

Squaring the Circle

Reader-Friendly Documents in a Lawsuit Prone World



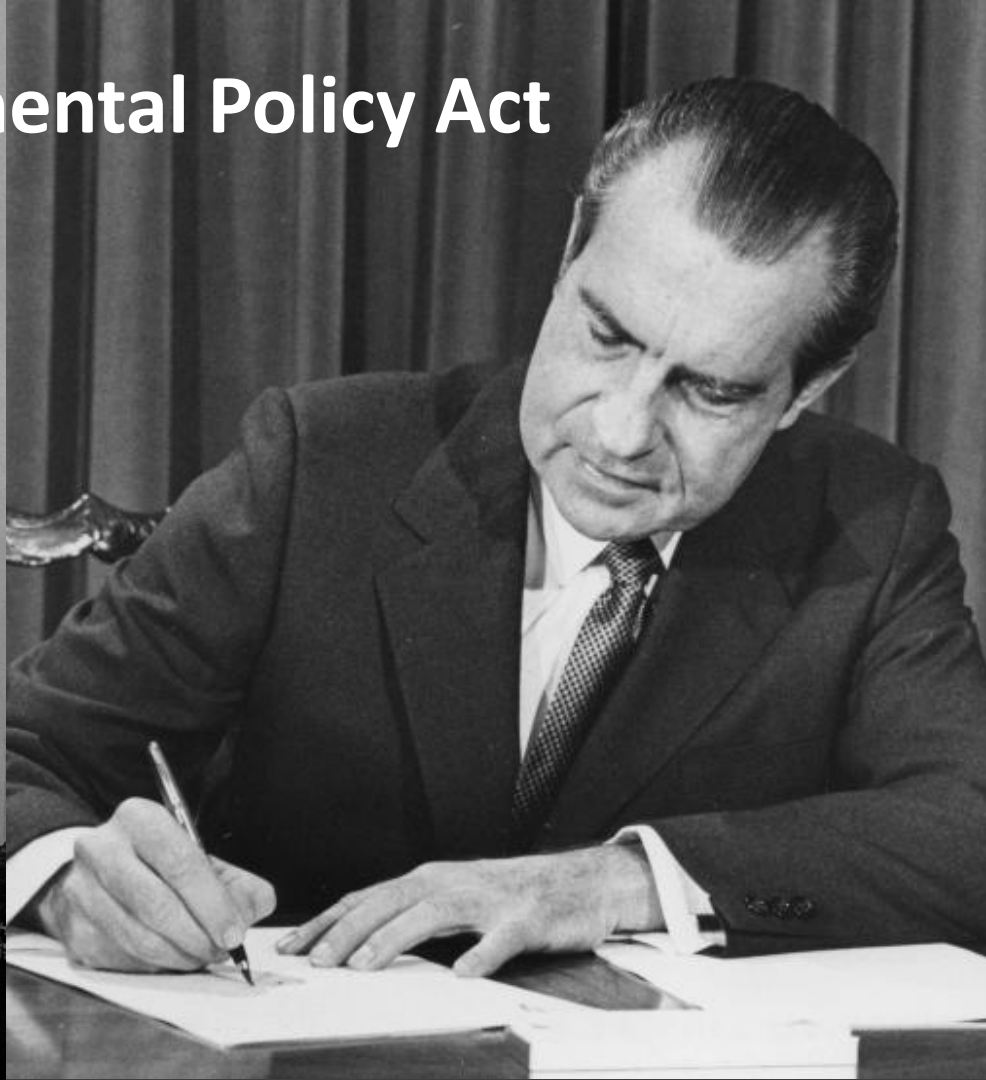
North Carolina Association of Metropolitan Planning Organizations
2016 Annual Conference

Presentation overview

- An overview of the National Environmental Policy Act
- An explanation of NEPA's Environmental Impact Statement requirement
- Issues that have arisen with EISs and the resulting "reader friendly" initiative
- My experience preparing a RF DEIS for our client, the NCDOT, and explain the push back we received on it
- I'll conclude with some of those fundamental questions I mentioned
- Then, if I've practiced this presentation enough to stay within my time frame, we'll have time for questions and maybe some discussion.

A few moments with NEPA

The National Environmental Policy Act



The National Environmental Policy Act

Introduced in the Senate — Feb. 18, 1969

Passed the Senate — July 10, 1969 (unanimous)

Passed the House — Sept. 22, 1969 (372-15)

Joint conference committee report:

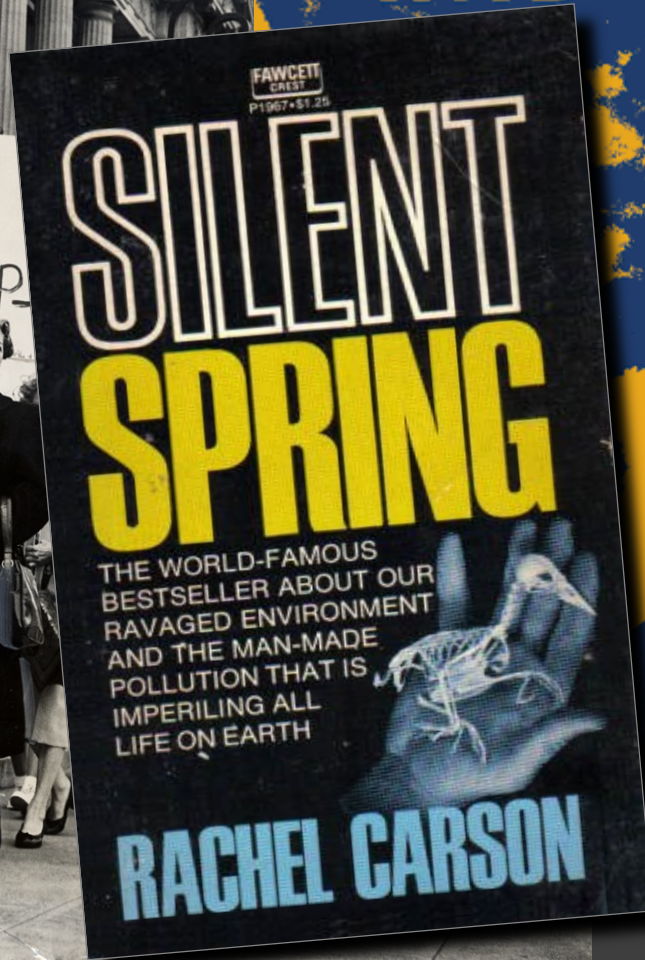
- approved by Senate on Dec. 20, 1969

- approved by House on Dec. 23, 1969

Signed into law by President Nixon on Jan. 1, 1970



HAD ENOUGH?





Clean Air Act — 1963

Civil Rights Act — 1964

National Historic Preservation Act — 1966

Department of Transportation Act — 1966

Air Quality Act — 1967

Uniform Relocation Assistance Act — 1970

Clean Water Act — 1972

Endangered Species Act — 1973

Public Law 91-190

AN ACT

January 1, 1970

[S. 1075]

National Environmental
Policy Act of
1969.

To establish a national policy for the environment, to provide for the establishment of a Council on Environmental Quality, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "National Environmental Policy Act of 1969".

PURPOSE

SEC. 2. The purposes of this Act are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.

TITLE I

DECLARATION OF NATIONAL ENVIRONMENTAL POLICY

Policies and
goals.

SEC. 101. (a) The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.

(b) In order to carry out the policy set forth in this Act, it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may—

(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

(2) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;

(3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

(4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice;

(5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and

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81 Stat. 54.

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Lynton Caldwell (1913-2006)

Professor Emeritus of Political Science and Professor of Public
and Environmental Affairs, Indiana University

Principal “architect” of the National Environmental Policy Act

The purpose of NEPA was to cause agencies to reorder their priorities and to internalize in their policies and procedures an informed concern for the environmental consequences of their actions.

NEPA does not mandate a particular policy outcome or decision, but the assessment process and findings are intended to cause decision-makers to think through a policy before acting upon it.

Underlying NEPA is a belief that knowledge and rationality applied to public issues are more likely to yield results in the public interest than inadequately informed action or narrowly focused objectives.

NEPA appears to have been the first national statute to mandate an assessment of the environmental impact of proposals for legislation and other major governmental action significantly affecting the quality of the human environment.

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(c) The Congress recognizes that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.

SEC. 102. The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and (2) all agencies of the Federal Government shall—

(A) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment;

(B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations;

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—

- (i) the environmental impact of the proposed action,
- (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (iii) alternatives to the proposed action,
- (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
- (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. Copies of such statement and the comments and views of the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public as provided by section 552 of title 5, United States Code, and shall accompany the proposal through the existing agency review processes;

(D) study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;

(E) recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment;

(F) make available to States, counties, municipalities, institutions, and individuals, advice and information useful in restoring, maintaining, and enhancing the quality of the environment;

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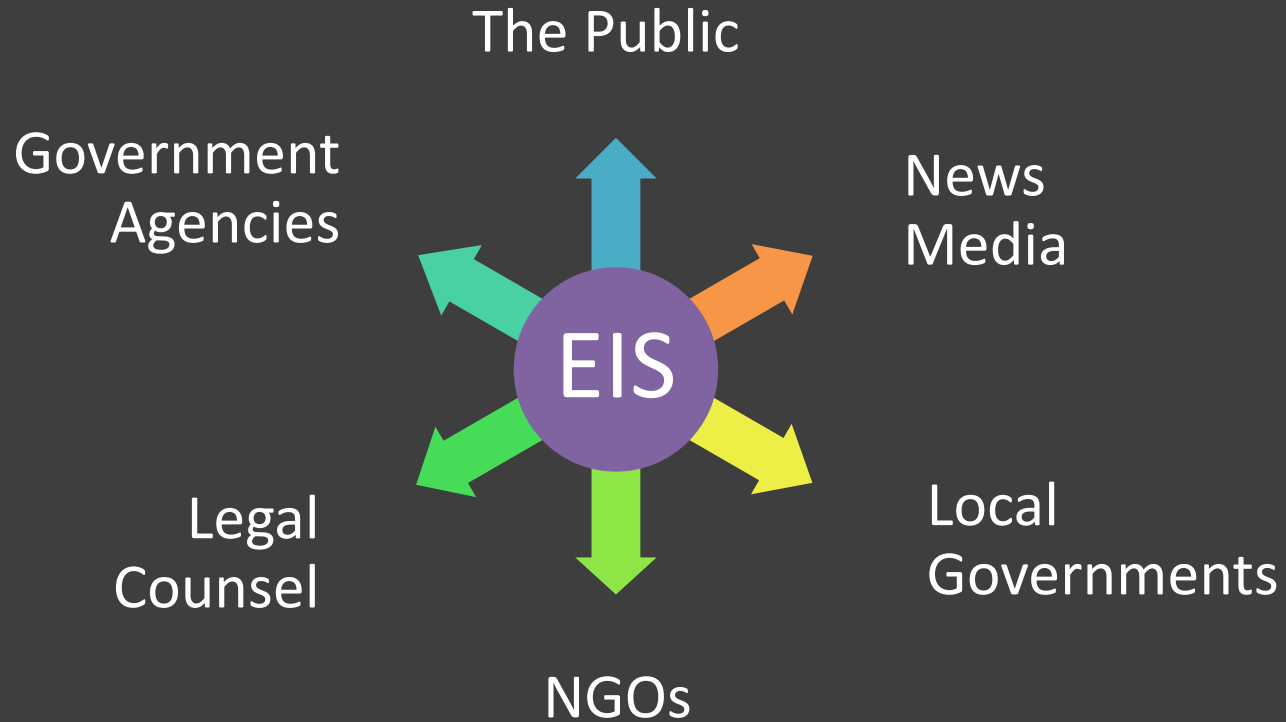
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**NEPA's
ENVIRONMENTAL IMPACT STATEMENT
Requirement**

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NEPA's great contribution—and it is both magnificent in its simplicity and deceptive in its power—is the environmental impact statement. [It's in] in what agencies have to investigate and learn and listen to, in what they have to fear from other agencies and from environmental groups, the press, and reviewing courts, and in the everyday responses and accommodations that they have to make. This was blockbuster stuff in the United States circa 1969 [...] The NEPA ideas of disclosure, public participation, alternatives, and judicial review are blockbuster stuff as well for the developed countries of Europe and are absolutely revolutionary stuff for developing nations [...], who are also signing on. In this one regard, this one huge regard, NEPA has been the largest environmental success in the world.



**All inclusive, data heavy,
standardized, jargon filled**

**Short, graphic rich,
flexible, vernacular**

Government
Agencies

The
Public


Legal
Counsel

News
Media

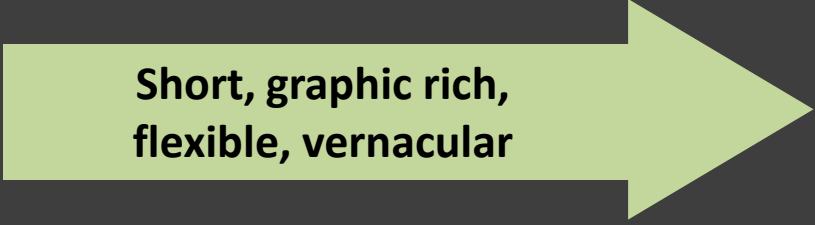
NGOs

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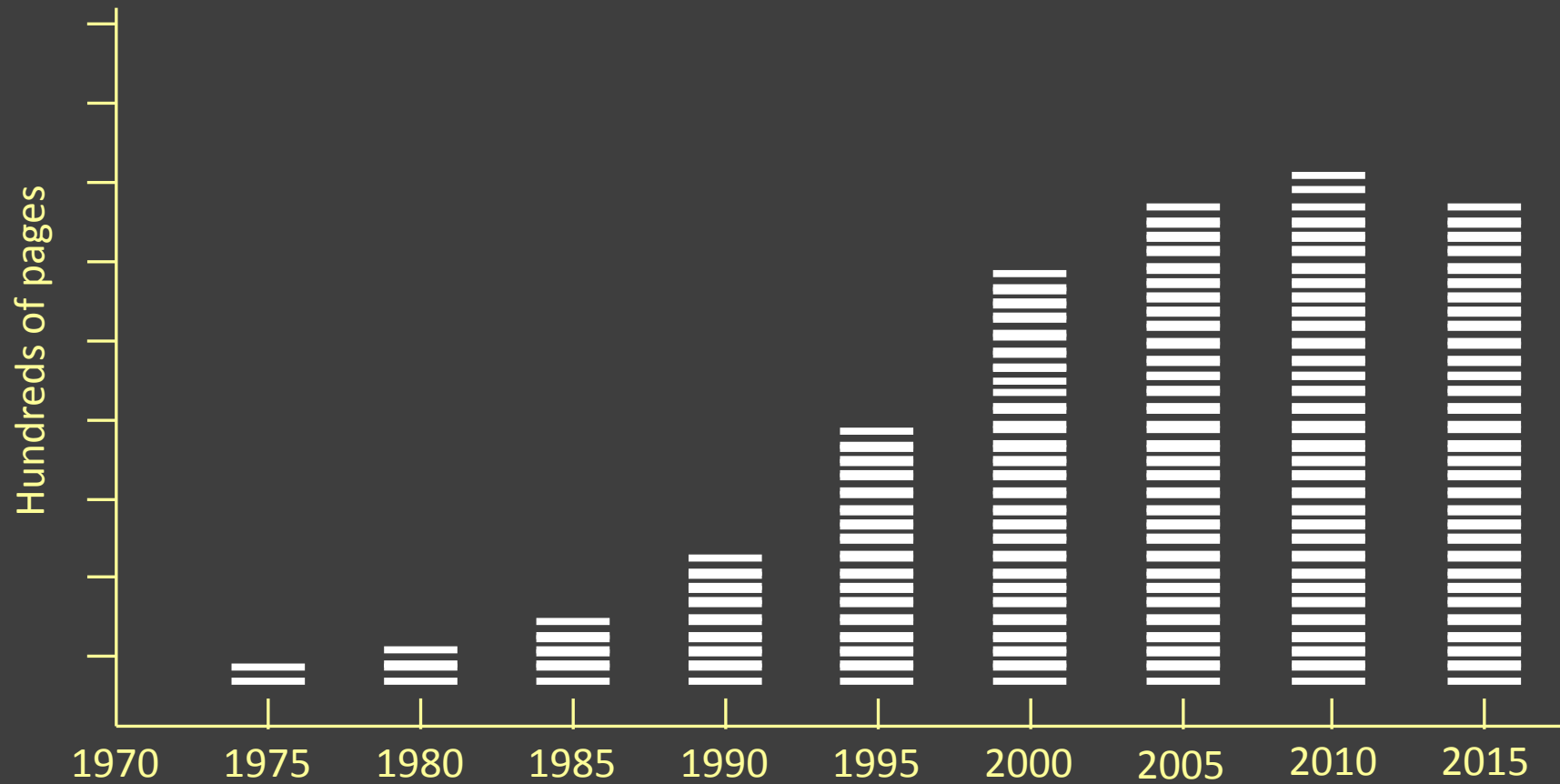


EIS

The
Public

News
Media

Local
Governments



READER FRIENDLY ENVIRONMENTAL IMPACT STATEMENTS

Working Group Convened in 2003

AASHTO

ACEC

FHWA

Consultants

Improving the Quality of Environmental Documents

A Report of the Joint
AASHTO/ACEC Committee
in Cooperation with the
Federal Highway Administration



American Association of State Highway and

AASHTO PRACTITIONER'S HANDBOOK

15
July 2014

PREPARING HIGH-QUALITY NEPA DOCUMENTS FOR TRANSPORTATION PROJECTS

This handbook describes good practices for improving the quality of environmental documents prepared for transportation projects under the National Environmental Policy Act (NEPA).

Issues covered in this handbook include:

- | | |
|---|---|
| Before the NEPA Process <ul style="list-style-type: none">■ Building the NEPA document team■ Planning the NEPA document■ Planning the NEPA document review process | <ul style="list-style-type: none">■ Use of appendices■ References■ Electronic publication |
| Overall Document Quality <ul style="list-style-type: none">■ Page layout■ Writing quality and style■ Document structure■ Navigation■ Summary and abstracts■ Presentation of data■ Figures■ Visualizations | Compliance with NEPA and Related Requirements <ul style="list-style-type: none">■ Purpose and need■ Alternatives■ Methodologies■ Commitments■ Regulatory compliance and permitting■ Responses to comments on NEPA documents■ Changes during the NEPA process |

The Center for Environmental Excellence by AASHTO produces the Practitioner's Handbooks. The Handbooks provide practical advice on a range of environmental issues that arise during the planning, development, construction, and operation of transportation projects.

Each Handbook is developed by the Center in cooperation with an advisory group that includes representatives of the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), state departments of transportation, and other agencies as appropriate. The advisory group for this handbook also included representatives of the consultant community.

The Handbooks are primarily intended for use by project managers and others who are responsible for coordinating compliance with a wide range of requirements. With their needs in mind, each Handbook includes:

- A background briefing;
- Key issues to consider, and
- Practical tips for achieving compliance.

In addition, key regulations, guidance materials, and sample documents for each Handbook are posted on the Center's web site at <http://environment.transportation.org>



Center for Environmental Excellence by AASHTO



American Association of State Highway and Transportation Officials

CEQ Regulations

... regulations applicable to and binding on all Federal agencies for implementing the procedural provisions of the National Environmental Policy Act of 1969. Agencies shall reduce excessive paperwork by:

- (a) Reducing the length of environmental impact statements (Sec. 1502.2(c)), by means such as setting appropriate page limits (Secs. 1501.7(b)(1) and 1502.7).
- (b) Preparing analytic rather than encyclopedic environmental impact statements (Sec. 1502.2(a)).
- (c) Discussing only briefly issues other than significant ones (Sec. 1502.2(b)).
- (d) Writing environmental impact statements in plain language (Sec. 1502.8).
- (e) Following a clear format for environmental impact statements (Sec. 1502.10).
- (f) Emphasizing the portions of the environmental impact statement that are useful to decision-makers and the public (Secs. 1502.14 and 1502.15) and reducing emphasis on background material (Sec. 1502.16).
- (g) Using the scoping process, not only to identify significant environmental issues deserving of study, but also to deemphasize insignificant issues, narrowing the scope of the environmental impact statement process accordingly (Sec. 1501.7).
- (h) Summarizing the environmental impact statement (Sec. 1502.12) and circulating the summary instead of the entire environmental impact statement if the latter is unusually long (Sec. 1502.19).
- (i) Using program, policy, or plan environmental impact statements and tiering from statements of broad scope to those of narrower scope, to eliminate repetitive discussions of the same issues (Secs. 1502.4 and 1502.20).
- (j) Incorporating by reference (Sec. 1502.21).
- (k) Integrating NEPA requirements with other environmental review and consultation requirements (Sec. 1502.25).
- (l) Requiring comments to be as specific as possible (Sec. 1503.3); (m) Attaching and circulating only changes to the draft environmental impact statement, rather than rewriting and circulating the entire statement when changes are minor (Sec. 1503.4(c)).
- (n) Eliminating duplication with State and local procedures, by providing for joint preparation (Sec. 1506.2), and with other Federal procedures, by providing that an agency may adopt appropriate environmental documents prepared by another agency (Sec. 1506.3).
- (o) Combining environmental documents with other documents (Sec. 1506.4).
- (p) Using categorical exclusions to define categories of actions which do not individually or cumulatively have a significant effect on the human environment and which are therefore exempt from requirements to prepare an environmental impact statement (Sec. 1508.4).
- (q) Using a finding of no significant impact when an action not otherwise excluded will not have a significant effect on the human environment and is therefore exempt from requirements to prepare an environmental impact statement (Sec. 1508.13).



The Complete 540 Reader Friendly EIS



Organization, Format, and Graphics

FHWA-WV-EIS-99-1-D

Federal Project NH-0340(030)
State Project U219-340-0.00(02)

US 340 IMPROVEMENT STUDY
Jefferson County, West Virginia

**DRAFT ENVIRONMENTAL IMPACT STATEMENT
DRAFT SECTION 4(F) EVALUATION**

Submitted Pursuant to 42 USC 4332(2)(c) and 49 USC 303
by the U.S. Department of Transportation
Federal Highway Administration
and

West Virginia Department of Transportation
Division of Highways

Date of Approval

For West Virginia Division of Highways

Date of Approval

For Federal Highway Administration

The following persons may be contacted for additional information concerning this document:

Mr. David E. Bender
Environmental, Civil Rights &
Right of Way Team Leader
Federal Highway Administration
700 Washington St. E, Suite 200
Charleston, WV 25301
(304) 347-5928

Mr. Ben Hark
Chief Environmental Services Section-
Roadway Design Division
Division of Highways
West Virginia Department of Transportation
State Capitol Complex, Building Five
Charleston, WV 25305
(304) 558-2885

This Draft Environmental Impact Study evaluates the engineering aspects and social, economic, and environmental impacts associated with the alternatives for a transportation corridor north, south, and along US 340 in Jefferson County.

Comments on this Draft Environmental Impact Statement are due by _____
and should be sent to:

Mr. Randolph T. Epperly, Director - Roadway Design Division
Division of Highways
West Virginia Department of Transportation
State Capitol Complex, Building Five
Charleston, WV 25305





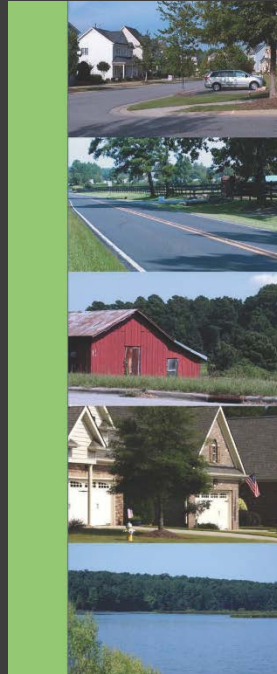
Draft
Environmental Impact Statement
Complete 540 - Triangle Expressway Southeast Extension

October 2015



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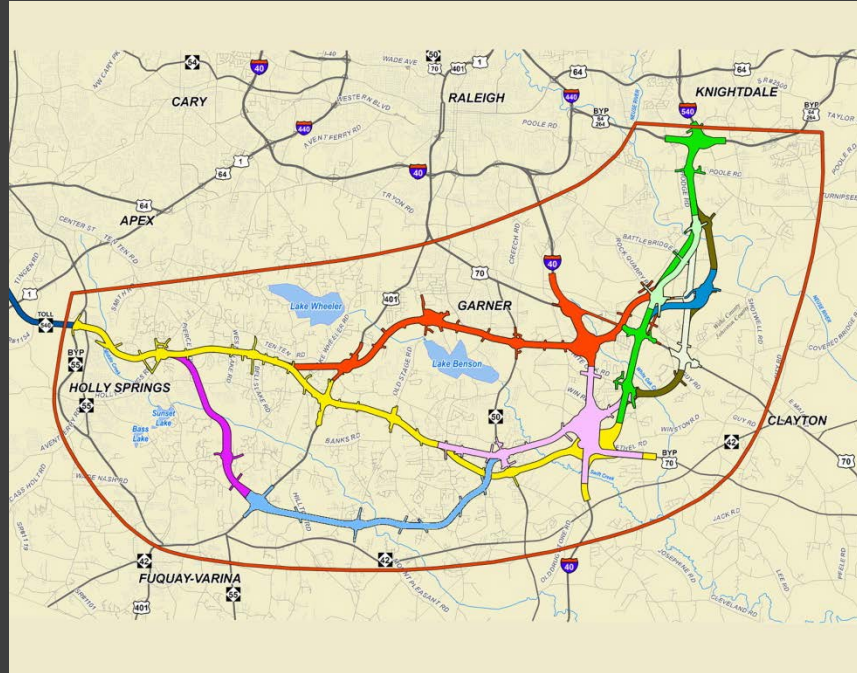
Draft
Environmental Impact Statement
Complete 540 - Triangle Expressway Southeast Extension

October 2015



11 in.

8.5 in.



“Splash” pages



- Signal section changes.
- Avoid “this page intentionally blank” text.
- Add visual interest.

FHWA-NC-EIS-_____
Federal Highway Administration
North Carolina Division

**Complete 540 Triangle Expressway Southeast Extension
Wake and Johnston Counties, North Carolina**

STIP Project Nos. R-2721, R-2828, and R-2829
State Project Nos. 6-A01078, 6-A01079, and 6-A01080
Federal Aid Project Nos. STP-0540(19), STP-0540(20), and STP-0540(21)
WBS Nos. 37673.1.1A2, 35516.1.1A2, and 35517.1.1A1

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Submitted Pursuant to the National Environmental Policy Act, 42 USC 4332 (2)(c) and 49 USC 303
by the US Department of Transportation, Federal Highway Administration,
and the North Carolina Department of Transportation
Cooperating Agency: US Army Corps of Engineers

Date of Approval

Richard W. Hancock, P.E.
Manager, Project Development and Environmental Analysis Unit
North Carolina Department of Transportation

Date of Approval

Edward T. Parker
Assistant Division Administrator,
Federal Highway Administration

Clean, simple contents pages.

Contents

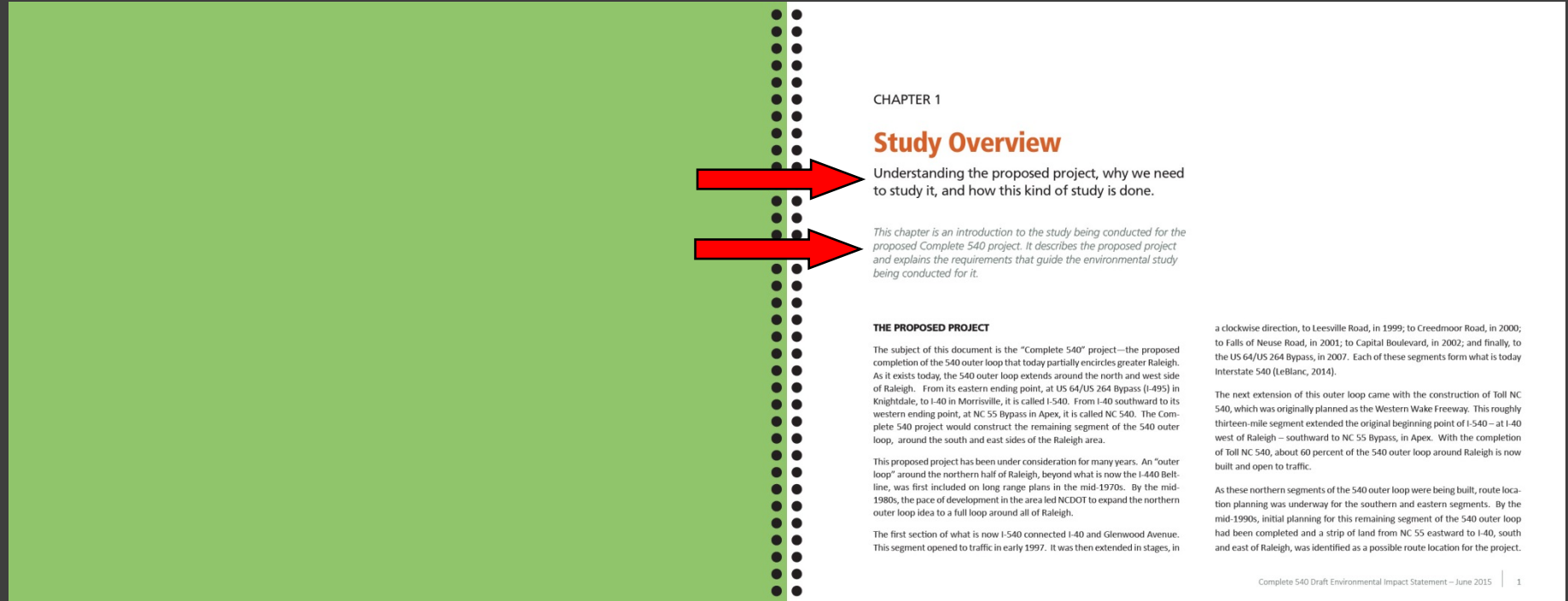
Chapter 1	Study Overview	1
Chapter 2	The Purpose of the Proposed Project	9
Chapter 3	The Study Area and its Important Features	19
Chapter 4	Alternatives for Meeting the Project Purpose	35
Chapter 5	Expected Effects of Each Alternative	51
Chapter 6	Government, Agency, and Public Involvement	111
Chapter 7	Next Steps	119
Chapter 8	List of Preparers and DEIS Mailing List	125
	References Cited	131
	Index	135
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Clean, simple chapter titles, with subtitles and explanatory “epigraphs.”

Two column layout for optimal line length, font, and leading size.

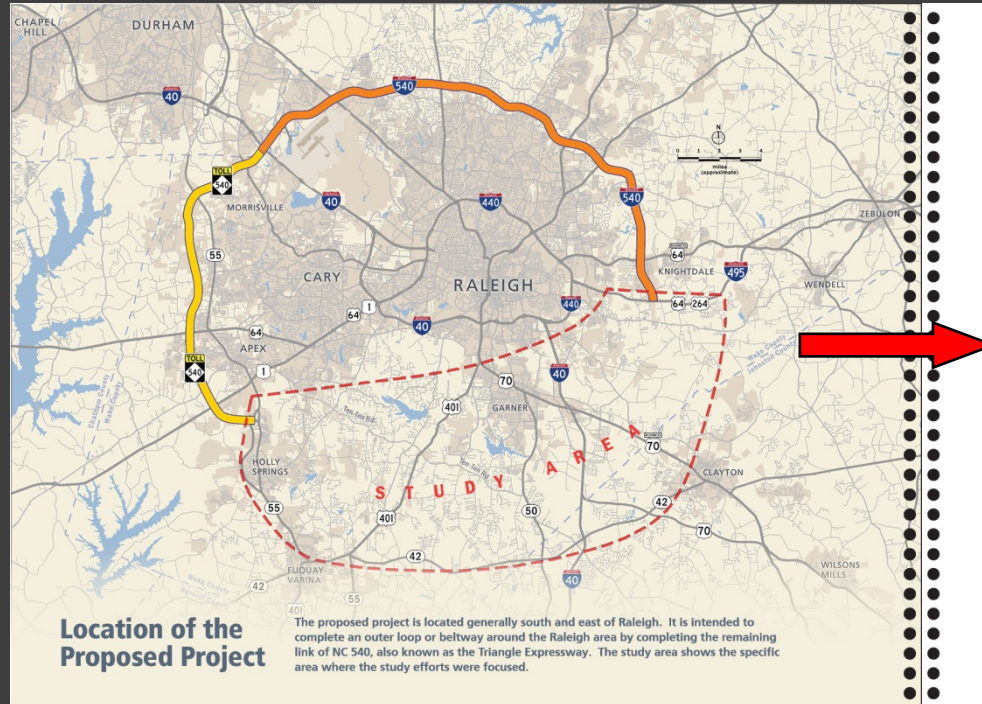
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How the mapping optimally fits on page, how it would look, etc.; many variations possible.

Use of occasional pull quotes to highlight key ideas; also breaks up the visual density of the text.



A potential route location from I-40 east to US 64/US 264 Bypass (I-495) also began to be considered by transportation planners at about this time.

As with most large-scale highway projects, the funding for the northern and western portions of the 540 outer loop was identified well in advance – in the early and mid-1990s. Then, as now, the main source of this funding was the US Highway Trust Fund, which is supported by the federal and state taxes placed on gasoline and other motor fuels. Economic conditions have changed since that time, and the purchasing power of the federal and state tax on motor

the main purpose of the proposed project and the specific transportation problems it could help solve.

FEDERAL, STATE, AND LOCAL COOPERATION

Construction of the existing 540 outer loop was possible only after extensive coordination and cooperation between local, state, and federal agencies. This cooperation had its beginnings in the early 1960s with the passage of the Federal-Aid Highway Act of 1962. This legislation required that transportation

The National Environmental Policy Act, or “NEPA,” became law in 1970. Its purpose is to ensure that project effects are understood and shared with the public before any action is taken to build them.

fuels, which has not been raised since 1993, has substantially declined as cars have become more fuel-efficient and the costs of steel, asphalt, and other road construction materials have increased.

As a result of these changing economic conditions, the southern and eastern portions of the 540 outer loop project could not proceed as rapidly as the others had been built. These conditions were also an important reason that the state’s General Assembly formed the North Carolina Turnpike Authority, and why the western portion of the 540 outer loop was built as a toll road.

The sustained pace of growth and development in the Triangle Region, and specifically in southern and eastern Wake County, is today furthering the kinds of transportation needs that were first identified decades ago and which led to the planning and construction of the northern and western portions of the 540 outer loop. In conducting the current study, NCDOT reexamined those needs and concluded that completion of the 540 outer loop could help address them. The next chapter of this document explains this in more detail and describes

planning to be conducted for entire urban areas, rather than just within city limits, and required that planning be a cooperative activity between states and local communities. This set the stage for a more “metropolitan” level of planning and resulted in the creation of a new kind of agency that would be capable of carrying out the required planning functions. These agencies became known as “metropolitan planning organizations,” or MPOs, and quickly became established in urban areas around the country in order to take advantage of the federal matching funds (Weiner, 1988).

In the Raleigh area, the Capital Area Metropolitan Planning Organization, or CAMPO, was formed in response to the 1962 Federal-Aid Highway Act. CAMPO’s formal governing body comprises elected officials from each of the greater Raleigh area’s cities and towns. CAMPO also has a staff of professional transportation planners who conduct the analyses needed for the organization to carry out its mission. CAMPO staff members and officials work closely with NCDOT staff to determine priorities for funding of needed transportation projects, as well as the sharing of technical data.

Topic highlight pages.



These expand upon key ideas in a more visual way.

The National Environmental Policy Act of 1969

The National Environmental Policy Act of 1969 was the first national law to require an assessment of the environmental effects of proposals for major governmental actions. It was a groundbreaking piece of legislation for many reasons.

- NEPA clearly established, for the first time, a broad national policy to prevent damage to the natural and human environment.
- It requires the involvement of a wide variety of transportation planning and environmental and community professionals to allow a fuller understanding project effects.
- It requires comments from affected jurisdictions, and requires that all information about project effects be available to the public.

Although NEPA does not require a particular outcome or decision, the assessment process is intended to cause agency decision-makers to take a "hard look" at a policy or project before acting upon it.

Underlying NEPA is the belief that knowledge and rationality applied to public issues are more likely to yield results in the public interest than inadequately informed actions or narrowly formed objectives.

NEPA also created the Council on Environmental Quality, which has primary responsibility for overseeing implementation of impact assessments. Although this was first done through guidelines, after 1978 those guidelines were elevated to the status of statutory law.

For more information, see:
Caldwell, Lynton K. "Implementing Policy Through Procedure: Impact Assessment and the National Environmental Policy Act (NEPA)." Environmental Methods Review. Porter and Fitzgibbon, eds., International Association for Impact Assessment. Fargo, ND 1998.

also be compared against a measure of how well they would meet the project's purpose, which can be thought of as the project's benefits.

By documenting the results of these four basic steps in a written statement, and by making that statement available for review and comment by governmental officials and the public, the NEPA process gives decision-makers the type and quality of information needed to make the best decisions about where and how to implement the project, or whether to proceed with it at all.

Each of these steps is explained in more detail in various chapters of this document.

COORDINATION BETWEEN GOVERNMENT AGENCIES

Coordination between federal agencies is an important part of the NEPA process. CEQ regulations require that the federal agency proposing the project must use "a systematic, interdisciplinary approach" must "consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved." Also, because NEPA applies to all federal agencies, when one agency proposes a significant project or action, other agencies sometimes need to ensure their own compliance with NEPA for that project. To avoid duplication of effort, coordination between the two agencies is required, sometimes to the level of joint decision making.

In the case of highway projects, the Federal Highway Administration (FHWA) and state Departments of transportation routinely coordinate proposed projects with many other federal, state, and even local agencies. These often include the US Army Corps of Engineers, the US Environmental Protection Agency, the US Department of the Interior (Fish and Wildlife Service), the US Coast Guard, and others. Likewise, there are various state agencies charged with enforcing certain federal and state laws that apply to major projects.

Each of the agencies who have responsibility relating to the proposed project are contacted early in the NEPA process and are involved in the four main steps explained in the previous section. By working closely with these agencies, the NEPA process ensures that all of the laws established for the protection of the natural and human environment are upheld. In addition, as described earlier, other statutes and local regulations require that the proposing agency coordinate with state and local officials. For the Complete 540 project the FHWA and the NC Department of Transportation have conducted such coordination, along with the close cooperation of CAMPO (see Chapter 6 for more detail).

PUBLIC INVOLVEMENT GOALS AND OPPORTUNITIES

As with state and federal agencies, NEPA and other federal laws require that the agency proposing the project provide opportunities for meaningful public involvement. This means that members of the public who might be affected by the project or have an interest in it be notified of the proposal and be given the opportunity to comment on the findings contained in the Draft EIS. Over the years, however, and in keeping with other regulations, public involvement objectives have been expanded. Now, the proposing agency engages the public early in the NEPA process, long before the Draft EIS has been prepared, and in a variety of ways.

This expanded public involvement effort now meets several objectives. First, at its most fundamental level, it ensures that the public has a basic awareness that the project has been proposed and is being studied. It further explains the goals and objectives of the study itself. It also seeks information about the study area itself and how the project could affect it from the perspective of those who actually live and work in the area. It also ensures that members of the public have adequate and appropriate ability to review the findings of the study, to ask questions about the project, to understand the assumptions upon which the project's purpose and impact assessment are based, and to provide comments about the project.

Encountering a new chapter.

CHAPTER 2

The Purpose of the Proposed Project

Understanding why the project has been proposed and the problems it would help solve.

This chapter describes the proposed project and presents information about why it is needed and the problems it is intended to address. It also explains the project's primary purpose and how that information is used to develop alternative ways of meeting area transportation needs.

AN INTRODUCTION TO PURPOSE AND NEED

One of the most important requirements of NEPA is what is known as a project's "purpose and need statement." Preparation of this statement is an early step in the environmental study process and is the foundation upon which additional development of the project is based. The purpose and need statement is important because it spells out why the proposed project—with its inherent costs and environmental impacts—is being pursued. In other words, it establishes the rationale for the project and demonstrates the problems that would result without it.

There are many advantages in clearly stating the project's purpose and the needs that lead to that purpose. These include: allowing a shared understanding of the area's transportation problems and possible solutions; guiding development and evaluation of alternatives to meet the project purpose; ensuring project decisions are legally defensible; and, justifying project impacts and the spending of money to construct it.

NEED

In purpose and need analyses, "need" describes the transportation problems the proposed project is intended to address, which then forms the factual foundation for the purpose section of the statement. The need section establishes evidence of current or future transportation problems or deficiencies and justifies the commitment of resources and impacts to the environment.

PURPOSE

Based on measurable needs, the purpose section states why the project is being proposed. It describes positive intended outcomes and presents the objectives that will address the documented needs. The stated purpose of the project is required in order to develop and evaluate potential solutions to address the needs. It is important that the statement of project purpose be 1) comprehensive enough to allow for a reasonable range of alternatives and 2) specific enough to provide a reasonable limit to the range of all possible alternatives.

A more data-oriented topic highlight page. Illustrating a key idea in a visually interesting way.

Primary Purposes — In developing statements of purpose and need, two different kinds of purposes are possible. A primary purpose is the “driver” of the project and reflects the fundamental reason the project is being pursued. There can be one or more primary purposes. Any proposed transportation alternative that does not achieve the primary purpose would be deemed unreasonable and thus eliminated from further consideration.

Secondary Purposes — Secondary purposes (often referred to as “other desirable outcomes”) are additional purposes that are desirable, but are not the core purpose of the project. They may not by themselves justify eliminating alternatives based on not meeting the purpose of the project but they could factor into eliminating alternatives based on other issues. Secondary purposes could also be considered in selecting a preferred alternative.

PURPOSE OF THE COMPLETE 540 PROJECT

Two primary purposes have been established for the Complete 540 project, based on general transportation problems in the Raleigh area and specific, more localized needs. The first purpose is to improve mobility within or through the study area during peak travel periods. The second purpose is to reduce forecast congestion on the existing roadway network within the project study area.

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 goal that has been sought by area planners for more than 40 years. It is expected that construction of this remaining 540 link would benefit local commuters living south and east of Raleigh as well as motorists making longer trips through the Triangle Region, to and from points south and east.

The transportation problems that form the basis for these project purposes, and the specific needs that stem from those problems, are summarized in the paragraphs that follow.

TRANSPORTATION PROBLEMS IN THE RALEIGH AREA

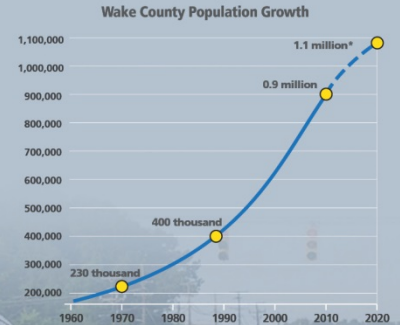
Compared to other metropolitan areas around the country, the Triangle Region of Raleigh, Durham, and Chapel Hill has been growing in population and associated land development at a rapid pace. The population of the Raleigh-Cary metropolitan area, composed of Wake, Johnston and Franklin counties, has grown by over 52 percent since 2000, making it the nation's second fastest-growing metro area (US Census Bureau, 2015a).

Within the Raleigh metropolitan area, much of this growth is taking place in southern and eastern Wake County and in western Johnston County. Communities such as Cary, Apex, Holly Springs, Fuquay-Varina, Garner, Clayton, and Knightdale have all seen exceptionally high growth rates since 2000, even taking into account the significant downturn in economic activity in the wake of the 2008 recession. Population projections point to continued rapid population growth in the Raleigh area. The North Carolina Office of State Budget and Management anticipates that the Raleigh area's population will expand by another 50 percent over the next two decades (NC Office of State Budget and Management, 2014).

As land is developed to accommodate these kinds of population increases, public services, utilities and infrastructure must also be expanded. These include such things as police and fire stations, medical facilities, and schools, along with water lines, sewer lines, treatment plants, and electrical and communication utilities. Another important element is the transportation system, which must also be expanded to keep pace with the needs of new communities.

A Rapidly Growing Region

Wake and Johnston counties have both experienced rapid population growth and associated land development over the past few decades. State demographers and local land use planners are in agreement that a steep rate of growth will continue into the next decade. Such growth brings a variety of changes, including economic development and job opportunities, as well as the need for expenditures on a wide range of services, utilities, and infrastructure upgrades and expansion, including new and expanded roadways.



Another style of topic highlight page.

The health of a region's economy depends on many factors, with transportation being one of the most important. Compared to other parts of the state and nation, the Triangle Region has a robust and diversified economy and is considered one of the nation's strongest by some of the most respected local and national business organizations. For example, both Bloomberg Businessweek (Bloomberg Business, 2014) and Forbes magazine (Forbes, 2014) identify the Raleigh-Cary metropolitan area as areas that routinely attract people and companies from other parts of the country. The Triangle Region consistently ranks among the top five areas for job growth, livability, and general economic attractiveness.

SPECIFIC TRANSPORTATION NEEDS IN THE STUDY AREA

As mentioned earlier, the first step in identifying a purpose statement for a transportation project is to explore in detail the transportation problems that are known to exist or are anticipated in the area. The next step is to use that information to state specific, measurable needs that are going unmet in the area. Once an area's needs are clearly identified, ways to address those needs can be developed and studied. The needs that have led to the development of the proposed Complete 540 project are described in the paragraphs that follow.

1. More Route Choices

Much of the growth that has occurred in the Triangle Region over the past few decades has been in developments that include mostly low density, single family residences—creating what are often referred to as “suburbs.” One outcome of this kind of land use is that a heavy burden is placed on local roads. These single-family developments are often “self contained,” meaning they have connection points to the area's larger roadway network. This means all vehicles leaving the development are forced to use access the same limited number of roads. This is especially true when there is a long distance between residential areas and employment locations.

As more suburban developments continue to be built, the burden on the existing roadway network increases. The result can be an excessive amount of indirect travel required to move in and around the region, and, during peak travel times, extreme traffic congestion on the area's principal roads and intersections.

As noted by the Capital Area Metropolitan Planning Organization (CAMPO), the Triangle Region “is one of the nation's most sprawling regions, and current forecasts project both continued outward growth and infill development in selected locations, most notably in the central parts of Raleigh, Durham and Chapel Hill. A key challenge for our transportation plans is to match our vision for how our communities should grow with the transportation investments to support this growth” (CAMPO, 2009).

Therefore, because of the growth that has occurred and is expected to occur in the future, one need in the area is to improve mobility by reducing indirect travel and providing additional route choices for those who live or work in, or travel through, the study area.

The major job center in the Triangle Region is the Research Triangle Park (RTP), home to more than 170 companies and public institutions that employ over 50,000 workers. More than 25 percent of workers in the Raleigh area commute to jobs in RTP (RTP, 2014). Other important employment and retail centers are scattered across the Triangle Region, including Raleigh-Durham International Airport and the nearby Brier Creek area, downtown Raleigh, the North Carolina State University Centennial Campus in west Raleigh, the Crabtree Valley area in north Raleigh, and the Crossroads area in southeast Cary.

Most travel in the Raleigh area is by private automobile. Nearly 90 percent of area residents' travel to work is by car, and in nearly 90 percent of those trips, travelers drove alone (US Census Bureau, 2015b). Most development in the Raleigh area has been and continues to be at low densities, leading to



Land Use and Mobility

Single-family, detached houses in suburban style developments continue to be very desirable for large segments of the US population. Often, however, these developments are relatively isolated, with few connections to the existing roadway network. When a larger area or region is filled with this type of development, it can cause indirect or circuitous travel, leading to congestion on local roads.



Content

Standard FHWA front EIS page.

FHWA-NC-EIS-_____
Federal Highway Administration
North Carolina Division

**Complete 540 Triangle Expressway Southeast Extension
Wake and Johnston Counties, North Carolina**

STIP Project Nos. R-2721, R-2828, and R-2829
State Project Nos. 6-A01078, 6-A01079, and 6-A01080
Federal Aid Project Nos. STP-0540(19), STP-0540(20), and STP-0540(21)
WBS Nos. 37673.1.1A2, 35516.1.1A2, and 35517.1.1A1

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Submitted Pursuant to the National Environmental Policy Act, 42 USC 4332 (2)(c) and 49 USC 303
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and the North Carolina Department of Transportation
Cooperating Agency: US Army Corps of Engineers

Date of Approval

Richard W. Hancock, P.E.
Manager, Project Development and Environmental Analysis Unit
North Carolina Department of Transportation

Date of Approval

Edward T. Parker
Assistant Division Administrator,
Federal Highway Administration

Official looking, but clean.

FHWA-NC-EIS-____-_____
Federal Highway Administration
North Carolina Division

Complete 540 Triangle Expressway Southeast Extension Wake and Johnston Counties, North Carolina

STIP Project Nos. R-2721, R-2828, and R-2829
State Project Nos. 6.401078, 6.401079, and 6.401080
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DRAFT ENVIRONMENTAL IMPACT STATEMENT

Submitted Pursuant to the National Environmental Policy Act, 42 USC 4332 (2)(c) and 49 USC 303
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and the North Carolina Department of Transportation

Cooperating Agency: US Army Corps of Engineers

Document prepared by:
H. W. Lochner, Inc.

Date	Roy D. Bruce, P.E. Project Manager, H. W. Lochner, Inc.
Date	Jennifer H. Harris, P.E. Project Development/Turnpike Section Head North Carolina Department of Transportation

SUMMARY INFORMATION

The North Carolina Department of Transportation (NCDOT) and Federal Highway Administration (FHWA) propose to build a new, limited-access highway from NC 55 in Apex, to US 64/US 264 Bypass (I-495) in Knightdale—a distance of approximately 30 miles. The proposed highway, known as Complete 540—Triangle Expressway Southeast Extension, is being proposed as a toll facility.

This proposed highway has been shown to be the most practical solution for meeting the purposes of the project, which are to improve mobility and reduce traffic congestion south and east of the Raleigh area during peak travel periods. 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, which would benefit commuters living south and east of Raleigh as well as motorists making longer trips through the Triangle Region.

Detailed Study Alternative _____ has been selected as the recommended alternative. Representative impacts associated with this alternative include approximately _____ acres of wetlands, _____ acres of 100-year floodplains, and _____ stream crossings. Approximately _____ residences and businesses would be displaced. In total, approximately _____ acres of land would be converted to highway use, with approximately _____ acres of new impervious surface. The "No-Build" or "no action" alternative will remain under consideration until this project's Final Environmental Impact Statement (EIS) and Record of Decision are prepared.

This Draft EIS includes all of the sections specified by the Council on Environmental Quality in Title 40 of the Code of Federal Regulations (sections 1502.10 to 1502.18). The emphasis is on key findings of the study con-

ducted for the proposed project, including purpose and need, alternatives, and characteristics of the affected environment and environmental consequences. Background materials and other study information not directly related to the study's key findings are included in this Draft EIS as appendix materials or by reference. Readers interested in the technical analyses associated with the preparation of this Draft EIS can review the various technical reports that were prepared during the study. They are available on the disk attached to the back cover of printed copies of this Draft EIS and online at www.ncdot.gov/projects/complete540. Printed copies of these documents are also available for review at locations listed in Appendix ____.

The following persons may be contacted for additional information concerning this Draft EIS:

Mr. Edward T. Parker
Federal Highway Administration
310 New Bern Avenue, Suite 410
Raleigh, North Carolina 27601-1418
(919) 856-4346

Ms. Jennifer H. Harris, P.E.
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548
(919) 707-6000

Comments on the findings contained in this Draft EIS are due by _____ and should be sent to Ms. Jennifer Harris, P.E., at the above address.

Contents

Chapter 1	Study Overview	1
Chapter 2	The Purpose of the Proposed Project	9
Chapter 3	The Study Area and its Important Features	19
Chapter 4	Alternatives for Meeting the Project Purpose	35
Chapter 5	Expected Effects of Each Alternative	51
Chapter 6	Government, Agency, and Public Involvement	111
Chapter 7	Next Steps	119
Chapter 8	List of Preparers and DEIS Mailing List	125
	References Cited	131
	Index	135
	APPENDIX 1 - xxxxxx	
	APPENDIX 2 - xxxxxx	
	APPENDIX 3 - xxxxxx	

1
9
19
35
51
11
19
25
31
35

Key idea:

Supporting documents contain bulk of technical data;
Included on CD attached to inside back cover.

Supporting Documents

The following technical reports form the basis for this Draft EIS. Each can be found on the disk attached to the back cover of printed copies of this document. They are also available online at www.ncdot.gov/projects/complete540.

- Purpose and Need Statement (May 2011)
- Alternatives Development and Analysis Report (May 2014)
- Community Characteristics Report (May 2011)
- Community Impact Assessment (date)
- Indirect and Cumulative Effects Report (Dec. 2014)
- Historic Architectural Resources Survey Report (Nov. 2014)
- Air Quality Analysis Report (Jan. 2015)
- Waters Report (Oct 2014)
- Noise Analysis Report (date)
- Traffic Forecast Report (Apr. 2014)
- Section 4(f) Report (date)
- Natural Resources Technical Report (Sept. 2014)
- Freshwater Mussel Survey Report (Feb. 2012)
- Dwarf Wedgemussel Viability Study: Phase I (Mar. 2014)
- Preliminary Hydraulic Study Report (Sept. 2014)
- Geo-Environmental Report for Planning (June 2014)
- Utility Impact Report (Nov. 2014)
- Build and No-Build Traffic Analysis Reports (Dec. 2009)
- Detailed Study Alternatives Traffic Analysis Technical Memorandum (date)
- Right-of-Way and Relocation Report (date)
- Stakeholder Involvement Report (date)

Key idea:

Educational function of Chapter 1.

Explaining the context of the study itself:

- **Project description**
- **How NCDOT interacts with federal and local entities**
- **Key laws that guide or dictate the process**
- **Highlight NEPA and its procedures**
- **Coordination between government agencies**
- **Public involvement component**

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Chapters begin with explanations of the key ideas that form the foundation of the content.

CHAPTER 2

The Purpose of the Proposed Project

Understanding why the project has been proposed and the problems it would help solve.

This chapter describes the proposed project and presents information about why it is needed and the problems it is intended to address. It also explains the project's primary purpose and how that information is used to develop alternative ways of meeting area transportation needs.

AN INTRODUCTION TO PURPOSE

One of the most important requirements of NEPA is what is known as a project's "purpose and need statement." Preparation of this statement is an early step in the environmental study process and is the foundation upon which additional development of the project is based. The purpose and need statement is important because it spells out why the proposed project—with its inherent costs and environmental impacts—is necessary. It establishes the rationale for the project and the problems it would result without it.

There are many advantages in clearly stating the project's purpose and the needs that lead to that purpose. These include: allowing a shared understanding of the area's transportation problems and possible solutions; guiding development and evaluation of alternatives to meet the project purpose; ensuring project decisions are legally defensible; and, justifying project impacts and the spending of money to construct it.

NEED

In purpose and need analyses, "need" describes the transportation problems the proposed project is intended to address, which then forms the factual foundation for the purpose section of the statement. The need section establishes evidence of current or future transportation problems or deficiencies and justifies the commitment of resources and impacts to the environment.

PURPOSE

Based on measurable needs, the purpose section states why the project is being proposed. It describes positive intended outcomes and presents the objectives that will address the documented needs. The stated purpose of the project is required in order to develop and evaluate potential solutions to address the needs. It is important that the statement of project purpose be 1) comprehensive enough to allow for a reasonable range of alternatives and 2) specific enough to provide a reasonable limit to the range of all possible alternatives.

Another topic highlight page.

Education provides context.

Unlike most of the human environment categories, impacts to the natural environment are in many cases under the jurisdiction of state and federal agencies who must ensure that various regulations protecting the environment are met. The categories of natural environment impacts that are protected or are otherwise substantial on the Complete 540 project are described in the paragraphs that follow. Greater detail on these topics can be found in the project's Natural Resources Technical Report.

WATER RESOURCES AND AQUATIC HABITATS

Water is arguably the most important of our natural resources. As described in Chapter 3, waters of the United States are protected by many regulations, principal among these being the federal Clean Water Act. Protected water resources include surface waters (in other words, lakes, rivers, and streams) and groundwater. These sources may be used for drinking water, industrial processes, agriculture, and irrigation. Water resources also provide opportunities for recreation, such as fishing, boating and swimming.

As recognized in the Clean Water Act, protecting our water resources from pollution is of vital importance. With respect to highways, protecting water bodies from pollutants that are carried from road surfaces by rain water is of primary importance. This "stormwater runoff" carries silt, heavy metals, petroleum products, nitrogen, and phosphorus, each of which can contribute to the degradation of surface water and groundwater.

A new highway's effect on water quality often depends on the size of the waterways crossed, the number of crossings, and the time of year that construction takes place. Short-term impacts on water quality within a project area may be caused by soil erosion and sedimentation. Long-term impacts also occur, with particulates, heavy metals, organic matter, pesticides, herbicides, nutrients, and bacteria entering groundwater and surface water bodies from highway runoff.

Aquatic habitats are the places in our lakes and streams that support the life cycles of plants and animals. For plant and animal species to survive, their habitats must be healthy and intact. One of the most common forms of pollution that damages aquatic life and habitat is a condition known as turbidity, the measure of relative clarity of a liquid. Waterbodies that suffer from increased turbidity have cloudy water, scattering the sunlight that strikes the water surface. Materials that cause water to be turbid include clay, silt, very small particles of inorganic and organic matter, algae, plankton, and other microscopic organisms. High levels of turbidity affect productivity, recreational values, and habitat quality, and cause lakes to fill in faster. Particles associated with turbidity also provide attachment places for other pollutants, especially metals and bacteria. For this reason, turbidity readings can be used as an indicator of potential pollution in a water body.

The materials that cause elevated levels of turbidity can enter lakes and streams as a result of road construction, which often require the removal of trees and other plants that shade the water. When streamside vegetation is removed, it increases direct sunlight penetration, raising water temperatures and leading to increased stress on aquatic organisms. It can also lead to an increased amount of sediment released into the stream. Aside from increasing turbidity, increased sediments can have direct negative effects on aquatic organisms by clogging or injuring gills and other respiratory surfaces, and can negatively affect aquatic habitat by altering water chemistry and reducing the concentration of dissolved oxygen. The resulting negative effects on aquatic habitat and organisms can also impact downstream communities of aquatic species.

Expected Effects on General Water Quality and Aquatic Habitat Conditions

The effects of highway runoff on water resources would occur, and would be similar, for all of the DSAs. These include:

- Increased sediment loading and siltation due to watershed vegetation removal, erosion, and/or construction.

Jurisdictional Waters

Determining when a lake, ponds, stream, or wetland is considered a "Water of the United States"

The Clean Water Act of 1972 is intended to help protect the quality of our nation's water-bodies by regulating the kinds of materials that can be discharged into them. Lakes, ponds, streams, and wetlands that meet conditions established in the Act are designated as "waters of the United States" and fall under the jurisdiction of the US Army Corps of Engineers (USAC).

Section 404 of the Act requires that any public or private entity conducting activities that require dredging, filling, or otherwise discharging material into US waters must first receive a permit from the USAC. Under Section 401 of the Act, the permit applicant must first obtain

certification from their State's regulatory agency indicating that the project complies with State water quality standards. In North Carolina, that agency is the Department of Environment and Natural Resources (NCDENR).

Any roadway project undertaken by the NC Department of Transportation that would affect waters of the United States must be issued a "Section 404 permit" before construction can proceed. Before that can happen, however, NCDOT must determine, or "delineate," which lakes, ponds, streams, or wetlands that would be affected by the project are classified as US waters. For the Complete 540 study, the delineation/jurisdictional determination process was done as follows:

Study team biologists surveyed an area 1000 feet wide along each DSA to find each stream, pond, or wetland area. At each location, the boundaries or edges of these water-bodies are flagged, with the location of each flag recorded using global position satellite (GPS) technology. They also document in writing each site's specific biological characteristics.

Once all the potential waters of the US are flagged, staff members from the USAC and NCDENR review the documentation for each site and conduct their own field reviews to verify the study team's assessments.

The study team's biologists then incorporate any changes required by these agencies and document them in a field assessment report (called the "Waters Report"). At this point, the identification of waters of the US is considered "field verified," and these water-bodies' boundaries are considered official and can be used to make detailed assessments of the effect the DSAs would have on them.



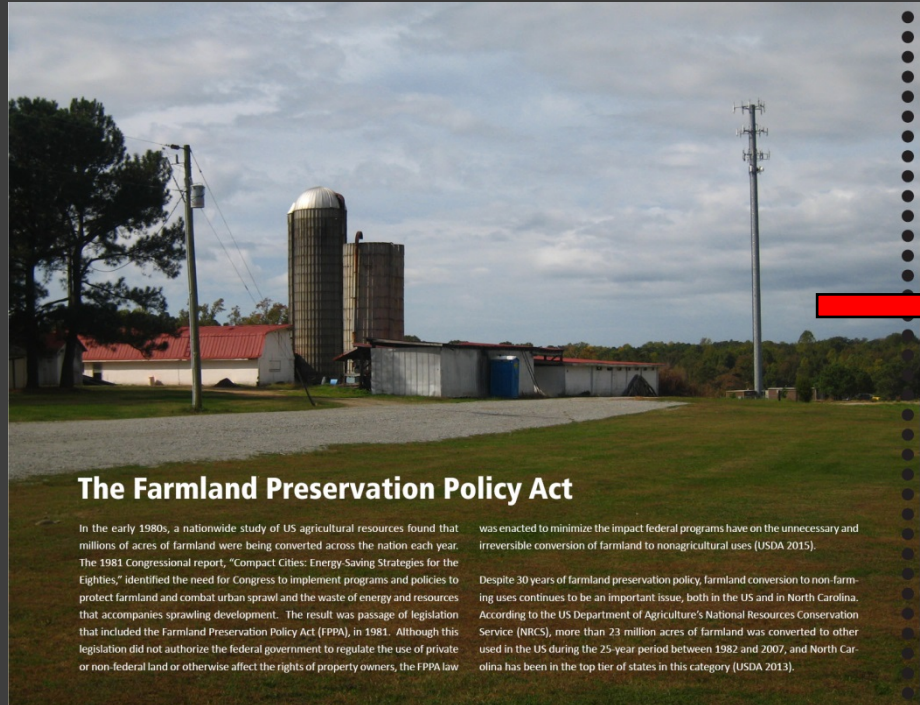


NEPA Compliance and Agency Reviews

Key idea:

Incorporation by reference.

Description of methods.



The Farmland Preservation Policy Act

In the early 1980s, a nationwide study of US agricultural resources found that millions of acres of farmland were being converted across the nation each year. The 1981 Congressional report, "Compact Cities: Energy Saving Strategies for the Eighties," identified the need for Congress to implement programs and policies to protect farmland and combat urban sprawl and the waste of energy and resources that accompanies sprawling development. The result was passage of legislation that included the Farmland Preservation Policy Act (FPPA), in 1981. Although this legislation did not authorize the federal government to regulate the use of private or non-federal land or otherwise affect the rights of property owners, the FPPA law

was enacted to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses (USDA 2015).

Despite 30 years of farmland preservation policy, farmland conversion to non-farming uses continues to be an important issue, both in the US and in North Carolina. According to the US Department of Agriculture's National Resources Conservation Service (NRCS), more than 23 million acres of farmland was converted to other used in the US during the 25-year period between 1982 and 2007, and North Carolina has been in the top tier of states in this category (USDA 2013).

2. A farm on US 70 in Johnston County just north of the Wake County line – this farm would be affected by the Brown Corridor segment. Alternatives 3, 4, 10, 11, 15, and 16 would cross its western edge.

3. A farm on Old Stage Road near NC 42. This farm would be affected by the Blue Corridor segment. Alternatives 8 through 12 would impact this property.

For More Information

More information on this topic can be found in the Complete 540 study's Community Impacts Assessment Report.

AIR QUALITY

Because air quality, or air pollution, is typically a region-wide condition, it is considered part of the physical environment of the purposes of this study.

Concepts Defined

The need to protect the air from pollutants was made explicit with the passage of the Clean Air Act, in 1970. This act is the comprehensive federal law that regulates air emissions. Among other things, this law authorizes USEPA to establish national standards for air quality to protect public health and public welfare and to regulate emissions of hazardous air pollutants. These standards are known as the National Ambient Air Quality Standards, or NAAQS.

USEPA is responsible for the ensuring compliance with the national air quality standards. USEPA has targeted six pollutants for reduction as part achieving the standards: carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. When a region's concentrations of any of these pollutants are above the established standards, the region is designated as a "non-attainment" area for that pollutant. Once the concentrations of specific pollutants are reduced enough to be within the standards, the area is designated as a "maintenance area."

Method of Analysis

In conducting the air quality impacts analysis, the Complete 540 study team consulted with the USEPA to determine the attainment status of the project area. USEPA verified that Johnston County has a status of "attainment" for all six pollutants. Wake County has attainment status for five of the six pollutants; it is under "maintenance" status for carbon monoxide.

Because Wake County is a maintenance area for carbon monoxide, more detailed analyses were required to determine the effect the Complete 540 project would have on Wake County's ability to meet the national air quality standards for this pollutant. A computer model developed by the USEPA, called "MOVES" was used to predict carbon monoxide emissions from vehicles in the project area, taking into consideration such things as the age of the vehicles in the project area, inspection and maintenance programs and typical fuel mixtures.

In addition, a computer program called "CAL3QHC" was used to calculate the concentration of the emissions from vehicles at various locations. CAL3QHC was used to model the three intersections in the study area predicted to have the highest traffic volumes and the most heavily congested. The results of the MOVES model were input into CAL3QHC along with vehicle volumes, speeds and the configuration of the roadways to predict carbon monoxide concentrations.

Expected Effects on Air Quality

The results of the computer modeling for the proposed project indicated that the project is not expected to create carbon monoxide concentrations of that would be above the national air quality standards. As a result, it can be concluded that the project is not expected to create a local air quality impact.

Under USEPA regulations, this project does not require a detailed study for particulate matter or a detailed analysis of "Mobile Source Air Toxics." For

Complete 540 Draft Environmental Impact Statement – June 2015 | 81

In general ...

Each technical topic includes a clear summary of methods

Compliance with laws other than NEPA explained

Agency and public involvement activities described

Unexpected Negative Reactions

- Eliminate ALL descriptions of state and federal laws.
- Do not paraphrase; use FULL TEXT of key findings.
- Do not summarize; incorporate data sets.

Basic questions raised

- What is a “document” today?
- Which should be a higher priority: “bullet proof” documents or ones that tell the story.

Contact

Jeffrey Schlotter, AICP

H.W. Lochner, Inc.

Raleigh, NC

jschlotter@hwlochner.com

(919) 571-7111

LOCHNER