex and I-40.”⁶³ These alternatives performed nearly as well as, or better than, the New Location Highway option under the travel times review in the Alternatives Analysis.⁶⁴ Additionally, Hybrid alternatives 1 and 3 consistently performed well under the other MOEs.

Hybrid 1’s environmental, human, and feasibility impacts were never considered despite its strong potential to meet the project’s purposes. Because of a quartile ranking of “2” in the Average Speed MOE, Hybrid 1 was eliminated from consideration early in the screening process. Strangely, the Alternatives Analysis concluded that this alternative would simultaneously “result in a comparatively large reduction in travel times relative to the other Build Alternative Concepts,” but “result in a reduction in average travel speeds.”⁶⁵ The Alternatives Analysis does not investigate this counterintuitive result, and instead dismissed the option because of its apparent inability to improve average speeds in the travel area.

Hybrid 1 also would use only the western segments of the toll highway that already have funding programmed in the North Carolina State Transportation Improvement Program.⁶⁶ In contrast, Hybrids 2 and 3 would have included a segment of the toll highway which currently lacks any funding,⁶⁷ as discussed in greater detail below.⁶⁸ Given Hybrid 1’s secured funding and relatively strong performance in the comparison of alternatives, this alternative should have received greater evaluation to determine whether it could achieve the project’s purposes at a lower environmental and human cost than the expensive, full toll highway option.

3. Transportation Demand Management

The DEIS also includes an insufficient analysis of TDM options that might work in conjunction with other alternatives by reducing demand for the road infrastructure. The DEIS and Alternatives Analysis report rejected TDM because “there is no evidence to suggest that significantly larger percentages of area workers will begin to take advantage of TDM strategies.”⁶⁹ The report, however, provides no contrary evidence suggesting workers and employers would *not* be able to utilize TDM strategies. Indeed, a preparer of the DEIS acknowledged in an earlier draft of the document that there is *not* evidence that reaching 60% participation in TDM strategies is unattainable.⁷⁰

⁶³ *Id.* at 2-5.

⁶⁴ *Id.* at Table 2-2: Average Travel Time from RTP to Listed Destinations (2035) – PM Peak Period, Table 2-3 Average Travel Time from Brier Creek to Listed Destinations (2035) – PM Peak Period.

⁶⁵ *Id.* at 2-26.

⁶⁶ *See id.* at 2-5–2-6.

⁶⁷ *See id.* at 2-6.

⁶⁸ *See infra* notes 197 – 204.

⁶⁹ Alternatives Analysis at 2-20; DEIS at 39.

⁷⁰ Draft DEIS document titled “Lochner responses to DOJ comments 1-4”, at 24 attached as Attachment 13 (see comments NCDOJ 112 and JS113). The preparer attempted to address this through citation to supporting technical documents; the final version of the DEIS cites to the Alternatives Analysis to “support” The claim that there is no

The Alternatives Analysis was purportedly able to generate data and provide research regarding the new location highway alternatives and should have done likewise for the TDM alternative. The purpose of the NEPA process is to generate and evaluate evidence regarding different alternatives, including TDM strategies. NCDOT and the DEIS highlight that the main traffic problems in the project study area occur during peak commute times, which makes TDM a particularly appropriate and effective solution.

In fact, NCDOT itself has evidence on point, suggesting that significantly larger percentages of workers could indeed take advantage of TDM strategies. NCDOT has successfully implemented TDM strategies to manage traffic in relation to its Fortify 440 project, which is adjacent to the northern boundary of the Complete 540 project study area. NCDOT recently celebrated the collaborative effort between “NCDOT and local, transportation, business, and community leaders,” noting “[i]n addition to drivers taking advantage of alternate routes . . . they have also changed their working hours and started telecommuting to help limit the traffic impact.”⁷¹ NCDOT staff attribute this success to a “significant” number of individuals who have adjusted the times of day they travel through the project zone, or who avoid the project zone altogether.⁷² Such statements fly in the face of the suggestion that there is no evidence that significant numbers of workers in the area would use TDM strategies. NCDOT even has an entire website devoted to TDM-style strategies around the Fortify Project, including resources for employers about flexible work schedules and teleworking,⁷³ and commuting resources for drivers in the area.⁷⁴ NCDOT cannot now arbitrarily claim that while TDM strategies have been successful with the Fortify 440 project, such strategies would not be feasible elsewhere.

Elsewhere, the Alternatives Analysis asserts that “60,000 traffic study area workers,” or “60 percent of maximum TDM-eligible employees” would have to use TDM strategies “to achieve a congested VHT reduction comparable to the Build Alternative Concepts.”⁷⁵ This does not reveal what the vehicle hours traveled (“VHT”) reduction would be in such a scenario—nor does it provide information about what sort of VHT reductions could occur with a different number of workers utilizing TDM. For example, if 30,000 workers utilizing TDM could still reduce congested VHT over the No-Build scenario, and if having 30,000 workers utilizing TDM strategies is feasible, that is information necessary for evaluating this alternative’s practicability.

This inadequate review of TDM strategies did not provide sufficient justification to eliminate the TDM alternative from review. The TDM alternative should have advanced to later stages of study, where its environmental, economic, and human impacts could have been evaluated. Moreover, it should have been studied as one aspect of a combination of solutions.

evidence large numbers of commuters would use TDM strategies, yet the Alternatives Analysis likewise contains no evidence to support this claim as noted above. *See id.*; DEIS at 39 n.1.

⁷¹ News Release, NCDOT, *Improving Fortify Travel Times a Collaborative Effort* (Nov. 20, 2015), <https://apps.ncdot.gov/newsreleases/details.aspx?r=11993>, Attachment 14.

⁷² *Id.*

⁷³ *See* NCDOT.gov, *Employer Resources, Fortify NC*, <http://www.ncdot.gov/fortifync/employer-resources/> (last accessed Dec. 22, 2015), Attachment 15.

⁷⁴ *See* NCDOT.gov, *Driver Resources, Fortify NC*, <http://www.ncdot.gov/fortifync/driver-resources/> (last accessed Dec. 22, 2015), Attachment 16.

⁷⁵ Alternatives Analysis at 2-16.

4. Transportation System Management

TSM strategies received similarly inconsistent and inadequate review in the Complete 540 NEPA process. The Alternatives Analysis Report claimed that “TSM improvements can increase speeds on freeways/expressways and major arterials by 2 to 3 percent”—an increase comparable to the road-building alternatives—but that “these types of facilities only account for a small portion of traffic study area roadway facilities in the 2035 TRM.”⁷⁶ The Alternatives Analysis Report then concludes that the small percentage and small number of applicable roads means that TSM cannot compete at the same level of the road-building alternatives. By contrast, the MOEs used to evaluate the alternatives, all refer to the “major roadway network in the project study area” which presumably would be comprised of the freeways, expressways, and major arterials in the area, such as those eligible for TSM improvements.⁷⁷

Additionally, the Alternatives Analysis Report should have included more information about the “small portion” of TSM-eligible roadway facilities—such as what percentage of the roadways they reflect, and what that two to three percent change in travel speeds would mean for a representative trip in the study area, as the Alternatives Analysis did for road-building concepts evaluated under the MOEs. TSM strategies represent yet another feasible alternative that should have received detailed review.

NCDOT’s implementation of TSM strategies along US 74 in Union County demonstrate how effective these methods can be in decreasing congestion. Beginning in 2007, “NCDOT implemented several measures to improve traffic flow along existing US 74 and partially mitigate congestion.”⁷⁸ TSM improvements were applied to 23 intersections along US 74 and included measures such as signal timing optimization and directional crossovers.⁷⁹ After implementing these low cost TSM strategies, average travel speeds along US 74 increased from approximately 20 to 30 MPH in 2007 to approximately 40 to 44 MPH during peak travel times.⁸⁰ An additional TSM improvement—constructing a superstreet facility for certain intersections along US 74—is scheduled for construction later this year.⁸¹

If TSM strategies in the Complete 540 study area could yield gains in average speed *half* as great as those along US 74, a TSM alternative would outperform the toll highway option in forecast average speed improvements.⁸² The success of TSM improvements along US 74 establish the necessity of thoroughly reviewing the ability of TSM strategies to address the Complete 540 project’s legitimate purposes and needs. TSM strategies should be studied independently, as well as in combination with other concepts, such as TDM, upgrading existing roadways, and mass transit.

⁷⁶ *Id.* at 2-21.

⁷⁷ *Id.* at 2-7–2-8.

⁷⁸ Monroe Connector /Bypass Draft Supplemental Final EIS, Chapter 1 at 1-3, Attachment 17.

⁷⁹ Monroe Connector /Bypass Draft Supplemental Final EIS, Chapter 2 at 2-10–2-12, Attachment 18

⁸⁰ Monroe Connector /Bypass Draft Supplemental Final EIS, Chapter 1 at 1-6–1-7, Attachment 17.

⁸¹ Monroe Connector /Bypass Draft Supplemental Final EIS, Chapter 2 at 2-12, Attachment 18.

⁸² Alternatives Analysis at Table 2-1: Average Daily Travel Speeds in Traffic Study Area (2035) – PM Peak Period (showing the forecast average speed for a No-Build scenario as 44.8 mph, and for a New Location Highway as 44.7 mph—a difference of less than 3 mph).

5. Increased Public Transportation

The mass transit/multi-modal alternative was also unfairly evaluated in the Alternatives Analysis. After acknowledging that the TRM could not determine travel times for a mass transit/multi-modal alternative, the only evaluation of this alternative was the unsubstantiated statement “[b]uses may actually increase travel times due to frequent stops.”⁸³ The report made a similar fleeting statement regarding average speeds, conceding that buses could improve speeds, but that they also may reduce speeds due to stops.⁸⁴ These unhelpful, vague conjectures are an insufficient basis to determine that a mass transit/multi-modal option is not reasonable—particularly when considered alongside other solutions.

The DEIS and Alternatives Analysis note that the “number of buses serving the study area on a daily basis would need to increase from the 50 or so that are currently in use to nearly 600, and each would need to consistently operate at nearly full capacity . . . in order to achieve a decrease in study area traffic congestion and an improvement in travel times sufficient to meet the project’s primary purposes.”⁸⁵ Importantly, the project purposes do not contain a threshold level of reductions or quantitative measures; the purposes are generally to increase mobility and reduce congestion, and not by any particular amount. Either NCDOT has some preconceived requisite amounts of congestion and mobility in mind, or it compared these alternatives to the specific numbers attainable by building the toll road.

For example, what if increasing bus service to 300 buses would reduce congestion and increase mobility by a discernible amount, even if not by as much as the toll road? This, in conjunction with other alternatives’ elements such as TDM, TSM, and improving existing roadways, could combine to *better* achieve the project’s purposes with less costs and fewer impacts than the Complete 540 toll highway. Such considerations are particularly relevant now that Wake County has released its recent long-term transit plan, which includes quadrupled bus service within the county and adding a commuter rail line connecting Garner with Raleigh, NCSU, Morrisville, RTP, Cary, Durham, and Duke.⁸⁶ This plan will directly impact the feasibility of a mass transit/multi-modal alternative, as well as other alternatives, within the project study area.

The DEIS also suggests that increasing bus service to 600 buses within the project study area would not be feasible due to cost: “The cost associated with such a large expansion of bus service would be high It is unlikely that these expansion and ongoing operation costs could be met by bus fares alone.”⁸⁷ Such an assertion is unsupported when the toll highway will cost upwards of \$2 billion, and no financial plan is in place to pay for it. The EPA even suggested that mass-transit would be a reasonable alternative to the new toll highway option because it would create new, permanent jobs “without the disproportionate requirement for infrastructure

⁸³ *Id.* at 2-11.

⁸⁴ *Id.* at 2-10.

⁸⁵ DEIS at 39-40; Alternatives Analysis at 2-14–2-15.

⁸⁶ RECOMMENDED WAKE COUNTY TRANSIT PLAN, at 8-11 (Dec. 2015), Attachment 3; Rebecca Martinez, *\$2.3 Billion Recommended Wake Transit Plan Would Quadruple Bus Service*, WUNC, Dec. 9, 2015, <http://wunc.org/post/23-billion-recommended-wake-transit-plan-would-quadruple-bus-service#stream/0>, Attachment 19.

⁸⁷ DEIS at 40.

maintenance,” as well as with “fewer and less substantial indirect and cumulative impacts.”⁸⁸ Without more supporting data about bus costs, the comparative cost of bus service does not provide a rational basis for rejecting the mass transit/multi-modal alternative.

6. Combination of Strategies

The Alternatives Analysis also failed to consider a combination of alternatives which might meet the project’s purpose. While the Alternatives Analysis consistently rejected the upgrade existing roads, TDM, TSM, and mass transit alternatives as not being able to meet the project’s purposes to the same degree as the toll highway option, the Alternatives Analysis never considered whether combining two or more of these options would meet the project purposes as well or better than a toll highway option—and at a lower cost, with fewer environmental and human impacts.

The agencies must investigate alternatives such as TDM, TSM, mass transit/multi-modal, and upgrading existing roadways, separately and in combination, in order to fulfill their obligations under NEPA to rigorously review a reasonable range of alternatives. Indeed, the EPA suggested that NCDOT evaluate a combination alternative early on.⁸⁹ As highlighted above, it is unreasonable to reject this slate of alternatives because any one might not achieve the same levels of congestion-relief or mobility as building the 540 toll road. And indeed, due to the flawed analysis, these alternatives may well perform better than suggested in the Alternatives Analysis. NCDOT must evaluate whether combining these unreasonably rejected alternatives could meet the project purpose. *See Mineta*, 302 F.3d at 1121-22. *C.f. Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 814 (9th Cir. 1999) (“A ‘viable but unexamined alternative renders the environmental impact statement inadequate.’” (quoting *Citizens for a Better Henderson v. Hodel*, 768 F.2d 1051, 1057 (9th Cir. 1985))).

IV. UNPRECEDENTED AND SEVERE IMPACTS

The DEIS presents 17 different DSAs, each of which is environmentally destructive. All of the DSAs would impact thousands of feet of streams, dozens of acres of wetlands and ponds, and correspond to destructive indirect and cumulative impacts through shifting traffic and land use patterns. Most of the DSAs would also imperil the endangered dwarf wedgemussel by crossing over the portion of Swift Creek that is most important to the species. While the DSAs using the Red Route would avoid most of the direct impacts to the dwarf wedgemussel, and correspond to far fewer environmental impacts in comparison to the other DSAs, these Red Route options are still environmentally damaging. The excessive impacts associated with all DSAs underscore the need for a more thorough examination of non-toll highway alternatives which would avoid most of these harmful effects.

A. Each DSA Would Result in Significant Adverse Impacts to Water Quality Which Would Not Occur With Non-Toll Highway Alternatives.

⁸⁸ Stakeholder Report at 178 (2012 EPA Technical Assistance Comments on Draft Alternatives Development and Analysis Report).

⁸⁹ *Id.* at 180 (“Light rail was not considered for the mobility analysis nor was a full comparative combination of alternatives, such as some TSM, some modest increases in express bus services from significant commuting areas and a light rail connecting major commuting center and destinations.”).

A cursory examination of the direct impacts associated with any and all of the DSAs easily establishes the excessive environmental damage that would be caused by this project. Even the DSAs with the associated “least” environmental damage would result in substantial adverse impacts on wetlands, streams, and other natural resources. By way of comparison, the EPA had previously considered the proposed Garden Parkway project in Union and Mecklenburg counties to be one of the most environmentally damaging North Carolina projects in the preceding ten years of the NEPA/Section 404 Merger process with 36,416 linear feet of impacted streams, 7.02 acres of impacted wetlands, 4.5 acres of impacted ponds and 91 impacted stream crossings.⁹⁰ Here, every single DSA has a far greater number of impacts as to each of these environmental features, with even the “least” harmful option, DSA 7, corresponding to 51,582 linear feet of impacted streams, 51.4 acres of impacted wetlands, 17.7 acres of impacted ponds, and 106 impacted stream crossings.⁹¹ Moreover, once the indirect impacts from changed land uses and induced growth are considered, the environmental consequences will be even more severe.

1. Miles of Impacted Streams and Ponds

Direct impacts from the DSAs would affect anywhere from 51,582 to 78,087 linear feet of impacted streams, including anywhere from 106 to 142 separate stream crossings.⁹² DSAs 6 and 7, which use the Red Route, are associated with the fewest stream impacts.⁹³ The possible 51,582 to 78,087 linear feet of stream impacts translates to anywhere from just under *10 miles* of affected streams to more than *fourteen miles* of affected streams. These stream impacts make the Complete 540 DSAs significantly worse than the previously mentioned Garden Parkway project.

Additionally, building the proposed toll road would directly impact anywhere from 25 to 44 ponds, comprising a total of 17.7 to 27.6 acres of ponds.⁹⁴ Streams and ponds provide vital ecosystem resources, in addition to contributing to the natural beauty of this area. For example, many of the streams and ponds are inhabited by a diverse array of aquatic wildlife,⁹⁵ including a rich variety of mussel species.⁹⁶ Additionally, the section of the Neuse River and many of its tributaries flowing through the study area is recognized by North Carolina resource agencies as Anadromous Fish Spawning Area (“AFSA”) and as a Primary Nursery Area (“PNA”).⁹⁷ The AFSA designation means that anadromous fish species—which are fish species that begin their lives in freshwater, migrate to the open ocean for their adult lives, and return to freshwater areas to spawn—have been directly observed in the area.⁹⁸ While the Red Route DSAs represent the

⁹⁰ Letter from Heinz J. Mueller, U.S. EPA, to Jennifer Harris, N.C. Turnpike Authority (Feb. 22, 2011), Attachment A: FEIS Detailed Review Comments, Gaston East-West Connector Toll Facility, at 4, Attachment 20.

⁹¹ DEIS at 108, Comparative Evaluation Matrix

⁹² *Id.*

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ Natural Res. Tech. Report at 11.

⁹⁶ *Id.* App. E: Freshwater Mussel Survey Report (Mar. 2011), at i-ii.

⁹⁷ DEIS at 27; Natural Res. Tech. Report at 5; NAT’L MARINE FISHERIES SERV., A REFERENCE GUIDE TO THE DISTRIBUTION OF ANADROMOUS FISHES IN NORTH CAROLINA RIVERS (2010), at 5 (listing tributaries within Neuse River AFSA, including, for example, Swift Creek and Middle Creek) *available at* <https://connect.ncdot.gov/resources/hydro/Hydraulics%20Memos%20Guidelines/A%20Reference%20Guide%20to%20the%20Distribution%20of%20Anadromous%20Fishes%20in%20NC.pdf>, attached as Attachment 21.

⁹⁸ DEIS at 27.

options with the fewest impacts to ponds and other water resources, the Red Route is also the only route to directly impact approximately 6.7 acres of the Swift Creek Critical Watershed.⁹⁹ The Swift Creek Critical Watershed is a water supply watershed, and development within the watershed is limited according to Wake County's Swift Creek Land Management Plan.¹⁰⁰ The DEIS fails to explain how these limits on development would affect the project and provides no information about the nature of the impacts to the 6.7 affected acres. The Red Route would cross Swift Creek between Lake Wheeler and Lake Benson, a section of the creek particularly susceptible to increased pollution and other ill effects.

As documented in the DEIS, the nature of the impacts to water resources include increased sedimentation, increased turbidity, habitat degradation to aquatic species, changes in water temperature, increased pollution from highway runoff and construction activities, and changes in water flows.¹⁰¹ While preventive measures such as sedimentation and erosion controls are mentioned in the DEIS, there is no commitment they will be followed and it is unlikely they will be fully successful. Because the water resources at stake include essential fish habitat and long stretches of streams, these impacts are even more alarming.

The DEIS also lacks much information regarding stream and water quality impacts. Fish monitoring of the streams in the area appears to have been very limited, with data being collected at *one location* within a mile of the study area back in June of 1991 and again in April of 1995.¹⁰² Likewise, the benthic monitoring within the study area is dated, with the majority of the designations coming from the 1980s or early 1990s.¹⁰³ The site with the most recent benthic water quality assessment is from July 2000.¹⁰⁴ This dated, incomplete information harms the NEPA process by failing to provide information necessary to the selection of a preferred alternative.

2. Already Impaired Waters

Many of the streams in the Complete 540 project area are already listed as impaired under Section 303(d) of the CWA ("Section 303(d)" or "303(d)"), meaning that the streams' water quality levels are below the applicable water quality standards. In other words, these impaired streams are already polluted, and their polluted status would only worsen with the addition of more impervious paved surfaces and conversion of natural areas into commercial and industrial developments,¹⁰⁵ which would result in increased stormwater runoff, nonpoint pollution, and sedimentation issues within the affected watersheds as noted above. Four of the DSAs would impact more than one thousand linear feet of already impaired streams, and another ten would impact between 500 and 1,000 linear feet of 303(d) impaired streams.¹⁰⁶

⁹⁹ DEIS at 108, Comparative Evaluation Matrix.

¹⁰⁰ Community Impact Assessment (June 2015), at 38.

¹⁰¹ DEIS at 87-88.

¹⁰² Natural Resources Technical Report (Aug. 2014) at 5

¹⁰³ Natural Resources Technical Report (Aug. 2014) at 5

¹⁰⁴ Natural Resources Technical Report (Aug. 2014) at 5

¹⁰⁵ Indirect and Cumulative Effects Report (Dec. 2014), at E-4-E-5.

¹⁰⁶ DEIS at 108, Comparative Evaluation Matrix

Aside from its numeric summary of Section 303(d) impacts in the Comparative Evaluation Matrix, the DEIS only makes fleeting mention of these 303(d) impaired waters in a general section about Water Resource Protection: “Section 303(d) of the CWA prohibits the addition of certain new sources of pollutants into waters listed as not meeting water quality standards. Several water bodies in the Complete 540 study area are on the North Carolina Section 303(d) list.”¹⁰⁷ On the following page, in a discussion specific to the Neuse River, the DEIS notes that “the Neuse River in the study area . . . is listed on the North Carolina 2014 Final 303(d) list of impaired waters due to high copper levels,” and “portions of Swift Creek in the study area” are on the Section 303(d) list due to “impaired benthic integrity.”¹⁰⁸ Terrible Creek and Beddingfield Creek are also listed under 303(d) due to their impaired benthic community,¹⁰⁹ and Little Creek and Middle Creek are on the 303(d) list due to impaired benthic integrity and a poor fish community.¹¹⁰ As noted in the Natural Resources Technical Report prepared prior to the DEIS, both the Neuse River and Middle Creek had previously been listed as impaired due to turbidity.¹¹¹ The Indirect and Cumulative Effects (“ICE”) Report identifies still more 303(d) streams within reach of future land use impacts caused by the project, including Crabtree Creek, Walnut Creek, Kenneth Creek and Neills Creek.¹¹²

This is the extent of the DEIS’s documentation of Section 303(d) impaired waters—there is no analysis of how the impaired streams would be further impacted and no discussion of how NCDOT intends to prevent further impairment. As previously noted, the DEIS succinctly summarized and acknowledged the import of Section 303(d) in prohibiting “the addition of certain new sources of pollutants into waters listed as not meeting water quality standards.”¹¹³ Yet, the DEIS omits any discussion of the nature of the projected impacts to the several hundred linear feet of Section 303(d) listed streams.

This lack of sufficient explanation of impacts must be corrected in order to provide the public and resource agencies with necessary project information. Pursuant to § 401 of the Clean Water Act, 33 U.S.C. § 1341, the state of North Carolina must certify that any discharge from the Project complies with the relevant provisions of the Clean Water Act. The North Carolina Division of Water Resources (“DWR”) has explained that certification is predicated on a determination that a project “does not result in cumulative impacts, based upon past or reasonably anticipated future impacts, that cause or will cause a violation of downstream water quality standards.”¹¹⁴ For “projects such as roads on new location,” DWR requires a “[q]uantitative (i.e. [d]etailed) [a]nalysis of water quality impacts.”¹¹⁵ According to DWR policy, impaired waters listed pursuant to CWA Section 303(d), “warrant special attention with

¹⁰⁷ DEIS at 26.

¹⁰⁸ DEIS at 27.

¹⁰⁹ DEIS at 29.

¹¹⁰ DEIS at 27, 29.

¹¹¹ Natural Resources Technical Report at 5.

¹¹² Indirect and Cumulative Effects Report (Dec. 2014), at E-3, 21-22.

¹¹³ DEIS at 26.

¹¹⁴ N.C. DIV. WATER QUALITY, CUMULATIVE IMPACT POLICY FOR THE 401 AND ISOLATED WETLAND PERMITTING PROGRAMS, at 1 (April 10, 2004) at http://portal.ncdenr.org/c/document_library/get_file?uuid=b567bb9e-09fd-4ec0-9231-6d47e19e085e&groupId=38364 (citing 15A NCAC 2H .0506 and 15A NCAC 2H .1300), attached as Attachment 22.

¹¹⁵ *Id.* at 2.

respect to cumulative impact analysis since existing regulatory programs often have not adequately addressed pollution sources for these waters.”¹¹⁶ DWR therefore advises that “a detailed, quantitative analysis should be conducted by DOT to determine 1) if cumulative impacts are likely,” and “2) what non-point source control measures will be needed and how they are to be implemented.”¹¹⁷ DWR goes on to explain that “[t]his analysis will often require watershed-level modeling using export coefficients, estimated levels of treatment for BMP’s and comparison to numerical water quality standards or numeric water quality goals.”¹¹⁸

Here, the DEIS and supporting reports fail entirely to discuss potential cumulative—or any—impacts to impaired waters within the project study area as directed by the DWR guidance. This lack of study and documentation of impacts to CWA 303(d) streams will make obtaining Section 401 certification difficult, if not impossible.

3. Devastated Wetlands

In addition to the thousands of yards of impacted streams, each DSA would directly impact at least 135 separate wetlands and as many as 161 wetlands, comprising a total of 51.4 to 75.6 acres of impacted wetlands.¹¹⁹ These numbers comprise only the wetlands directly impacted by the various proposed DSAs, as the underlying Natural Resources Technical Report identified far more wetlands within the study area as a whole—a total of 543 wetlands—which would likely be impacted by the indirect impacts of the project.¹²⁰

Much like the DEIS’s cursory overview of the quantitative impacts on streams, the DEIS and Natural Resources Technical Report fail to document the extent or nature of any of the wetlands impacts. Nonetheless, in reviewing the maps associated with the project and in light of nature of the project, it appears that large areas of wetlands would be completely destroyed, and others would be impaired or damaged by consequent increases in runoff and pollution. While the DEIS does not specifically discuss sedimentation, turbidity, increased runoff and pollution issues within its specific wetlands impacts section,¹²¹ the DEIS identified these impacts in the general section on water resources.¹²² The noted direct impacts to water resources apply to wetlands, and may have greater negative impacts in light of the sensitive nature and ecological importance of wetlands. Additionally, wetlands in the project area would suffer more impacts in the form of indirect and cumulative impacts as land uses change and development shifts—thus the impacts to wetlands would be even worse than what is already depicted in the DEIS.

4. Lack of Buffer Protections

The DEIS and ICE Report emphasize that existing state and local buffer rules provide protection for waterways within the study area.¹²³ The ICE Report highlights that some local

¹¹⁶ *Id.* at 3.

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ DEIS at 108: Comparative Evaluation Matrix.

¹²⁰ Natural Res. Tech. Report at 12.

¹²¹ DEIS at 90-91.

¹²² *Id.* at 88-89.

¹²³ *Id.* at 27; ICE Report at E-4, 32.

jurisdictions within the study area have imposed more stringent buffer requirements. In making this observation, however, the DEIS and ICE Report fail to document the impacts of the proposed project on these riparian buffers established or protected by local ordinance.

Exclusive reliance on the enforcement of state-mandated buffer protections is questionable given the myriad steps taken by the North Carolina General Assembly to weaken the State's riparian buffer protection requirements. First, in recognition of the breadth of buffer protections currently afforded by local ordinance, the legislature recently sought to restrict the authority of local governments in this arena. Legislation passed earlier this year prevents any local government, absent completed review and approval by the State prior to 2017, from enacting, implementing, or enforcing any buffer ordinance unless "necessary to comply with or implement federal or State law or a condition of a permit, certificate, or other approval issued by a federal or State agency." 2015 N.C. Sess. Laws 246 § 13.1(b) (Sept. 23, 2015) (enacting N.C. Gen. Stat. § 143-214.23A). The same legislation limited the ability of local governments to enforce buffer ordinances in their extraterritorial jurisdiction, regardless of observed impacts on water quality. *Id.* § 3 (amending N.C. Gen. Stat. § 160A-365). Thus, the ICE Report's statement regarding local ordinances providing more stringent buffers is outdated, and NCDOT cannot assume such protections will be in place to assist in reducing impacts from the Complete 540 project.

The State's disregard for the water quality protection afforded by riparian buffers is also evidenced by a recent reduction in required mitigation when a project impacts existing riparian buffers. A 2015 law eliminated all mitigation requirements previously applicable under state law to account for impacts to riparian buffers bordering intermittent streams. 2015 N.C. Sess. Law 286 § 4.31(a) (Oct. 22, 2015) (amending N.C. Gen. Stat. § 143-214.7C). In other words, the DEIS cannot genuinely claim that selected routes would have a smaller impact on "protected buffer zones" than suitable alternatives when it fails to consider actions by the State to narrow the scope of protected buffer zones. The DEIS fails to fully and fairly assess the project's potential impacts to buffer zones in light of recent state legislation, and assumes that many now-defunct local buffer zones would be in place. These buffer zone considerations will have a serious effect on environmental impacts in the project area, as well as a serious impact on measures NCDOT may be required to undertake to provide additional buffer protections in light of these legislative changes.

A. Building the Toll Highway Would Jeopardize an Endangered Species in Violation of the Endangered Species Act

Under the Endangered Species Act ("ESA"), federal agencies must consult with the U.S. Fish and Wildlife Service to ensure that "any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined . . . to be critical." 16 U.S.C. § 1536(a)(2). The Complete 540 project is subject to this mandate, and indeed, the project cannot legally proceed because it would jeopardize the continued existence of the endangered dwarf wedgemussel—and possibly other rare, soon-to-be federally listed species.

Thirteen rare aquatic species occur within the project study area, including the federally-listed endangered dwarf wedgemussel, and a number of species that will likely be listed before project construction is scheduled to begin on this project. Here, all but DSAs 6 and 7 would cause direct adverse effects to the dwarf wedgemussel, as well as likely damaging effects on the 12 other rare aquatic species. It is possible that even DSAs 6 and 7, through indirect or cumulative impacts, could jeopardize the continued existence of the dwarf wedgemussel.

1. Building the Toll Road Would Result in Severe Direct, Indirect, and Cumulative Impacts to the Dwarf Wedgemussel

As documented throughout the DEIS and supporting reports, an essential population of the dwarf wedgemussel occurs within the Swift Creek watershed.¹²⁴ The North Carolina Wildlife Resources Commission includes the Swift Creek Watershed on a list of 25 areas in the state “considered essential for the continued survival of endangered or threatened aquatic wildlife species.”¹²⁵ The USFWS considers Swift Creek as being essential for the recovery of the dwarf wedgemussel.¹²⁶ All of the DSAs cross Swift Creek, with the majority crossing Swift Creek downstream of Lake Benson. The section of Swift Creek upstream of Lake Benson is not known to support dwarf wedgemussels, while the section downstream of Lake Benson supports a well-documented, persistent population of dwarf wedgemussels. As stated in the ICE Report, the “portion of Swift Creek downstream of the Lake Benson dam is particularly important for the long-term survival of this species.”¹²⁷

The DSAs not using the Red Route all cross Swift Creek below Lake Benson, in the stretch of Swift Creek where dwarf wedgemussels have been consistently observed in stream surveys. Indeed, the Orange Route segment “appear[s] to connect with I-40 at a particularly unfavorable location with regard to potential impacts to the dwarf wedgemussel,” placing the I-40 and US 70 Bypass interchanges “on top of several tributaries to Swift Creek and also in close proximity to Swift Creek mainstem. These routes would tear up these critical portions of Swift Creek, and the dwarf wedgemussel would suffer further direct impacts from erosion and siltation resulting from construction of the road.”¹²⁸ The only route that would avoid the direct impacts on the dwarf wedgemussel is the Red Route, which is included only in DSAs 6 and 7.

The indirect and cumulative impacts identified by USFWS and the ICE Report would jeopardize the dwarf wedgemussel’s continued existence under any of the current DSAs. Given the induced growth and other indirect and cumulative impacts likely to occur with this road, even DSAs 6 and 7 may jeopardize the dwarf wedgemussel’s continued existence.¹²⁹ The USFWS expressed concern about this project’s indirect impacts to the dwarf wedgemussel early on,

¹²⁴ *E.g. id.* at 30.

¹²⁵ Dwarf Wedgemussel Viability Study: Phase 1 (Mar. 2014), at 1 [hereinafter “DWM Viability Report”].

¹²⁶ *Id.* at 1.

¹²⁷ ICE Report, at E-3.

¹²⁸ Letter from Gary Jordan, USFWS, to Jennifer Harris, NCTA (Feb. 3, 2010), at 1-2, Attachment 23; *see also* Sarah McRae, USFWS, Powerpoint Presentation: ESA Consultation Considerations for Complete 540 Transportation Project (Feb. 3, 2015), at slide 18, Attachment 24.

¹²⁹ Natural Res. Tech. Report, App. E: Freshwater Mussel Survey Report, at ii (“[D]irect impacts to the dwarf Wedgemussel are unlikely to occur if the Red Corridor is constructed; however, conclusions regarding Indirect and Cumulative Impacts to the population cannot be determined at this time, and will need to be addressed with all alternates within the study area.”).

noting that “[t]his population of dwarf wedgemussel is at risk . . . from indirect effects associated with the degradation of water quality from secondary development induced by the new road.”¹³⁰ USFWS further noted that additional impervious surfaces in the area and increased storm water runoff due to the induced development would further degrade water quality in the Swift Creek watershed.¹³¹ In turn, the ICE report acknowledges likely cumulative effects on the dwarf wedgemussel, noting that this species is “extremely sensitive to urban pollutants,” and “urban development activities lead to soil erosion and sedimentation that also harms the species.”¹³² In other words, the increased level of urban development anticipated to occur as a result of the building of the road would have serious impacts on the dwarf wedgemussel’s viability, in addition to the direct impacts associated with the direct devastation of the road crossing at Swift Creek.

The initial dwarf wedgemussel viability study completed in conjunction with the DEIS acknowledges the dwarf wedgemussel’s susceptibility to direct, indirect, and cumulative impacts while also noting the population’s recent rebound. The study establishes that “there are numerous stressors to aquatic communities, particularly the DWM population, the [Swift Creek Watershed],” with many of the stressors resulting from urbanization of the watershed.¹³³ The study further reports that declines in the mussel population “appear to have leveled off,” and evidence indicates that “mussel recruitment has increased within the last few years.”¹³⁴

The study confusingly appears to focus on the current viability of the dwarf wedgemussel, rather than the viability of the dwarf wedgemussel in the event any of the DSAs are built.¹³⁵ The Endangered Species Act protections do not depend upon a species’ viability—indeed, such an interpretation would be in complete contravention of the purpose of recovering and conserving species whose viability are of concern precisely because of their endangered or threatened status. Instead, the key question for ESA protection is whether the species or habitat supporting it exists within the area. 16 U.S.C. § 1536(a)(2) Viability becomes relevant only when reviewing whether or not a proposed action would threaten the species’ survival. *Id.*; *see id.* at § 1536(b)(3)(A) (at conclusion of consultation, FWS will provide “a summary . . . detailing how the agency action affects the species or its critical habitat,” and “suggest those reasonable and prudent alternatives which . . . would not violate” the ESA). Nonetheless, recent studies suggest the dwarf wedgemussel population may be rebounding.¹³⁶ The toll road would reverse that trend of improvement and doom this dwarf wedgemussel population.

¹³⁰ Letter from Gary Jordan, USFWS, to Jennifer Harris, NCTA (Feb. 3, 2010), at 1-2, Attachment 23; *see also* Sarah McRae, USFWS, Powerpoint Presentation: ESA Consultation Considerations for Complete 540 Transportation Project (Feb. 3, 2015), at slide 18, Attachment 24.

¹³¹ Letter from Gary Jordan, USFWS, to Jennifer Harris, NCTA (Feb. 3, 2010), at 1-2, attached as Attachment 23.

¹³² ICE Report, at 77; *see also* letter from Gary Jordan to Jennifer Harris, NCTA (Feb. 3, 2010), at 2, attached as Attachment 23 (noting that “[a]dditional cumulative impacts may occur in conjunction with the proposed widening of I-40 within this same study area”).

¹³³ DWM Viability Report at ii.

¹³⁴ *Id.*

¹³⁵ *Id.* at 47 (noting goal of determining “long term viability”).

¹³⁶ *Id.* at 75 (“The decline [in dwarf wedgemussel populations] seems to have leveled off in recent years, which when coupled with evidence of recent reproduction and recruitment, may suggest a chance for the species to persist into the future.”).

Under the strictures of the ESA and its implementing regulations, this project cannot legally proceed if it will jeopardize the dwarf wedgemussel or adversely affect the dwarf wedgemussel's critical habitat. 16 U.S.C. § 1536(a)(2); 40 C.F.R. § 230.10(b)(3). The required ESA consultation process with USFWS is still underway.¹³⁷ Until USFWS completes its consultation process, which will determine whether the project is likely to jeopardize the dwarf wedgemussel or adversely affect its habitat, the NEPA process and project as a whole cannot proceed.

Simply stated, building DSAs 1-5 and 8-17 is illegal under the ESA, and construction of DSAs 6 and 7 may also be barred under the ESA once additional research is completed. NCDOT should explore non-highway options that will not place the species in jeopardy.

2. Insufficient Information Impedes Full Review of the Impacts to the Dwarf Wedgemussel

While the DEIS acknowledges some of the possible adverse effects, it is also incomplete in its analysis and defers the full ESA evaluation for later. The DEIS states “[t]he Biological Conclusion for this species is unresolved,” and states NCDOT will not undergo the necessary Consultation process until a preferred alternative is selected, at which point the consultation results will be published in the FEIS or ROD.¹³⁸ Additionally, the mussel survey relied upon in the DEIS for documenting mussel species, including the existence of dwarf wedgemussels within portions of Swift Creek, was completed more than five years ago.¹³⁹ It appears that each included segment was surveyed only once during the study period.¹⁴⁰ This study's limits and dated nature require that additional mussel surveys be conducted to better document the presence of a variety of rare mussel species.

3. A Propagation Facility Cannot “Offset” Impacts to the Dwarf Wedgemussel or Comply with the ESA

Documents obtained from NCDOT raise the concern that the agencies may attempt to circumvent the ESA's conservation mandate through a mussel propagation program that would simply put more mussels into an uninhabitable environment once the Complete 540 toll road is built. Correspondence between NCDOT and USFWS staff reveal that the agencies are coordinating on a plan that would establish a dwarf wedgemussel propagation facility in conjunction with North Carolina State University. Given the plan's development in conjunction with NCDOT and relative to the Complete 540 DEIS, the plan appears to be intended to offset or “mitigate” harm to dwarf wedgemussels that may result from the Complete 540 toll highway, rather than a plan developed independently to assist the viability of the species in its current state. NCDOT has presented no evidence to suggest that the dwarf wedgemussel could be successfully propagated in captivity and then reintroduced into the wild.

¹³⁷ DEIS at 95.

¹³⁸ *Id.* at 95-96.

¹³⁹ Natural Res. Tech. Report, App. E: Freshwater Mussel Survey Report at 2.

¹⁴⁰ *Id.* at 1-2.

Even if NCDOT could successfully propagate mussels in captivity and release them into the wild, the time for implementing such a program has passed.¹⁴¹ It is too late to successfully complete such a program so as to augment the current mussel population, rather than effectively replace the current mussel population once wiped out by the proposed Complete 540 toll road.¹⁴² More than a year and a half ago, USFWS warned NCDOT that such “population augmentation” would be a time-sensitive and resource-intensive process:

[T]he process of acquiring a captive propagation facility and developing a captive propagation program would take considerable time to accomplish. After acquiring the necessary facility and equipment, dwarf wedgemussel brood stock would need to be acquired from Swift Creek and progeny produced and raised to sufficient size to release into the wild—a process that takes years.¹⁴³

USFWS emphasized that “time is of the essence” in collecting possible brood stock for such a propagation venture. That warning was issued more than a year and a half ago, and yet NCDOT has not collected the necessary brood stock that would enable NCDOT to successfully augment the existing wild population in advance of the current expected construction start date in 2018, less than two years away. Strangely, despite USFWS’s initial cautionary words about the time and resources necessary for propagation efforts, USFWS included such measures in a later draft document regarding conservation of the dwarf wedgemussel in Swift Creek.¹⁴⁴ This document, and the DEIS, fail to explain how propagation will help the dwarf wedgemussel population if decreased water quality and habitat degradation resulting from construction of the toll road leaves Swift Creek uninhabitable by wild or captive-propagated dwarf wedgemussels.

Additionally, given the supposedly limited number of wild individuals in Swift Creek, it is unclear how NCDOT would be able to acquire a sufficient brood stock to support such a program. In fact, when discussing how to improve viability of the Swift Creek dwarf wedgemussel population, USFWS’s first recommended strategy is to “[i]dentify habitat refugia” and “[p]rovide long term protection of the best habitats in Swift Creek.”¹⁴⁵ Such protections are paramount, and if habitat in Swift Creek cannot be adequately protected, a mussel augmentation program would be a fool’s errand. A senior USFWS fisheries and ecological services biologist raised this concern in e-mail correspondence with NCDOT and others involved in a possible mussel propagation facility:

It is my firm belief that captive propagation, augmentation and reintroductions should be sparingly-used; *the optimal way to ensure sustainability of at-risk and*

¹⁴¹ Sarah McRae, USFWS, Powerpoint Presentation: ESA Consultation Considerations for Complete 540 Transportation Project (Feb. 3, 2015), at slide 31, attached as Attachment 24 (stating that in order to successfully propagate dwarf wedgemussels for population augmentation, “[n]eed to collect DWM broodstock ASAP”).

¹⁴² USFWS, Draft Proposal: Conservation of Dwarf Wedgemussel in Swift Creek (Neuse), Including Captive Propagation Needs and Future Augmentation Scenarios (Feb. 2015), at 4, Attachment 25 (describing augmentation plan which would require releases of 3-year old dwarf wedgemussels annually over a 10-year period).

¹⁴³ Letter from Gary Jordan, USFWS, to Jennifer Harris, NCDOT (May 14, 2014), at 1–2, Attachment 26.

¹⁴⁴ USFWS, Draft Proposal: Conservation of Dwarf Wedgemussel in Swift Creek (Neuse), Including Captive Propagation Needs and Future Augmentation Scenarios (Feb. 2015), Attachment 25.

¹⁴⁵ Sarah McRae, USFWS, Powerpoint Presentation: ESA Consultation Considerations for Complete 540 Transportation Project (Feb. 3, 2015), at slide 19, Attachment 24.

*imperiled species is to ensure the quality and quantity of the habitat which sustains them, as well as enforcing existing protective measures already in place under both state and federal statutes. In the absence of such complementary education, habitat, and enforcement measures, my concern is that we will just be placing valuable and costly captive-propagated individuals in harms way alongside their remaining wild companions.*¹⁴⁶

Unlike impacts to wetlands and streams, impacts to endangered species cannot be “offset” or “mitigated.” Protected species are not fungible, and raising dwarf wedgemussels in captivity or releasing them somewhere other than Swift Creek will not satisfy the ESA conservation mandate to ensure the species’ viability in the wild. While another USFWS biologist promised that, “[r]est assured, we will not pursue propagation and augmentation without simultaneous habitat protection,” no habitat protection plan appears to have been developed to buttress the current augmentation plan.¹⁴⁷

Finally, the highway cost estimates in the DEIS do not appear to include the costs associated with such a mussel propagation facility. In order to present a full cost of alternatives that will require construction of such a facility NCDOT must disclose the full costs that would be associated with its construction and running.

4. NCDOT Must Fully Study Other Species Which Will be Federally Listed Prior to Completion of the Project

In addition to the dwarf wedgemussel, Swift Creek supports 12 other rare aquatic species,¹⁴⁸ including a number that USFWS is currently considering to propose for listing as endangered or threatened under the ESA.¹⁴⁹ USFWS has directly informed NCDOT of these pending listings, stating that these species—the Atlantic pigtoe, the yellow lance, the green floater, the Carolina madtom, the American eel, and the Neuse River Water dog—may be listed as “threatened or endangered *prior to the completion of the project.*”¹⁵⁰ The 2011 Freshwater Mussel Survey completed for the DEIS documented 41 Atlantic pigtoe individuals, 8 yellow lance individuals, and 39 green floater individuals within the project area.¹⁵¹ Moreover, USFWS considers Swift Creek a “stronghold for yellow lance in [the] Neuse basin.”¹⁵² According to a USFWS presentation, the listing decisions and rulemaking process for these species will begin October 2016.¹⁵³ With that in mind, NCDOT should thoroughly study these other species now rather than later in order to fully evaluate how a listing of any of these species would affect the current DSAs.

¹⁴⁶ E-mail from Wilson Laney, USFWS, to Ken Bridle, Piedmont Land Conservancy, et al. (Jan. 26, 2015), Attachment 27 (emphasis added).

¹⁴⁷ E-mail from Sarah McRae, USFWS, to Wilson Laney, USFWS (Jan. 27, 2015), Attachment 27 (same chain).

¹⁴⁸ See DWM Viability Report at Table 1. Rare Aquatic Species in Swift Creek.

¹⁴⁹ See Natural Res. Tech. Report, App. E: Freshwater Mussel Survey Report at 1; Letter from Gary Jordan, USFWS, to Jennifer Harris, NCDOT (May 14, 2014), at 2, Attachment 26

¹⁵⁰ Letter from Gary Jordan, USFWS, to Jennifer Harris, NCDOT (May 14, 2014), at 2, attached as Attachment 26.

¹⁵¹ Natural Res. Tech. Report, App. E: Freshwater Mussel Survey Report at Tables 3–111.

¹⁵² Sarah McRae, USFWS, Powerpoint Presentation: ESA Consultation Considerations for Complete 540 Transportation Project (Feb. 3, 2015), at slide 12, attached as Attachment 24.

¹⁵³ *Id.*

B. The DEIS Contains an Insufficient Analysis of Air Quality.

Like many aspects of the DEIS, NCDOT's cursory analysis of air quality suffers from insufficient information. While the Air Quality Report documents the relevant Clean Air Act ("CAA") standards and suggests that this project would not lead to violations of those standards, the report fails to provide a complete analysis of how the project might affect the quality of air for those living and working in the project area. First, the report provides only a vague qualitative assessment of likely increases in ambient air pollution from increased vehicular traffic throughout the project study area. Second, the report likewise provides an insufficient, ambiguous discussion of increased concentrations in air toxics from cars. Third, the report fails to consider the indirect and cumulative effects on air quality that could result from the project, particularly as a result of induced growth in the project area. Finally, the report fails to even mention possible impacts on greenhouse gas emissions ("GHGs").

1. Unacknowledged Harmful Increases in Ambient Pollution

Pollutants from cars include harmful carbon monoxide ("CO"), nitrogen oxides ("NO_x"), and volatile organic compounds ("VOCs").¹⁵⁴ In turn, NO_x and VOCs emissions are precursors to ozone, which is associated with a variety of detrimental human health and ecological effects.¹⁵⁵ NO_x are also a precursor to nitrogen dioxide ("NO₂") The CAA regulates certain air pollutants, called "criteria pollutants", including CO, NO₂, and ozone, through National Ambient Air Quality Standards ("NAAQS"). Attainment of these NAAQs is assessed on a region-by-region basis.

The Air Quality Analysis failed to document the deleterious effects associated with any of the criteria pollutants. In particular, the Air Quality Analysis failed to discuss future ozone levels in the project study area beyond the observation that Wake and Johnston Counties are in attainment under the ozone NAAQs.¹⁵⁶ This naked observation about the current attainment status provides no information about the toll highway's impact on ozone levels in Wake and Johnston Counties. Indeed, localized ozone levels would almost certainly increase along the toll highway. Given the smog-causing nature of ozone, as well as its severe impacts on human health, the Air Quality Analysis needs to provide more information about the Complete 540 project's impacts on ozone, and not just the current ozone attainment status of the affected regions.

2. Incomplete and Vague Evaluation of Toxic Pollutants from Cars

The CAA authorizes EPA to regulate emissions of toxic air pollutants emitted by motor vehicles that are associated with significant adverse health effects, known as mobile source air toxics ("MSATs"). 42 U.S.C. § 7521(1). The Air Quality Report reviews the Complete 540 project's possible increases in MSATs in a cursory, qualitative fashion, and the Report fails to

¹⁵⁴ EPA, AUTOMOBILE EMISSIONS: AN OVERVIEW 2 (1994), available at <http://www3.epa.gov/otaq/consumer/05-autos.pdf>, Attachment 28; EPA, *Greenhouse Gas Emissions: Transportation Sector Emissions*, <http://www3.epa.gov/climatechange/ghgemissions/sources/transportation.html> (last updated September 11, 2015), Attachment 29.

¹⁵⁵ EPA, *Ground-Level Ozone*, <http://www3.epa.gov/ozonepollution/> (last updated October 1, 2015), Attachment 30.

¹⁵⁶ Air Quality Analysis Report (Oct. 2015), at 12.

then explain the corresponding health impacts from such an increase in tail pipe pollution. MSATs include chemical compounds such as benzene, 1,3-butadiene, formaldehyde, acetaldehyde, polycyclic organic matter (“POM”), naphthalene, and diesel particulate matter.¹⁵⁷ MSATs can cause cancer and a variety of respiratory, neurological, cardiovascular, liver, kidney, and other harmful health effects.¹⁵⁸

Section 7 of the Complete 540 Air Quality Report primarily disclaims responsibility for analyzing MSATs, explaining that “[w]hile much work has been done to assess the overall health risk of air toxics, many questions remain unanswered.”¹⁵⁹ Nonetheless, the Air Quality Report repeatedly notes that even if VMT rates increase with the toll highway, the EPA’s stringent new vehicle requirements will result in lower MSAT emission levels over the long-term.¹⁶⁰ In doing so, the Report does not provide any information about the analysis conducted to reach this conclusion. Even if MSAT emission levels will reduce 20 or 30 years out, the focus on the long-term improvement fails to acknowledge the possible increased emission levels in the short-term, before EPA’s new fuel and vehicle regulations fully take effect. The Air Quality Report advances the dubious rationale that while “it is expected there would be slightly higher MSAT emissions in the project study area relative to the No Build Alternative due to the increased VMT . . . current tools and science are not adequate to quantify them”—nor apparently to provide any information other than a hopeful assessment that “EPA’s vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions” in MSATs.¹⁶¹

This optimistic analysis fails to provide the basis for a meaningful assessment of the DSAs’ environmental impacts, as required by NEPA. The DEIS should catalogue the schools, hospitals, public parks and other locations in the project area where sensitive populations would likely suffer exposure to MSAT generated by the toll road. Indeed, the Air Quality Report acknowledges that the DSAs “will have the effect of moving some traffic closer to nearby homes, schools and businesses,” and that “under each DSA there may be localized areas where ambient concentrations of MSAT would be higher under certain DSAs than others.”¹⁶² Yet the DEIS and Air Quality Report do not attempt to document how this would impact the health of those families living and working in these areas. A possible increase in MSATs is especially important given that “[n]umerous schools, places of worship, parks, recreation areas, and other community resources” are within the project corridor area.¹⁶³ Children and the elderly are particularly susceptible to air pollution, thus the proximity of the proposed toll highway to such community resources is troubling. Twenty-five Wake County public schools and six of Johnston County’s public schools fall within the Demographic Study Area.¹⁶⁴ Additionally, “several

¹⁵⁷ EPA, Mobile Source Air Toxics – Basic Information, <http://www3.epa.gov/otaq/toxics.htm> (last updated June 26, 2014), as Attachment 31.

¹⁵⁸ See, e.g., EPA, *Mobile Source Air Toxics – Health Effects and Risk*, <http://www3.epa.gov/otaq/toxics-assessment.htm#health> (last updated Oct. 29, 2012), Attachment 32.

¹⁵⁹ Air Quality Analysis Report at 14.

¹⁶⁰ *Id.* at 14–15.

¹⁶¹ *Id.* at 19.

¹⁶² *Id.* at 17.

¹⁶³ Community Impact Assessment at E-3; Final Community Characteristics Report at E-3.

¹⁶⁴ Community Impact Assessment at 25.

private schools” fall within the project corridor, as do “dozens of private daycare centers and preschools.”¹⁶⁵

The DEIS should estimate the likely emissions exposures at important community locations—such as schools and daycare centers—using accepted testing methods, relate these estimates to findings in contemporary, peer-reviewed health studies of MSAT exposures, and discuss specific mitigation measures that could safeguard the identified sensitive populations. Finally, the DEIS should compare these dollar and human health costs with those associated with a plausible alternative that does not involve a new-location toll road, such as upgrades to existing highways, transit, and TDM and TSM strategies in the study area.

The Report suggests that “information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated” the current DSAs.¹⁶⁶ Given the clear link between the MSATs in vehicle exhaust and health impacts, the question is not whether the toll highway will have negative health effects for those who live nearby. Rather, the question is the extent of those impacts, and how accurately they can be predicted. The agencies may not have a computer model specifically designed for this task and there may be limits on how accurately the health impacts in the area can be predicted. But the purpose of NEPA is to force agencies to consider and disclose the reasonably foreseeable consequences of their actions; the Air Quality Report focuses instead on justifying its failure to consider these consequences. The agencies must model the health impacts of the increased MSAT exposure to the extent practicable to fully inform resource agencies and the public about the air quality impacts associated with building the toll highway.

3. No Analysis of Indirect and Cumulative Effects on Air Quality

In addition to possible increases in MSAT emissions, the DEIS and related documents wholly fail to consider the indirect and cumulative impacts on air quality in the project area. Building any of the DSAs will correlate to significant shifts in land uses and growth patterns in the project area. In turn, these changed land uses will have indirect and cumulative effects on air quality throughout the project area—but the DEIS fails to evaluate the effects of induced growth and changed land uses resulting from building the toll highway. The DEIS admits this general shortcoming, stating that the 2035 forecast traffic conditions used for developing the project “do not reflect the reallocation of land use that would be expected from the project not being built.”¹⁶⁷ Instead, NCDOT will not complete “a quantitative assessment of the indirect effects of the build and no-build scenarios on land use and associated traffic conditions” until a preferred alternative is selected.¹⁶⁸ Moreover, the current, qualitative ICE Report fails to mention even the possibility of indirect and cumulative effects on air quality. Such information about the indirect and cumulative impacts associated with changed land uses and growth as between a no-build and build scenario is essential to a complete understanding of the air quality impacts of the Complete 540 toll highway.

¹⁶⁵ *Id.* at 25; Final Community Characteristics Report at 24.

¹⁶⁶ Air Quality Analysis Report at 17.

¹⁶⁷ DEIS at 15 n.*.

¹⁶⁸ *Id.*

For example, the massive toll highway would likely induce growth and development in previously undisturbed areas, which would cause greater amounts of air pollution. Most of the DSAs would pull such induced growth south, expanding development away from the already developed Raleigh metropolitan region into less-developed areas. This development could take the form of residential, commercial, and industrial growth,¹⁶⁹ each of which causes impacts to air quality. Such sprawling development would correspond to longer commutes, and longer commutes equate to more tailpipe emissions decreasing air quality.

Building roads also can paradoxically cause an increase in congestion. Travelers who previously avoided congested roads by foregoing discretionary trips or by traveling at non-peak hours might now opt to take more trips at different times. Moreover, development might expand along the new road, creating new communities and new travel demands. As such, building roads entices new vehicle trips, creating what is known as “induced demand” and in turn causing more, not less, congestion. This indirect effect that would result from building the Complete 540 toll highway is not mentioned in the Air Quality Report or ICE Report.

The DEIS fails to document any of these induced-growth effects on air quality. These likely air quality impacts again underscore the need to consider other alternatives, like TDM, TSM, and mass-transit, which would correspond to less induced growth and fewer air quality impacts.

4. No Review of Greenhouse Gas Emissions

Finally, the DEIS and its corresponding Air Quality Analysis Report fail to include any reference to possible impacts on greenhouse gas emissions (“GHGs”). In December 2014, the Council of Environmental Quality (“CEQ”) issued draft guidance on “Consideration of Greenhouse Gas Emissions and the Effects of Climate Change,” under NEPA. Revised Draft Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change, 79 Fed. Reg. 77801 (Dec. 24, 2014), attached as Attachment 33. The draft guidance instructs agencies to consider impacts on GHGs when conducting a NEPA analysis. As recognized by the CEQ’s draft guidance, while “climate impacts are not attributable to any single action,” they are “exacerbated by a series of smaller decisions, including decisions made by the government” and should be analyzed as such. Revised Draft Guidance, 79 Fed. Reg. at 77825. Thus, even if the agencies were to assert that the project’s effects on GHGs would be negligible, they must model those effects for the sake of being able to evaluate cumulative impacts on GHG levels. Prior to publishing any FEIS, the agencies must complete an analysis of the Complete 540 project’s impacts on GHG levels as directed by the CEQ draft guidance.

¹⁶⁹ See Community Impact Assessment at E-4 (“The municipalities in the project area anticipate that the project will spur commercial and industrial growth near interchange areas”); *id.* at 42.

C. The DEIS Fails to Provide an Adequate Analysis of Community and Public Interest Impacts.

All of the DSAs currently considered by NCDOT would have significant human and community impacts. Each DSA would force families and businesses to relocate and disrupt established communities. The costs of the toll highway—much of which would be borne by commuters paying the toll and taxpayers across the state—along with the unexplained and limited time-savings, do not outweigh the community and public interest impacts.

As highlighted in the discussions above, unprecedented environmental destruction and exorbitant estimated costs vastly outweigh the meager time-savings benefits that building the toll road under any of the 17 DSAs would encompass. Figures from the DEIS suggest that the majority of commuters would save less than 10 minutes if the road is constructed—and will be charged a toll to do so. The project is currently estimated to cost anywhere from \$2 billion to nearly \$2.6 billion—in other words a financial cost of approximately \$200 to \$260 million per minute of travel time saved.¹⁷⁰ The DEIS and Alternatives Analysis fail to provide any indication of how many people would be likely to use the facility.

Moreover, the DEIS provides no explanation of the benefits—if any—that would accrue to drivers opting to remain on existing roads. When asked at the recent public hearings NCDOT staff were unable to provide any answer to such questions.¹⁷¹ If only those able to pay for the toll would stand to experience the time-savings benefits, the project would unfairly benefit only the wealthy while effectively pricing out low-income families. In turn, the project's potential disproportionate impact on low-income and minority communities, given the cost of using the road, must be evaluated and mitigated, as required by Executive Order 12898. Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 11, 1994) The Community Impacts Assessment contains one-page on the possible effects on tolling, but notably absent is any discussion of the cost of tolls.¹⁷² In a table listing general environmental justice considerations for toll facilities, the row for “cost of toll” states “(to be added after traffic and revenue study.”¹⁷³ The Community Impact Assessment acknowledges that “travel times for drivers using non-toll routes could be slightly greater than using the new facility” but provides no further explanation to help assess the extent of the differences in travel times, or if non-toll highway users would reap any benefit from the \$2.6 billion project.¹⁷⁴

In contrast to the variable possible time savings, the toll road would displace neighborhoods and uproot hundreds of families. Depending on the DSA selected, there would be anywhere from 234 to 550 necessary residential relocations.¹⁷⁵ Those not forced to leave would

¹⁷⁰ See Southeast Extension – First Tier Screening Traffic Memorandum Appendix A: Travel Time Calculations.

¹⁷¹ Attorneys Kym Hunter and Ramona McGee attended the public meeting on December 8, 2015 at Holly Springs High School on behalf of the Conservation Groups. The attorneys were directed to Bradley Reynolds to discuss issues regarding traffic forecasting. When Mr. Reynolds was asked what travel time savings would accrue to those travelers who plan to continue using existing roads he stated that this issue had not been studied.

¹⁷² Community Impact Assessment, at 53-54 & Table 20: General Environmental Justice Evaluation for Toll Facilities.

¹⁷³ Community Impact Assessment at Table 20.

¹⁷⁴ *Id.*

¹⁷⁵ DEIS at 107: Comparative Evaluation Matrix.

now have a massive toll road facility running through what was formerly their backyard. The road would run through natural areas providing aesthetic value for these neighborhoods. And given that this transportation facility would be a toll road, with an as of yet undisclosed price per trip, many of the people living along the road may not be able to afford the toll road or may not find the potential time-savings worth the cost of the toll.

This road's cost, , and the environmental and human damage are too great to justify the limited possible time savings, particularly when there are other practicable alternatives with fewer environmental impacts. This costly, community-disrupting, and environmentally devastating toll road is not in the public interest.

D. The Analysis of Indirect and Cumulative Effects Is Superficial and Inadequate.

While the sheer quantity of direct impacts to resources presented in the DEIS are deeply concerning standing alone, they do not represent the full extent of the DSAs' potential impacts. The DEIS fails to adequately address the project's indirect and cumulative effects, as required by CEQ regulations. In addition to direct impacts, Complete 540 would cause extensive indirect impacts and cumulative impacts. The ICE Report presents only a vague qualitative analysis of these effects—not specific to any particular DSA. Moreover, non-highway alternatives—like upgrading existing roads, TDM, TSM, and mass transit are not considered in the ICE Report, further complicating a fair and thorough review of alternatives.

The qualitative review does not assist in distinguishing between the DSAs. Even that non-numeric review demonstrates that additional environmental degradation would result through indirect and cumulative impacts to wetlands, streams, federally endangered species, and other natural resources.

1. Unstudied and Unaccounted-for Indirect Effects

NEPA requires consideration of indirect effects, defined as those effects that are “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(b). The CEQ regulations state that NEPA documents should specifically 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.” *Id.*

All of the DSAs stand to have sweeping indirect effects, impacts caused by induced growth and changed land-use patterns. These effects go largely undocumented in the ICE Report, since it is merely a “qualitative” and generalized analysis, rather than a quantitative review of specific indirect impacts likely from any of the given DSAs. The DEIS and ICE Report make no attempt to quantify any of the superficial characterizations that typify its assessment of indirect impacts.

The ICE Report fails to acknowledge the indirect effect of attracting new, “induced growth” and development to the area. Building new, large transportation structures often attracts new growth and development along the highway and off its interchanges. A large highway

effectively facilitates greater growth rates in the vicinity of the highway than would occur in the area if the highway were not build, as highlighted by the Complete 540 consultants in e-mails with NCDOT staff.¹⁷⁶ With respect to Complete 540, NCDOT acknowledges that land use patterns are likely to change once the highway is constructed. Certain large scale new developments such as the Veridea development in Apex are unlikely to move forward without the toll highway.¹⁷⁷

Moreover, the pattern of sprawling growth associated with large highways corresponds to paved over wetlands, clearcut forests, elimination of wildlife habitat, and increased pollution of waters through greater stormwater runoff. Such land use is thus more environmentally damaging than compact land use in an area with existing development.

While the amount of induced growth would be substantial under any of the current DSAs, the effects of that induced growth would vary greatly. Specifically, the DSAs with the Red Route would have fewer impacts associated with induced growth by concentrating that growth in areas which are already developed, whereas other DSAs would bring environmentally destructive development to undisturbed areas further south. The non-Red Route DSAs would enable more harmful, less-guided sprawling growth patterns—and such indirect effects should be documented in any future ICE analysis.

Most importantly, as the agencies have noted, the DEIS fails to include any consideration of “the reallocation of land use that would be expected from the project not being built.”¹⁷⁸ As such, the DEIS fails to provide an honest assessment of the land use and development likely to occur under a No-Build scenario, and consequently fails to accurately present the extent of induced development and associated environmental damage that is attributable to the new road.

An accurate No-Build baseline is essential for a satisfactory NEPA review. *N.C. Wildlife Fed’n v. N.C. Dep’t of Transp.*, 677 F.3d 596, 603 (4th Cir. 2012) (citing *Friends of Yosemite Valley v. Kempthorne*, 520 F.3d 1024, 1037-38 (9th Cir. 2008)); *see also Friends of Back Bay v. U.S. Army Corps of Eng’rs*, 681 F.3d 581, 588 (4th Cir. 2012) (“A material misapprehension of the baseline conditions existing in advance of an agency action can lay the groundwork for an arbitrary and capricious decision.”); *Catawba Riverkeeper Found. V. N.C. Dep’t of Transp.*, No. 5:15-CV-29-D, slip op. at 16, 2015 WL 1179646, at *8 (E.D.N.C. Mar. 13, 2015); *Openlands v. USDOT*, No. 1:13-cv-04950, 2015 WL 4999008, at *10 (N.D. Ill. June 16, 2015) (holding that without a true “no build” scenario, it is “impossible to determine the extent to which building the

¹⁷⁶ E-mail from Andrew Lelewski, NCDOT, to Theresa Ellerby, NCDOT, (Apr. 21, 2014), Attachment 34 (including Lochner’s feedback on how interchanges between the proposed 540 extension and existing I-40 will provide “direct access between the managed lanes on I-40 and 540 will likely result in additional wetland and stream impacts for both the Orange and Lilac Corridors”).

¹⁷⁷ ICE Report at 46 (noting Veridea development plans “are based on the assumption that a new interchange is built at NC 540 and Old Holly Springs-Apex Road . . . and that the Complete 540 project will connect this area to I-40 south of Raleigh”); *see id.*, App. A: Apex Town Hall Meeting Summary (Sept. 12, 2012) at 2-3 (noting that Apex’s “land use and economic development objectives are highly dependent on the construction of the Southeast Extension,” and “Veridea, in particular is heavily dependent on the project”); *id.*, App A: Wake County Conference Call Meeting Summary, at 3 (“The project will likely stimulate development of major and minor retail centers near interchanges and residential development nearby).

¹⁷⁸ DEIS at 15 n.*

Corridor will increase traffic on existing roads and the impact such increased traffic may have on the study area). Yet, NCDOT fails to include such an accurate baseline with regularity. *E.g.* *N.C. Wildlife Fed'n*, 677 F.3d at 603–04; *Catawba Riverkeeper*, slip op. at 16, 2015 WL 1179646, at *8; *N.C. Alliance for Transp. Reform v. USDOT*, 151 F. Supp. 2d 661, 689-90 (M.D.N.C. 2001). As such, NCDOT frequently presents NEPA documents that fail to account for the full extent of indirect environmental impact that is likely to result from major new highway construction.

In recognizing this fundamental deficiency, the DEIS suggests that the error is overcome because “a quantitative assessment of the indirect effects of the build and no-build scenarios on land use and traffic conditions will be evaluated,” once a preferred alternative is selected. But this statement misses the point;¹⁷⁹ an accurate No-Build baseline is a necessary requirement of any analysis of induced growth regardless of the “build” alternative that is ultimately chosen and studied. Indeed, such information is needed *before* a preferred alternative is selected in order to compare the extent of the indirect impacts—at least generally—of all different “build” alternatives. NCDOT’s current analysis lacking a realistic baseline provides a wholly incomplete picture of the indirect and cumulative impacts attendant to any and all of the DSAs.

Given that a comprehensive, quantitative indirect and cumulative effects study has yet to be completed for this project,¹⁸⁰ it is unclear how many more wetlands and streams within the project area would be impacted as induced growth results in changed land use and consequent additional pollution and destruction of wetlands in the project area. While the DEIS estimates 135 to 161 wetlands out of a total 543 wetlands in the area would be directly impacted, it is likely that far more would feel the impact of the new toll highway. Similarly, indirect impacts on water quality and aquatic ecosystems would further jeopardize the endangered dwarf wedgemussel and other rare aquatic species. The extent of the degradation of aquatic ecosystems would be significantly more extensive than what is documented in the DEIS.

2. Unstudied and Unaccounted-for Cumulative Impacts

In addition to indirect effects, NEPA requires consideration of cumulative impacts, defined as those impacts “which result[] from the impact of the action when added to other past, present, and reasonably foreseeable future actions.” 40 C.F.R. § 1508.7. Cumulative impacts may result from “individually minor but collectively significant actions taking place over a period of time.” *Id.* “The purpose of the cumulative impact analysis is to provide readers with a complete understanding of the environmental effects a proposed action will cause.” *N.C. Alliance for Transp. Reform, Inc. v. US DOT*, 151 F. Supp. 2d 661, 698 (M.D.N.C. 2001).

The ICE Report devotes just five-pages to consideration of cumulative impacts. The majority of that discussion is devoted to simply identifying current and future actions and the affected environment with only minimal conjecture about general cumulative effects of associated development in the project study area. The ICE Report lacks any detailed analysis of the cumulative impact of the project alternatives and thus does not fulfill NCDOT’s NEPA obligations to consider cumulative impacts.

¹⁷⁹ DEIS at 15 n.*

¹⁸⁰ *See id.* at vi, 15 note *.

The ICE Report initially acknowledges that rapid development within the Neuse River Basin has already resulted in substantial increases in impervious areas, which ultimately has caused increased sedimentation, stream bank erosion, low dissolved oxygen levels and poor biological integrity.¹⁸¹ The ICE Report then asserts that additional water quality and aquatic habitat degradation due to anticipated growth and development is likely to occur under a Build or No-Build scenario. Such an assertion ignores how a massive transportation facility would induce growth and alter land uses to a greater degree than under a No-Build scenario. The ICE Report fails to study or acknowledge how growth would be different under Build and No-Build scenarios, and instead treats all growth as inevitable, with its corresponding cumulative impact inevitable regardless of whether the toll highway is built. As highlighted above, this approach is arbitrary and capricious.

The ICE Report admits in its generalized review that cumulative effects may be greater under a Build scenario due to possible increased development. For example: “[t]he addition of the Complete 540 project to this area will

add to the cumulative effects of [existing planned projects] on water quality and aquatic habitat in the Swift Creek watershed;” and “[b]y encouraging faster growth in this area, the build scenarios all have the potential to contribute to cumulative effects on Middle Creek, along with other planned projects.”¹⁸² The ICE Report also notes that under the No-Build scenario, development would likely occur near existing transportation facilities, thus constraining future development to already disturbed environments. In contrast, the Complete 540 project would likely pull that development southward into more undisturbed areas susceptible to greater environmental impacts—an effect that would be even more pronounced if an “orange” route alternative is selected¹⁸³

The ICE Report briefly acknowledges the “potential” for specific locations of, or general increases in, development to cumulatively impact water quality and aquatic habitat, dwarf wedgemussel habitat, and terrestrial communities and habitat.¹⁸⁴ The ICE Report fails, however, to provide any meaningful distinction in cumulative impacts as between the DSAs and instead briefly dismisses cumulative impacts as inevitable. Such an analysis is insufficient to pass legal muster. *N.C. Wildlife Fed’n v. N.C. Dep’t of Transp.*, 677 F.3d 596, 602 (4th Cir. 2012) (“Conclusory statements that the indirect and cumulative effects will be minimal or that such effects are inevitable are insufficient under NEPA.”); *see also Western N.C. Alliance v. N.C. Dep’t of Transp.*, 312 F. Supp.2d 765, 771-72 (E.D.N.C. 2003) (holding that defendants violated NEPA by failing to consider all reasonably foreseeable actions in cumulative impact assessment).

The ICE Report fails to comprehensively study and document the likely indirect and cumulative effects of each of the DSAs. This information is essential to understanding the full extent of environmental impact of any of the DSAs, particularly in regard to the sensitive and endangered dwarf wedgemussel. Moreover, because this analysis was completed after elimination of the less-damaging alternatives of improving existing roadways, TDM, TSM, and

¹⁸¹ ICE Report at 75.

¹⁸² *Id.* at 76.

¹⁸³ *Id.* at 77-79.

¹⁸⁴ *Id.* at 76-78

mass-transit, the report does not document how these alternatives would correspond to far less cumulative impact to the environment. NCDOT should review such alternatives in an exhaustive, updated ICE Report.

E. Of the Identified DSAs, Those That Include the Red Route Are the Least Environmentally Damaging Practicable Alternatives.

We reiterate that none of the currently studied DSAs represent the LEDPA, as a number of less-environmentally damaging and more practicable alternatives were prematurely eliminated from study. Additionally, there is nothing to suggest that any of the DSAs are financially practicable. Moreover, the agencies failed to study how a combination of solutions including upgrades to existing roads and other strategies could work to achieve the project purpose. It is likely that such an alternative if studied, would represent the true LEDPA. Nonetheless, of the DSAs presented in the DEIS, those utilizing the Red Route are the least environmentally damaging and most practicable given the associated costs and human impacts.

The DSAs using the Red Route (DSAs 6 and 7) would impact the smallest acreage of wetlands, with each directly impacting approximately 52 acres of wetlands.¹⁸⁵ The DSAs using the Purple-Blue Corridor (DSAs 8-12) would impact the next smallest amount of wetlands - impacting an average of approximately 59 wetland acres.¹⁸⁶ By comparison, DSAs including the western segment of the Orange Route would impact the largest amount of wetlands with an average of approximately 74 acres of wetlands—which, according to the DEIS, is “approximately 43 percent greater than the average impact” of DSAs using the Red Route.¹⁸⁷ Similarly, the Red Route DSAs would impact the fewest linear feet of streams, with 53,014 feet for DSA 6 and 51,582 feet for DSA 7 versus the other DSAs which would impact anywhere from 61,322 to 78,087 linear feet of streams¹⁸⁸

DSAs 6 and 7 would also have the fewest stream crossings, with 109 and 106 for DSAs 6 and 7 respectively.¹⁸⁹ The fewest number of ponds would also be impacted by the Red Route, with 28 ponds accounting for 20.0 acres corresponding to DSA 6, and 25 ponds accounting for 17.7 acres corresponding to DSA 7.¹⁹⁰ While these Red Route DSAs would impact 6.7 acres of the Swift Creek Critical Watershed, the thousands of fewer impacted streams, tens of acres less of affected wetlands and ponds, and the avoidance of harm to the dwarf wedgemussel may outweigh these smaller in size, but nonetheless significant, impacts to the Swift Creek Critical Watershed.¹⁹¹

Perhaps most importantly, the Red Route also represents the only alternative to not cross Swift Creek downstream of Lake Benson, thus likely avoiding all of the most direct impacts to the endangered dwarf wedgemussel.¹⁹² As noted above, this represents an independent reason

¹⁸⁵ DEIS at 90.

¹⁸⁶ *Id.*

¹⁸⁷ *Id.* at 91.

¹⁸⁸ *Id.* at 108: Comparative Evaluation Matrix.

¹⁸⁹ *Id.*

¹⁹⁰ *Id.*

¹⁹¹ *Id.*

¹⁹² *Id.* at 35-36.

for not issuing a Section 404 permit. However, it also helps inform the LEDPA analysis, since an alternative that stands to wipe out an essential population of an endangered species could hardly be considered the least-environmentally damaging, practicable alternative—particularly when alternatives exist which would avoid this impact. As noted above, it appears that NCDOT and USFWS are investigating a mussel mitigation facility to theoretically offset the impacts an Orange Route would have to the dwarf wedgemussel population. The feasibility of such a program to conserve the dwarf wedgemussel and to prevent a finding of jeopardy, however, has not been established. Moreover, the additional costs, time, and complications associated with such a propagation facility and population augmentation plan weigh toward such an option being impracticable. The Red Route DSAs, as well as non-toll highway options, would avoid the most severe and immediate impacts to the dwarf wedgemussel as well as the potential costs of a mussel propagation facility.

As between the selected DSAs, the Red Route DSAs would pull development less far south. In turn, the Red Route DSAs would likely result in less drastic indirect, induced growth related impacts by going through an area that is already developed, as opposed to other DSAs which would disrupt natural areas and bring new growth to previously undisturbed areas. Even then, the as-of-yet-undocumented indirect and cumulative effects associated with a Red Route DSA could still result in significant environmental degradation and negative impacts to the endangered dwarf wedgemussel.

Additionally, all of the alternatives using the full Orange Route—in other words, all alternatives not using the Red Route—would impact and possibly eliminate an existing mitigation site associated with the Northern Wake Expressway. The DEIS fails to mention this fact, and instead, the information is buried in the Natural Resources Technical Report which misleadingly states: “it is important to note that the Underhill Mitigation Site is located within the Orange (A) corridor which affects all alternatives currently under consideration.”¹⁹³ The report provides no further details on this mitigation site’s location, its size, or any plans to offset the potential impacts to the site.

According to NCDEQ’s Ecosystem Enhancement Program’s interactive map feature, the Underhill mitigation site is located near Swift Creek, within the triangular area created by the intersections of I-40 with NC-42, I-40 with 70, and NC-42 with 70.¹⁹⁴ While it is true that every DSA uses at least a segment of the Orange Route, alternatives using the Red Route (DSAs 6 and 7) do not use the eastern segment of the Orange Route nor the Lilac Route, both of which would traverse the southern portion of the study area, near Swift Creek. In other words the Natural Resources Technical Report is wrong in saying that *all alternatives* would be affected by this mitigation site; only those alternatives not using the Red Route—DSAs 1-5 and 8-17—would be close enough in proximity to impact the Underhill mitigation site.

The EIS does not explain why a mitigation site was placed within the protected corridor for the Orange route where NCDOT expected to begin construction within a few years of the site’s designation. The location of the Underhill mitigation site, however, provides a further

¹⁹³ Natural Res. Tech. Report at 12.

¹⁹⁴ See NCDEQ, DIV. OF MITIGATION SERVICES, *EEP Interactive Map*, <http://portal.ncdenr.org/web/eep/interactive-mapping> (last visited Jan. 7, 2016) (search for “underhill”), Attachment 35.

demonstration of how DSAs utilizing the full Orange route cannot be environmentally-preferred. Moreover, the fact that a site used to mitigate impacts from a highway project is already being disturbed only a few years after that highway project was constructed serves to illustrate why mitigation measures should only be used as a last resort, and avoidance of impacts must instead be prioritized. In the event NCDOT were to select one of these routes as the preferred alternative, NCDOT would need to not only provide compensatory mitigation for the Complete 540 project, but would need to provide further mitigation to replace the mitigation lost through destruction or harm to the existing Underhill mitigation site.

V. EXORBITANT, UNFUNDED PROJECT COSTS

Standing in contrast to the project's limited utility is its extraordinarily high project cost. The DEIS lists the cost of the various DSAs as between \$2.1 and \$2.6 billion—making it the most expensive project in North Carolina's history. Even then, it is not clear that the DEIS includes all project costs, such as the cost of a mussel propagation facility that would be needed to attempt to compensate for some of the more destructive alternatives. Even if the cost comes out at the low end of NCDOT's estimates—\$2.1 billion—there is no financial plan in place to pay for the project. The high cost listed in the NEPA documents does not match the cost in state and federal planning documents and is far out of line with the cost estimate used to prioritize the highway over other statewide transportation needs. As such, the toll road cannot be considered “practicable.” Other more affordable and less damaging alternatives that could actually achieve project funding in the next twenty years are better placed to provide the “*cost-effective*” transportation improvement desired by the local MPO and listed in the project statement of purpose and need.¹⁹⁵

A. Funding Discrepancies in the STIP.

Federal regulations require that a highway project receiving federal funding must be part of a fiscally constrained State Transportation Improvement Program (“STIP”). 23 C.F.R. §450.222. FHWA guidance further requires that cost estimates in the STIP mirror those in the NEPA documents.¹⁹⁶ According to the guidance, a record of decision cannot be signed until these funding requirements are met.¹⁹⁷ The project cost estimates listed in the DEIS, however, did not match up with the STIP current at the time the document was published. That STIP, included Complete 540 as three separate projects: R-2721, R-2828, and R-2829 with a total cost of approximately \$1.355 billion - a far cry from the \$2–\$2.5 billion costs noted in the DEIS.¹⁹⁸ Even then, not all of the listed cost was actually allocated in the 10-year STIP. The STIP allocated just \$354.08 million for Project R-2721; \$502.950 million for Project R-2828, and just \$40.7 million for Project R-2829.¹⁹⁹ Thus allocating a total of just \$897.73 million in funding: 70% percentage of the project cost listed in the STIP and only about 45% of the DEIS's \$2 billion estimated cost.

¹⁹⁵ Purpose & Need Statement at 2.

¹⁹⁶ FHWA, *Transportation Planning Requirements and Their Relationship to NEPA Approvals*, (Feb. 9, 2011), available at http://www.fhwa.dot.gov/planning/tpr_and_nepa/tprandnepasupplement.cfm, Attachment 36.

¹⁹⁷ *Id.*

¹⁹⁸ NCDOT June 2015 STIP, at 214, available at

<https://connect.ncdot.gov/projects/planning/STIPDocuments1/2016-2025%20STIP.pdf>, Attachment 37.

¹⁹⁹ Funding for R-2829 is limited to right of way and utilities costs, not construction costs, see *id.*

Furthermore, the STIP suggested each of the three projects would largely be paid for with revenue bonds with only \$463 million budgeted from the Highway Trust Fund. As noted below it is unlikely that toll revenue would be able to cover the discrepancy in project funding, and it was therefore unclear where the debt service pay for the bonds would come from.

The cost estimates in the STIP remained unchanged until yesterday. The January STIP—released yesterday, January 7, 2015—updated the projected costs for the Complete 540 segments, and the costs now appear to better match the DEIS’s low-end cost estimates. The January STIP reflects a total project cost of \$2.127, with much of that still coming from revenue bonds.²⁰⁰ While the new STIP now better reflects the DEIS’s cost estimates, even more of the funding is unaccounted for: \$1.2 billion is unfunded.²⁰¹ Moreover under the new STIP, much of the funding is not available until much farther in the future, making the project’s funding security even more questionable than the earlier STIP.²⁰² Only \$370 million—or about 17% of the project cost—is allocated in the next 5 years, and that money would all go toward only one of the three segments.²⁰³ Segment R-2828 does not have any funding allocated until 2024, and R-2829 has no allocated funding at all.²⁰⁴

B. Cost Estimate Discrepancies with the Strategic Transportation Investment Act.

Even more important, the huge project costs listed in the NEPA documents also fail to match up with the numbers used in the North Carolina project prioritization process, known as the Strategic Transportation Investments Act (“STI”). *See* N.C. Gen. Stat. § 136-189.11. The STI uses a variety of metrics including cost estimates, travel time benefits and other factors to prioritize where North Carolina’s funding should be spent.²⁰⁵

Under the STI, the total actual cost of Complete 540 was listed as \$1.328 billion—a significantly lower figure than the more than \$2 billion cost estimate in the DEIS or the current STIP.²⁰⁶ The cost to NCDOT, a key figure used to determine the rank of the highway in the prioritization process, was listed as totaling just \$728 million for all three segments.²⁰⁷ To arrive at this figure, NCDOT assumed that 46% of the project would be paid for with toll revenue—an assumption that is not supported by any traffic and revenue study. In fact, an internal NCDOT e-mail that included capital costs and toll revenue estimates—based on a 2009 analysis—suggested that the likely toll revenue would total \$385.8 million, or less than 19% of a \$2 billion price tag.²⁰⁸ There is no explanation as to how NCDOT arrived at its toll revenue estimate.

²⁰⁰ NCDOT, Current STIP (Jan. 2015), at 96-97, *available at* https://connect.ncdot.gov/projects/planning/STIPDocuments1/LIVE_STIP.pdf Attachment 38.

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ *Id.*

²⁰⁴ *Id.*

²⁰⁵ NCDOT, *Strategic Transportation Investments*, <http://www.ncdot.gov/strategictransportationinvestments/>, (last visited January 7, 2016), Attachment 39.

²⁰⁶ NCDOT, Highway STI Data, *available at* <http://www.ncdot.gov/strategictransportationinvestments/stidata.html> (last updated July 15, 2014), at rows 1238-1240, Attachment 40.

²⁰⁷ *Id.*

²⁰⁸ E-mail from Donna Keener, NCDOT, to Jennifer Harris, NCTA et al. (Dec. 18, 2013), Attachment 41.

NCDOT staff has recognized the importance of using accurate data during the STI process. When staff were asked to provide data for the Complete 540 project so that it could be run through the scoring process a NCDOT staffer noted the importance of data being substantiated and correct. Specifically, the staffer noted that the project’s cost estimates “could well influence the final score” and ranking of the Complete 540 project.²⁰⁹ Indeed, it appears the project gained priority and associated funding under false pretenses. “Cost to NCDOT” is used to calculate a project’s “cost-benefit score”—a key factor in the project prioritization process that accounts for 25% of the project score.²¹⁰ As such, if an improperly low project cost is used, a project is likely to score more highly than it otherwise would. The use of data that is so divergent with reality is directly contrary to the purposes of the STI to take the politics out of the project selection process and choose highway projects based on objective facts. To determine if the more than \$2 billion toll highway actually achieves a high enough score under the STI to gain priority over other projects, realistic project costs—including overall costs and costs to NCDOT— must be used. If realistic data is not used, the purpose of the STI is subverted.

In addition, now that the project cost estimates have been updated, it appears that the funding set in place may run afoul of the STI’s “corridor cap,” a provision of the STI that limits on funding for projects that fall within the same corridor. Under the law, the amount of funds to be allocated to projects within the same corridor from the “statewide” funding pot cannot exceed 10% of the total allotted statewide funds or about \$200 million during a five year period. § 136-189.11 (d)(1)(b). In the current STIP, all funding for the Complete 540 project is expected to come from the statewide funds. In the next 5 year period, however, \$370 million is allocated from statewide funds. Between 2021-2025, \$907 million is allocated. And in future years an additional \$1.22 billion remains to be funded. Even assuming that a portion of these costs will be covered by toll revenue, it is clear that the Complete 540 project will violate the corridor cap during every funding cycle.

C. No Funding Feasibility

Under current laws and financial realities it is clear that NCDOT is unable to fund a project of this magnitude. During the alternatives screening process, NCDOT found that hybrid alternatives that completed just one or two segments of the Complete 540 project, in addition to other improvements, all failed to meet the project purpose and need. Because NCDOT is unable—legally and financially—to fund more than one project segment in the next ten years, NCDOT will be left only able to complete a part of the toll highway—just like under the hybrid options it rejected. It is therefore clear that each of the DSAs must also fail to meet the purpose and need, by NCDOT’s own reasoning.

Under current North Carolina law, not one of the DSAs can be constructed before 2026. Even then, the current STIP demonstrates that the project will still require \$1.2 billion in project funding—and only then if the project with the lowest cost estimate is the one chosen. It would be impossible for this full amount could be allocated in the next five year project cycle due to the

²⁰⁹ E-mail from Don Voelker, NCDOT, to David Wasserman, NCDOT et al. (Jan. 23, 2014), Attachment 42.

²¹⁰ NCDOT, *Strategic Transportation Investments*, <http://www.ncdot.gov/strategictransportationinvestments/>, (last visited January 7, 2016), Attachment 39.

“corridor cap” constraint, and it is therefore unlikely that the project would be fully funded until at least 2031.

NCDOT and FHWA have previously rejected the feasibility of a transportation project much less expensive than this one precisely because of its high cost and questionable funding security. When considering the replacement of the Bonner Bridge project on North Carolina’s Outer Banks, the agencies asserted that the anticipated cost of between \$942.9 million and \$1.441 billion for a “long bridge” option rendered such a solution “imprudent” due to its high costs.²¹¹ The agencies not only determined the alternative was cost-prohibitive, but asserted they completed extensive studies and evaluation of the costs of the alternative which demonstrated it could not be funded.²¹² The agencies asserted that the cost of the project would “consum[e] an excessive share of federal dollars made available to North Carolina” causing a variety of transportation projects to be deferred due to limited available funds.²¹³ The agencies specifically reviewed and rejected tolling as a funding option due to the cost of potential tolls, because tolls would only provide partial funding, and because “tolling would not make for a prudent business decision as the estimated toll revenue ‘is not going to be sufficient to warrant the financial rating necessary to allow debt financing of this project.’”²¹⁴ The agencies were unwilling to look at other creative solutions due to what they deemed to be legal constraints.²¹⁵

The agencies cannot arbitrarily decide that costs and the constraints of state laws and funding mechanism matter when analyzing one project and its alternatives, but ignore such constraints when analyzing another project and its alternatives—especially when the costs at stake are so incredibly high.

D. Insufficient Information About Tolling and Revenue

The agencies have failed to study and disclose both a thorough breakdown of costs of the Complete 540 proposed toll highway, as well as a thorough explanation of funding sources for the project. No traffic and revenue study has been completed.²¹⁶ No toll revenue estimates have been disclosed, and the only mention of possible toll costs is that certain traffic forecasts assumed a cost of \$0.12 per mile.²¹⁷ There is no explanation of why how this assumed toll cost was developed or whether it was realistic in light of how much of the project’s cost will purportedly come from tolls.

During public meetings for the Complete 540, project attorneys for the Conservation Groups asked Susan Pullium, director of Customer Service for the North Carolina Turnpike Authority, for information regarding the assumptions that NCDOT had used with regard to the

²¹¹Page-Proof Joint Answering Brief for Defs., *Defenders of Wildlife v. N.C. Dep’t of Transp.*, No. 13-2215, at 45, (Jan. 17, 2014), attached as Attachment 43. The cost estimates were in 2006 dollars. *Id.*

²¹² *Id.* at 44–47.

²¹³ *Id.* at 45.

²¹⁴ *Id.* at 48.

²¹⁵ *Id.* at 48.

²¹⁶ See E-mail from Eric Midkiff, NCDOT, to Andy Wittman (Dec. 4, 2013) (explaining that “there is no plan of finance for the Complete 540 project currently under study between Apex and Knightdale,” and that “the amount of available funding for the Complete 540 project is not a consideration in study of alternative routes”), Attachment 44.

²¹⁷ Traffic Forecast Tech. Mem. (Apr. 2014), at Table 2. Forecast Scenarios and Alternatives (assuming that the toll cost for using the highway would be \$.12 per mile).

percentage of the project cost that would be borne by tolls. Ms. Pullium assured the attorneys that she would get back to them promptly with this information. A follow-up e-mail was sent to Ms. Pullium on December 9, 2015 date.²¹⁸ At a public hearing that same evening, Ms. Pullium noted her receipt of the e-mail and assured the attorneys she was looking into their questions. As yet, no response has been received from Ms. Pullium or anyone else at NCDOT.

The only information seeming to touch possible toll revenues is in an appendix to the 2014 Traffic Forecast Technical Memorandum, and even that information fails to explain how tolls can fund this project. The relevant appendix is a 2010 report on the development of a toll diversion model—it explains the Triangle Regional Toll Diversion Model, but does not reveal NCDOT’s assumptions about how much tolls would cost or the revenue such tolls would generate. Even then, the model appears dated. The model relies on “willingness to pay” studies from 2010, 2009, and 2008, with the 2008 study being specific to the Complete 540 study area and allegedly providing the most “complete” information.²¹⁹ Moreover, the outdated willingness to pay study results are limited in their application because “[t]he calculations took into account only those who responded that they would be willing to pay under at least one of the scenarios presented to them”—thus survey respondents who said they would *not* be willing to pay under *any* scenario were not counted in the assessment.²²⁰ Thus, this study does not illustrate the true demand or anticipated use for a toll highway in the Complete 540 study area. The technical memorandum as a whole fails to provide sufficient information about toll costs and actual anticipated use to help explain how the high costs for the toll highway will be funded.

At a minimum, the agencies must demonstrate that their expensive preferred alternatives are able to be funded. They must evaluate and disclose the funding mechanisms at play, and fairly evaluate the costs associated with the toll road alternative as compared with other alternatives. In turn, the economic information used by agencies must be accurate to support their analysis of impacts and alternatives. Due to “the potential for misleading economic assumptions to defeat the functions of an EIS,” courts must review “the economic assumptions underlying a project to determine whether the economic assumptions were so distorted as to impair fair consideration of the project’s adverse environmental effects.” *Hughes River Watershed Conservancy v. Glickman*, 81 F.3d 437, 446 (4th Cir. 1996) (internal quotation marks omitted). Here, NCDOT’s varied and unverified assumptions about the costs and funding for this project defeat the function of the DEIS. Without clear evidence of funding for this project and current, verifiable cost calculations, the DEIS cannot comply with NEPA and fails to inform the Corps’ practicability analysis under Section 404.

E. The True Project Costs Will Exceed the \$2.1- 2.6 Billion Projection.

The DEIS barely discusses costs other than listing, without explanation, various dollar amounts in the Comparative Evaluation Matrix.²²¹ The costs included are the projected total, construction, right-of-way and relocation, utility, and environmental mitigation costs. The DEIS does not elaborate on any of these cost categories. Moreover, several categories of costs are

²¹⁸ E-mail from Ramona McGee, SELC, to Susan Pullium, NCDOT (Dec. 9, 2015), attached as Attachment 45.

²¹⁹ Traffic Forecast Tech. Mem., App. D: Triangle Regional Toll Diversion Model Development, Tech. Mem. (Dec. 2010), at 2.

²²⁰ *Id.*

²²¹ DEIS at 107: Comparative Evaluation Matrix.

conspicuously absent from this list, such as mitigation of impacts to historic sites and public parks protected under Section 4(f) Department of Transportation Act of 1966, 49 U.S.C. § 303, possible costs associated with building near hazardous materials and contaminations sites,²²² and perhaps most importantly, costs associated with any mussel propagation and augmentation program. As highlighted above, NCDOT and FWS appear to be contemplating what would be a multi-million dollar mussel propagation facility in an attempt to skirt ESA requirements regarding the dwarf wedgemussel. These costs are unaccounted for in the DEIS. NCDOT must provide a full, detailed explanation of anticipated project costs in order for the public and resource agencies to distinguish between alternatives—and to determine whether the project is even worth the cost.

None of the DSAs can be considered practicable given these significant funding questions and cost concerns. Before moving forward with an FEIS NCDOT must: Establish the full cost to the project for all alternatives.

- Establish the percentage of the cost that can reasonably be expected to be covered by toll revenue and therefore establish the true “cost to NCDOT.”
- Establish, based on updated realistic costs, whether the project can score high enough to achieve any funding from the STI.
- Establish and disclose a realistic funding plan for the project.

VI. OBSTACLES TO OBTAINING SECTION 404 PERMIT

If a project will require the dredging or filling of material into waters of the United States, the agency proposing the project must secure a permit from the U.S. Army Corps of Engineers under Section 404 of the CWA (“Section 404 permit”). In deciding whether to issue a Section 404 permit, the Corps must apply the EPA’s Section 404(b)(1) Guidelines. As required by the CWA, the guidelines specify where and under what conditions dredged or fill material can be discharged lawfully.

The Corps cannot issue a permit if any of the following are true: (i) there is a less harmful “practicable alternative” to the project, (ii) the project would cause a “significant degradation of the aquatic ecosystem,” (iii) the applicant has not taken appropriate steps to “minimize potential harm to the aquatic ecosystem,” or (iv) the Corps does not have “sufficient information” to make a reasonable permit decision. 40 C.F.R. § 230.12(a)(3). Moreover, the Corps’ Section 404 Guidelines strictly prohibit issuance of a permit that would “jeopardize[] the continued existence of species listed as endangered or threatened under the Endangered Species Act . . . or result[] in likelihood of the destruction or adverse modification of a habitat which is determined . . . to be a critical habitat under the Endangered Species Act.” 40 C.F.R. § 230.10(b)(3). The Corps is further constrained by its consideration of the public interest impacts of the project. 33 C.F.R. § 320.4(a).

²²² *Id.* at 102 (noting without any elaboration that “[t]he sites found are not expected to have a substantial effect on anticipated project costs or schedules”).

The Corps often looks to a project's NEPA documents to assist in its decision of whether to issue a 404 permit for a particular project. The Corps is not limited to the information provided in the EIS or associated documents, and in some instances, it may be necessary for the Corps to conduct its own studies or investigations so as to be able to satisfy its Section 404 obligations.

Because the Complete 540 DSAs would impact wetlands and other federal waters, NCDOT must obtain a Section 404 permit from the Corps. As thoroughly established throughout these comments, this project would have unprecedented environmental impacts, would yield little in time-savings benefits, and would cost an exorbitant amount.

All of the DSAs would cause "significant degradation of the aquatic ecosystem" as thoroughly highlighted above. 40 C.F.R. § 230.12(a)(3)(ii). Most significantly, all but the Red Route DSAs would jeopardize the continued existence of the endangered dwarf wedgemussel. *Id.* at § 230.10(b)(3). Additionally, non-toll highway options exist which would be less-environmentally damaging, and practicable in light of their lesser costs. *Id.* at § 230.12(a)(3)(i). The DEIS also fails to provide sufficient information about the extent of the toll highway's impacts—or its funding sources and tolling assumptions—to adequately inform the Corps' 404 analysis. Each of these characteristics of the Complete 540 project provide an independent and sufficient reason for the Corps to reject any Section 404 permit application for the toll highway.

The improbability of the Corps issuing a permit for any DSA is yet another reason that NCDOT must consider non-toll highway options which will be less environmentally damaging and more practicable in light of costs and human impacts. An alternative involving a combination of TDM, TSM, mass transit options, and upgrades to existing roads will cause far fewer environmental impacts. Such an alternative would also cost far less than the impracticable estimated \$2.6 billion cost of the toll highway.

Nonetheless, as we have highlighted throughout these comments, the Red Route represents the least environmentally damaging practicable alternative ("LEDPA") of the presented DSAs. The Red Route DSAs avoid most of the direct impacts to the dwarf wedgemussel and also would result in the fewest impacts to streams, ponds, and wetlands. The Red Route DSAs—DSAs 6 and 7—are the "least damaging" DSAs out of a slate of environmentally undesirable options.

The Red Route DSAs are no less practicable than any of the other DSAs. The DSAs including the Red Route are in the bottom half of DSAs for both cost and relocations. Ten DSAs are more expensive than the Red Route DSAs, and nine DSAs would cause more residential relocations than either of the Red Route DSAs.²²³ The relatively lower cost and fewer relocations associated with the Red Route make it a more practicable alternative than most of the other alternatives. Nonetheless, the relocations associated with the Red Route is the most commonly cited reason against choosing a Red Route DSA. Yet each of the 17 DSAs would cause hundreds of relocations, and it is arbitrary and capricious to suggest that the 450 relocations associated with the Red Route make it untenable, but the approximately 240 plus relocations associated with other routes are acceptable. In turn, the Red Route DSAs have

²²³ See *id.* at 108: Comparative Evaluation Matrix.

indisputably fewer environmental impacts on balance. As such, DSAs 6 and 7 represent the least environmentally damaging practicable alternatives of the 17 DSAs presented in the DEIS.

VII. INSUFFICIENT ANALYSIS OF SECTION 4(f) RESOURCES

Section 4(f) of the Department of Transportation Act of 1966 prevents a federal project from using publicly owned land unless “(1) there is no prudent and feasible alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.” 49 U.S.C. § 303(c).

When there is no feasible and prudent avoidance alternative, the regulation implementing Section 4(f) states that “the Administration may approve only the alternative that . . . [c]auses the least overall harm,” using a balancing of seven factors. 23 C.F.R. § 774.3(c)(1); *see* 49 U.S.C. § 303(c)(2). At the heart of Section 4(f) lies the policy that “special effort should be made to preserve the natural beauty of the countryside,” including “public park and recreation lands . . . and historic sites” in the development of transportation plans. *See* 49 U.S.C. § 303(a), (b). The Complete 540 Draft Section 4(f) Evaluation does not adhere to this preservation mandate, and instead focuses on justifying potential impacts as being de minimis in nature or else unavoidable. Absent from the Draft Section 4(f) Evaluation is any acknowledgement of how a non-toll highway option could avoid and best mitigate harm to Section 4(f) resources.

Each of the Complete 540 DSAs stands to impact one or more 4(f) properties,²²⁴ and yet the Draft Section 4(f) Evaluation fails to fully assess these impacts and possible feasible and prudent alternatives. Six Section 4(f) eligible existing or planned public parks or recreation sites would be impacted by the current slate of DSAs: Middle Creek School Park, the Watershed Extension loop trail in Clemmons Educational State Forest, the Neuse River Trail, the planned Sunset Oaks Park, the planned expansion area for White Deer Park, and the planned Bryan Road Nature Park.²²⁵ In turn, 25 historic sites included in the National Register of Historic Places (“NRHP”) or eligible for listing in the NRHP are within the project corridor and subject to Section 4(f).²²⁶ Six of the 25 sites “have the potential to be affected by Complete 540 DSAs,” and three—the Dr. L.J. Faulhaber Farm, the Bryan Farms Historic District, and the Baucom-Stallings House.²²⁷—“have the potential be adversely affected and have potential Section 4(f) use by DSAs.”²²⁸

A. The Draft Section 4(f) Evaluation Erroneously Suggests Certain Impacts Would Be “De Minimis.”

Several DSAs would impact the Middle Creek School Park, the Neuse River Trail, or the Clemmons Educational State Forest. The Neuse River Trail would be impacted under any

²²⁴ Community Impact Assessment at 56.

²²⁵ DEIS App. C: Draft Section 4(f) Evaluation at 2.

²²⁶ Community Impact Assessment (June 2015), at 59.

²²⁷ DEIS App. C: Draft Section 4(f) Evaluation at 2. “None of these sites are currently listed in the NRHP, but all have been determined to be eligible for listing.” *Id.*

²²⁸ *Id.*

DSA.²²⁹ The Draft Section 4(f) Evaluation anticipates that the impacts to these resources would only be “de minimis” in nature, and thus not subject to the substantive Section 4(f) review. 49 U.S.C. 303(d); 23 C.F.R. § 774.3(b). Under the implementing regulations, an impact to “parks, recreation areas, and wildlife and waterfowl refuges” is de minimis if it “will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).” 23 C.F.R. § 774.17. Thus, to demonstrate a de minimis impact to a park or other public lands, the agencies must consider the features and particular uses of the property. In turn, “use” within the meaning of Section 4(f) includes uses that result in the actual incorporation of land into a transportation facility, as well as constructive uses that create proximity impacts causing substantial impairment to a resource. *See* 23 CFR 774.17, 774.15.²³⁰ In addition, temporary occupancies that do not satisfy all of conditions set forth in 23 C.F.R. § 774.13 (d) fall within the definition of use.

1. All of the DSAs Would Impact the Neuse River Trail

The Neuse River Trail is a 27.5 mile paved Greenway Trail running through urban Raleigh to rural areas of Southeastern Wake and Johnston Counties. This is a valuable greenway resource, connecting urban and natural environments. The southern, less-developed segments of the trail provide a means of retreat from urban living into quieter, tree-lined and scenic areas of Wake and Johnston Counties. Users of the Neuse River Trail can enjoy the sounds of nature—not highways and traffic—on parts of the trail and river. The Trail follows the Neuse River, and is part of the Mountains-to-Sea Trail that begins in the Great Smoky Mountains and runs across North Carolina to the Outer Banks.

The Draft 4(f) Evaluation incorrectly asserts that impacts to the Neuse River Trail would be de minimis. The Draft Section 4(f) Evaluation suggests that because the trail already runs alongside existing roads and there are already “unsightly features such as wastewater treatment facilities,” along the trail, adding an enormous toll highway near and crossing over the trail would not “create unusual conditions” along the trail.²³¹ This flawed reasoning suggests that once a Section 4(f) property has experienced *any* negative impacts, the “door is opened” for any other adverse impacts. Moreover, the reasoning ignores the significant difference between existing minor, arterial roadways in the project study area, and a massive, multi-lane toll highway which would be larger, have greater noise impacts, and generate greater environmental impacts than any of the current roadways near the Neuse River Trail. Particularly in this southern part of the Trail, the toll highway would indeed “create unusual conditions” along undeveloped portions of the Trail.

²²⁹ DEIS App. C: Draft Section 4(f) Evaluation at Table 1: Potential Effects on Section 4(f) Resources by Detailed Study Alternative.

²³⁰ According to 23 C.F.R. § 774.15 (a):

A constructive use, occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project’s proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the resource are substantially diminished.

²³¹ DEIS App. C: Draft Section 4(f) Evaluation at 9.

The figures depicting the impacts to the trail demonstrate how the toll highway would be exponentially larger than any existing roadways in the area and substantially alter the character of the Trail in the affected area.²³² The affected section of the Trail would not be an urbanized strip of open trail in Raleigh, instead, the affected portion of the trail runs through a forested and less-developed, scenic area of southeastern Wake County. The Brown Route—as included in DSAs 4, 5, 11, 12, 16 and 17—would not simply cross the Trail, but would run directly *over* the current trail and place an interchange above and following a 90-degree angle turn in the trail, covering several hundred feet of the current trail.²³³ The Tan Route would cross the Trail twice within the span of a few hundred feet,²³⁴ and the Mint Route would cross the Trail and run parallel alongside the Trail for several hundred feet, thus impacting the visual and sound aesthetics of the trail indirectly.²³⁵ The Green Route would “simply” cross the trail once.²³⁶

These impacts to the Neuse River Trail would be more than *de minimis*, as they would “adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).” 23 C.F.R. § 774.17. Under any alternative, users of the trail would now be subjected to increased traffic sounds and pollution and the eyesore of a giant toll highway—such impacts would adversely affect the experience of bicyclists, joggers, and walkers on this greenway, which currently does not have any comparable disturbances in this southern portion of the Trail.

2. Impacts to the Middle Creek School Park Must Be More Thoroughly Studied and Documented

Finally, the Draft Section 4(f) Evaluation suggests that the impacts to the Middle Creek School Park would be *de minimis* because the toll highway would only “directly affect a narrow strip of land at the extreme northern edge of Middle Creek School Park,” affecting a total of approximately 1.6 acres.²³⁷ The Draft Section 4(f) Evaluation notes the lack of “designated trails or other active recreational uses” after describing the affected area as “wooded open space” that is half-a-mile away from existing recreational facilities, and a quarter-of-a-mile from a planned greenway trail.²³⁸ While the report describes the uses of adjacent areas of the park, the Report fails to describe what the 1.6 acres of wooded open space are currently used for. The final Section 4(f) analysis should review how this strip of affected wooded open space is used. Likewise, further study and documentation should be completed to demonstrate that constructive uses would not substantially impair this resource.

3. DSAs 4 and 16 Would Impact Use and Management of the Clemmons Educational State Forest

The Draft Section 4(f) Evaluation also suggests that the impacts to the Watershed Extension Loop Trail in Clemmons Educational State Forest, impacts corresponding to DSAs 4

²³² *Id.* at Figures 22-25.

²³³ *Id.* at Figure 25.

²³⁴ *Id.* at Figure 24.

²³⁵ *Id.* at Figure 23.

²³⁶ *Id.* at Figure 22.

²³⁷ *Id.* at 7.

²³⁸ *Id.*

and 16, would be de minimis. However, this assertion is undercut by the North Carolina Forest Service’s expressed concerns about the impacts to this site, including disruption of the trail system in the forest, losses of working forests, ranger patrol and fire control difficulties if the forest property were split into two.²³⁹

4. Feasible and Prudent Avoidance Alternatives to the Toll Highway DSAs Exist

The FHWA may approve a project with negative impacts to Section 4(f) resources only if no feasible or prudent alternative exists. Because each of the DSAs would likely have a negative impact on Section 4(f) resources, FHWA must examine feasible and prudent avoidance alternatives to the Complete 540 project, or establish that no such alternatives exist. The current feasibility analysis in the Draft Section 4(f) Evaluation fails to fulfill this obligation, and will need to be corrected to inform the Section 4(f) determination.

An alternative is infeasible under Section 4(f) “if it cannot be built as a matter of sound engineering judgment.” 23 C.F.R. § 774.17. An alternative is not prudent if (1) after reasonable mitigation, it still causes “severe social, economic, or environmental impacts . . . or severe impacts to environmental resources protected under other Federal statutes”; (2) “[i]t results in additional construction, maintenance, or operational costs of an extraordinary magnitude”; or (3) “[i]t causes other unique problems or unusual factors.” 23 C.F.R. § 774.17.

The feasibility analysis of the Draft Section 4(f) Evaluation is entirely limited to considering alignment shifts in the DSA routes that impact 4(f) resources and assumes that the only way to meet the project purpose is through completing the 540 Outer Loop.²⁴⁰ For example, in suggesting that there are no feasible alternatives that would avoid the Neuse River Trail, the Draft Section 4(f) Evaluation broadly asserts that because “the Neuse River Trail follows the Neuse River for almost 30 miles in eastern Wake County, it is not possible for this project to completely avoid the trail.”²⁴¹ This statement is false—non-toll highway alternatives could in fact completely avoid the Trail. The Draft Section 4(f) Evaluation never considers any of the many feasible, non-toll highway options that would avoid these impacts, such as upgrading existing roadways, TDM, TSM, or mass transit options, all of which would result in *fewer* severe environmental, social, and community impacts. Moreover, each of these would be more feasible and prudent than the current DSAs which lack secure funding for their estimated cost of over \$2 billion.

The number of Section 4(f) resources in the project study area and the nature of the impacts to these resources underscore the necessity of further examining non-toll highway alternatives to the transportation needs of the project study area. A combination of upgrading existing roadways, implementing TDM and TSM strategies, and increasing mass transit options is a feasible and prudent alternative that would avoid impacts to Section 4(f) resources. FHWA must consider such alternatives as part of its Section 4(f) analysis.

²³⁹ *Id.* at Attachment 3.

²⁴⁰ *Id.* at 9-12.

²⁴¹ *Id.* at 12.

B. Section 4(f) Does Not Prevent FHWA from Sanctioning the Least-Environmentally Damaging Red Route Alternatives.

FHWA should look to feasible and prudent non-toll highway alternatives, but as between the current DSAs, the Red Route DSAs are the only feasible and prudent alternatives. The other DSAs all would result in much more severe environmental impacts than the Red Route DSAs, which in turn prevents FHWA from considering these other DSAs as prudent.

According to the Draft Section 4(f) Evaluation, the Red Route would likely negatively affect two parks and two historic sites,²⁴² and there are no viable mitigation or avoidance measures that could be incorporated into the Red Route to minimize the harm to Section 4(f) resources.²⁴³ The Draft Section 4(f) discounts any possible shifts in alignment of the Red Route, stating that a modified Red Route was considered, but it “had such numerous design constraints that it was not a feasible alternative.”²⁴⁴

In turn, however, the only reasons given by the Alternatives Analysis for rejection of this modified Red Route was (1) that the alignment would be “operationally undesirable” even though it would still “meet minimum design standards,” and (2) that if speeds were increased on this section the 540 Outer Loop—as NCDOT is doing for other sections—then the alignment of the route would need to be modified to accommodate the increased speed, which “would likely shift the right-of-way” for this modified Red Route into the Section 4(f) resources.²⁴⁵ These supposed justifications for eliminating the modified Red Route fail to indicate that the route was infeasible or imprudent. There is no requirement that the full 540 Outer Loop have the same speed limit, nor that design standards must be exceeded. Indeed, FHWA recently announced intended revisions to its design standards to allow for greater flexibility for roadway designers. *See FHWA Notice: Revision of Thirteen Controlling Criteria for Design; Notice and Request for Comment*, 80 Fed. Reg. 60732 (Oct. 7, 2015), attached as Attachment 46. The spirit of design flexibility may allow for previously unevaluated modifications to the Red Route, or may make the formerly identified “design constraints” less problematic. FHWA must consider modifications to the Red Route when conducting its Section 4(f) analysis, and NCDOT should better evaluate and document whether this modified route is feasible.

The Red Route’s 4(f) impacts are particularly significant because the Red Route DSAs are the least environmentally damaging alternatives under consideration. Between the current slate of DSAs, only Red Route DSA could possibly be found to be the “LEDPA” pursuant to section 404 of the Clean Water Act. This tension between the Section 4(f) and LEDPA determinations may pose a significant barrier to any of the DSAs receiving all necessary federal approvals, but ultimately, FHWA must consider the environmental effects of alternatives in determining whether the alternatives would be “prudent” under Section 4(f). 49 U.S.C. § 303(c)(1)–(2). As such, even if the DSAs without the Red Route did not have any impacts to Section 4(f) resources—which is not the case, as detailed above—an alternative using the Red

²⁴² *Id.* at 5-6 (documenting impacts to Dr. L. J. Faulhaber Farm and Bryan Farms Historic District), 9 (documenting impacts to White Deer Park Planned Expansion Area and Planned Bryan Road Nature Park).

²⁴³ *Id.* at 10-12.

²⁴⁴ *Id.* at 10.

²⁴⁵ Alternatives Analysis at 5-40.

Route may still be selected if the other alternatives are not “prudent and feasible alternative[s]” to using the Section 4(f) resources that fall within the Red Route’s path.

As thoroughly explained above in the analysis of impacts above,, the non-Red Route DSAs would directly jeopardize the endangered dwarf wedgemussel and would result in far greater and more severe environmental impacts. Moreover, if NCDOT and FWS were to create a mussel propagation facility to “offset” the non-Red Route DSAs’ impacts to dwarf wedgemussels, this would “result in additional construction, maintenance, or operational costs of an extraordinary magnitude.” *Id.* The impacts to the dwarf wedgemussel, standing alone, present “severe environmental impacts . . . or severe impacts to environmental resources protected under other Federal statutes,” and would cause “other unique problems or unusual factors” if NCDOT attempted to address mussel impacts with a new mussel propagation facility. 23 C.F.R. § 774.17.

As recognized by the Fourth Circuit, “[a] cumulation of small problems may add up to a sufficient reason to use §4(f) lands.” *Hickory Neighborhood Def. League v. Skinner*, 910 F.2d 159, 163 (4th Cir. 1990) (quoting *Eagle Found., Inc. v. Dole*, 813 F.2d 798, 805 (7th Cir. 1987)). DSAs 6 and 7, which use the Red Route, are the least environmentally damaging DSAs and avoid the additional costs associated with mussel propagation and environmental mitigation measures. The cumulation of the non-Red Route DSAs’ greater impacts to water quality, streams, wetlands, aquatic ecosystems, and rare and endangered species “add up to a sufficient reason to use” the Section 4(f) resources at stake here.

Thus, while Section 4(f) may counsel against selecting any of the DSAs over a non-toll highway alternative, Section 4(f) does not bar selection of the Red Route DSAs over the other currently considered DSAs. Indeed, Section 4(f) guides FHWA to select the “prudent and feasible” alternative, which would be a Red Route DSA in light of the other DSAs’ extensive environmental impacts.

Nonetheless, the truly most prudent and feasible alternative will be one which does not involve building a toll highway, and which instead incorporates upgrades to existing roadways, TDM and TSM strategies, and increases to mass transit. Such an alternative will meet the project’s purposes and avoid impacts to the discussed Section 4(f) resources.

VIII. PREDETERMINED DECISION-MAKING

The Council on Environmental Quality’s NEPA regulations specifically require that an EIS be more than merely a “disclosure document,” stating that an “environmental impact statement shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made.” 40 C.F.R. §§ 1502.1, 1502.2(g). And the United States Court of Appeals for the Fourth Circuit itself has recognized that NEPA requires action and study based on “good faith objectivity rather than subjective impartiality.” *Fayetteville Area Chamber of Commerce v. Volpe*, 515 F.2d 1021, 1026 (4th Cir.1975); *see also Nat’l Audubon Soc’y v. Dep’t of Navy*, 422 F.3d 174, 199 (4th Cir. 2005) (noting that “NEPA of course prohibits agencies from preparing an EIS simply to ‘justify decisions already made.’” (quoting 40 C.F.R. § 1502.2(g)). Predetermined decision-making is antithetical to the purpose of NEPA to fairly evaluate reasonable alternatives and disclose to the public the agency’s findings regarding the different alternatives at a meaningful time

Here, NCDOT has made clear for decades that it would only build the Orange Route and would never build the Red Route. First, NCDOT designated the Orange Route as its preferred route in the 1990s by limiting development throughout that corridor. Second, as vocal opponents to the Red Route called for its elimination, NCDOT assured the public that the Red Route would never be built.

A. The Protected Orange Corridor Was Illegally Pre-determined.

The North Carolina General Assembly passed the Transportation Corridor Official Map Act (“Map Act”) in 1987. This act allows NCDOT to designate and preserve certain roadway corridors for future transportation projects. In the 1990’s, NCDOT used the Map Act to preserve what has become known as the Orange Route, limiting development throughout this corridor in anticipation of the 540 Outer Loop being completed along this route. NCDOT’s commitment to this protected corridor for multiple decades demonstrates its predetermined decision to only build the Orange Route.

Moreover, NCDOT’s determination to build the Orange Route has negatively impacted communities in the area. Residents in the area have been unable to sell their homes and move, unable to develop retirement properties, and have been living in limbo for the past two decades as a result of NCDOT’s use of the Map Act.²⁴⁶ The North Carolina Court of Appeals ruled that the Map Act is unconstitutional by allowing the state to effectively “take” residents’ land by preventing residents from being able to derive economic value from their property. *Kirby v. N.C. Dep’t of Transp.*, 769 S.E.2d 218 (N.C. Ct. App. 2015). The case is now on appeal to the Supreme Court of North Carolina. 775 S.E.2d 829 (Aug. 20, 2015).

B. Rejection of the Red Route Was Illegally Pre-determined.

After NCDOT designated the protected corridor of the Orange Route in the 1990s, environmental resource agencies expressed concern about the severe impacts this route would have on the dwarf wedgemussel and other natural resources in the area. In response, NCDOT developed the Red Route which would avoid direct impacts to the dwarf wedgemussel—but cross through developed areas of the Town of Garner. The Town of Garner voiced its strong opposition to the route, reaching out to the Governor and Secretary of Transportation to try and remove the Red Route from consideration.²⁴⁷

In response to Garner’s outcry, NCDOT made repeated public statements indicating that it would never build the Red Route: “We were never going to build the red route. It was only for study.”²⁴⁸ News outlets explained that “[t]he Turnpike Authority has said it wouldn’t use the red route because of its adverse impact” on the Town of Garner, “[b]ut the DOT had to study the

²⁴⁶ Bruce Siceloff, *Road Worrier: On the Orange Route, NCDOT Holds Property Owners in Limbo*, THE NEWS & OBSERVER, Sept. 28, 2015, <http://www.newsobserver.com/news/traffic/road-worrier-blog/article36833802.html>, Attachment 47.

²⁴⁷ E-mail chain from Ed Brown, to Tony Beasley, Town of Garner, (Feb. 22, 2011), attached as Attachment 48.

²⁴⁸ Shirley Hayes, *With Red Route Gone, What’s Next for I-540 Expressway Extension?*, GARNER NEWS, Mar. 29, 2011, Attachment 49; *see also* Colin Campbell and Bruce Siceloff, *DOT: We Won’t Build Red Route*, GARNER-CLAYTON RECORD, Mar. 2, 2011, Attachment 50.

option because the Army Corps of Engineers requires that at least two proposed routes be studied.”²⁴⁹ According to Town of Garner e-mails, N.C. Turnpike Authority staff stated in November 2010 that the chances of the Red Route being built were “one in a million.”²⁵⁰ The animosity to the Red Route culminated in the North Carolina General Assembly passing a law in 2011 prohibiting the Complete 540 project from being located north of an existing, protected corridor—essentially outlawing the Red Route and attempting to guarantee the selection of the Orange Route. 2011 N.C. Laws S.L. 2011-7.

Federal agencies warned that more than one route would need to be studied and presented in order for the project to obtain federal approval.²⁵¹ Consequently, the Regional Transportation Alliance helped fund studies of route alternatives to the Red and Orange Routes so as to keep the Complete 540 toll highway project moving forward.²⁵²

RTA’s involvement with this project provides further evidence of the transportation agencies’ predetermined decision-making and disregard of the NEPA process. The non-governmental organization—an arm of the Raleigh Chamber—has a stated position in support of completing 540 as a toll highway along the orange route. The transportation agencies have granted RTA a special role to participate throughout the NEPA process while failing to offer the same level of access to other stakeholders, such as the Conservation Groups that favor other options.²⁵³

Despite RTA’s assistance and study of additional routes,²⁵⁴ the federal agencies refused to condone the project without the Red Route. In December 2012, FHWA and the Corps withdrew support for the project, informing NCDOT that they believed “the project can no longer move forward . . . and satisfy all federal environmental requirements.”²⁵⁵

While grappling with how to handle the federal agencies’ withdrawal of support, members of the Transportation Advisory Committee (“TAC”) made statements to the effect of “even though we know the red route will never be built, to move this along,” the TAC should encourage the N.C. General Assembly to repeal the law.²⁵⁶ Eventually, in 2013, the N.C. General Assembly did remove its statutory restriction of routes to be studied for the Complete 540 project, see 2013 N.C. Laws S.L. 2013-94, despite the Town of Garner’s strong

²⁴⁹ Bruce Mildwurf, *Without ‘Red Route,’ Feds to End Funding for Extending Wake Toll Road*, CAPITOL BROADCASTING CO., Apr. 10, 2012, Attachment 51.

²⁵⁰ E-mail from Thomas H. Johnson to Hardin Watkins, Town Manager, Town of Garner (Nov. 22, 2010), Attachment 52.

²⁵¹ Bruce Mildwurf, *Without ‘Red Route,’ Feds to End Funding for Extending Wake Toll Road*, CAPITOL BROADCASTING CO., Apr. 10, 2012, attached as Attachment 51.

²⁵² Bruce Siceloff, *New TriEx Proposals May Save Garner from Red Route*, NEWS & OBSERVER, May 22, 2012, Attachment 53.

²⁵³ E-mail from Eric Midkiff, NCDOT, to Jamille A. Robbins, NCDOT & Kiersten R. Bass, nHNTB (Aug. 22, 2013), Attachment 54.

²⁵⁴ Bruce Siceloff, *New TriEx Proposals May Save Garner from Red Route*, NEWS & OBSERVER, May 22, 2012, Attachment 53.

²⁵⁵ Letter from John F. Sullivan, FHWA, and Steven A. Baker, USACE, to Terry R. Gibson, P.E., NCDOT (Dec. 7, 2012), Attachment 55.

²⁵⁶ Transp. Advisory Comm. Meeting Minutes (Dec. 12, 2012) at 4, Attachment 56.

opposition.²⁵⁷ NCDOT resumed inclusion and study of the Red Route in the Complete 540 NEPA process. Nonetheless, given NCDOT's repeated promises to not build the Red Route, the route's perfunctory inclusion in the DEIS is merely an attempt to pass legal muster. In other words, in the current DEIS NCDOT attempts to justify its already-made decision to build the Orange Route—in contravention of NEPA's implementing regulations. 40 C.F.R. §§ 1502.1, 1502.2(g).

IX. CONCLUSION

No one—not the Conservation Groups, not NCDOT, nor any of the affected communities—wish to see the Town of Garner crushed by the Red Route. The route may avoid significant environmental impacts, including the devastating effects to the dwarf wedgemussel associated with other routes, but it still comes with an excessive environmental toll. Indeed, all of the routes under consideration correspond to both substantial environmental impacts and significant relocation impacts, with anywhere from 234 to 550 required residential relocations. The only truly reasonable and practicable alternative is for NCDOT to evaluate options other than the 17 DSAs included in the DEIS. NCDOT should refocus on upgrading existing roadways, incorporating TDM and TSM strategies, and integrating mass transit options where possible. Such alternative solutions would address mobility in the project area without wiping out existing neighborhoods, endangered species, and special, sensitive natural resources.

Sincerely,



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²⁵⁷ See Letter from Town of Garner to N.C. Gen. Assembly (Jan. 23, 2013), Attachment 57.

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