What Influences the Length of Time to Complete NEPA Reviews? An Examination of Highway Projects in Oregon and the Potential for Streamlining

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ABSTRACT

The environmental review process required by the National Environmental Policy Act (NEPA) has been criticized as a cause of delays and increased costs for highway projects. In response, the federal government included environmental streamlining requirements in the Transportation Equity Act for the 21st Century (TEA-21) passed in 1998. Data show that environmental reviews took considerably longer in the 1990s than in the 1970s when NEPA was first implemented. However, little research exists that systematically documents or determines the causes of the lengthier processes. Much of the evidence used in debates over streamlining is anecdotal. This paper attempts to answer two questions, using existing national data and an in-depth review of twelve highway projects in Oregon. First, how long does the environmental review process take? Second, what are the causes of project delay?

A review of the Oregon projects found lengthier average timelines, but a median timeframe to complete the NEPA process that was comparable to national data. A limited national survey found that environmental issues were not the most frequently cited reasons for project delays. Similarly, in Oregon, environmental issues do not appear to be the major cause of lengthy NEPA processes. Highway projects that require an EIS or EA are generally complex. Therefore, the environmental review process is influenced by many factors, some of which are related to environmental concerns and many others are not, though they may arise during the environmental review.

INTRODUCTION

Almost since the passage of the National Environmental Policy Act (NEPA) in 1970, the environmental review process has been criticized as a cause of delays and increased costs for highway projects. In response to concerns over the lengthier processes, the federal government included an environmental streamlining component to the renewed federal transportation legislation, the Transportation Equity Act for the 21st Century (TEA-21). Passed in 1998, Section 1309 of TEA-21 requires the Federal Highway Administration (FHWA) to pursue streamlining compliance procedures. The purpose of environmental streamlining is to expedite the project development process, including environmental reviews, while not compromising environmental protection. New streamlining requirements are included in the recent reauthorization of TEA-21, passed by Congress (SAFETEA-LU) and awaiting the President's signature.

Data show that environmental reviews took considerably longer in the 1990s than in the 1970s when NEPA was first implemented. However, little research exists that systematically documents or determines the causes of the lengthier processes. Much of the evidence used in debates over streamlining is anecdotal. Critics of the environmental process blame NEPA and other environmental regulations for delaying highway projects. For example, a report prepared for the American Highway Users Alliance stated that "the well-intentioned NEPA process has become enmeshed in a web of duplicative bureaucratic reviews" and suggests reforms that would "address the staggering damage to the environment, the economy, and the taxpayer caused" (*1*). Environmental groups point to the impacts of highways on the environment, defend the process generally, and point to other causes of delay, including low funding levels at environmental agencies (see, for example, Defenders of Wildlife http://www.defenders.org/habitat/highways/new/streamlining.html or Surface Transportation Policy Project, http://www.transact.org/library/streamlining.asp). The groups often do support some form of streamlining.

The concern over the timeliness of the NEPA process and the lack of solid information was summarized by the Berger Group in a report to FHWA in 2001:

> Although it is a commonly accepted fact that the NEPA process, especially the preparation and approval of EISs, can often take several years to complete, the time required and the relative costs incurred to complete the entire highway project delivery process has not been well documented or understood. At best, studies of the environmental process have looked at that process directly, but generally not relative to the construction or other phases of the project. Most of the information available concerning the time required to complete a project has come from anecdotal sources, generally focused on single projects. In this regard, it is not evident what portion of the schedule and cost of the entire project delivery process is attributed to NEPA compliance requirements, in comparison to other potential sources of process delay such as funding shortages, compliance with environmental permitting requirements, changes in design, contractor delays, lawsuits and injunctions, etc. Until the impact of NEPA on the transportation project delivery process can be better quantified, it is likely that the popular perception that NEPA comprises a major source of delay and inflationary cost affecting the ability to deliver transportation projects on schedule and within budget will continue to exist. (*2*)

As a result of TEA-21 and general concern over the lengthy review process, states are adopting streamlining procedures. However, without a better understanding of what is causing the lengthy review times, these streamlining efforts may not perform as intended. In addition, detailed data on the review process can serve as a benchmark for streamlining efforts. This research attempts to accomplish both of these objectives. Specifically, it asks two questions:

- How long does the NEPA environmental review process take? In particular, how long did it take prior to streamlining efforts?
- What are the causes of project delay? In particular, what were sources of delay prior to streamlining efforts?

To help answer the research questions, we first looked at research conducted nationally, which is presented below in the Background section. We then took a detailed look at a sample of ODOT highway projects that were under construction before streamlining efforts. Those findings follow. The research was carried out as part of a larger effort to evaluate the State of Oregon's efforts at streamlining, led by the Oregon Department of Transportation (ODOT). One original intent of the research was to conduct a pre- and post- analysis of Oregon's Collaborative Environmental and Transportation Agreement for Streamlining (CETAS) – one of the major mechanisms used to implement streamlining in the state. However, only one project had gone through the entire CETAS process when this research was conducted. Therefore, the research serves as a baseline for a future comparison to projects completed under CETAS.

BACKGROUND

Environmental Review Process for Transportation Projects

There are three levels of environmental review under NEPA. Projects that meet certain criteria and are anticipated to have no significant environmental impact are "categorically excluded" from a detailed environmental analysis. Projects that receive categorical exclusions are limited in scope and usually do not add capacity to the highway, such as the installation of traffic signals (*3*). If a project is not categorically excluded, the agency can prepare an environmental assessment (EA) to determine whether or not significant impacts are likely. If not, a finding of no significant impact (FONSI) is issued, which may include mitigation measures. Typically, projects for which only an EA is prepared do not add new miles to the road system (*4*). If the EA does find that significant impacts are likely, an environmental impact statement (EIS) is prepared. Often, agencies skip the EA and prepare an EIS if they feel certain that there will be significant impacts.

The EIS process formally begins when FHWA publishes a Notice of Intent (NOI), inviting the public to participate in the EIS process. NOIs are not required for EAs. The state DOT usually prepares the EIS, first issuing a draft (DEIS). During the process, the state identifies the purpose and need for the project, a range of project alternatives, environmental impacts of the alternatives, and mitigation measures to minimize impacts. The public, including agencies, provide the state with comments on the DEIS. The final EIS (FEIS) addresses these comments, identifies a preferred alternative, and proposes mitigation measures. After FHWA approves the FEIS, the agency issues a Record of Decision (ROD) presenting the basis of selecting the preferred alternative or action (*5*).

Very few DOT projects require an EIS or EA. Each year from 1998 to 2004, less than four percent (2.4-3.5%) of the projects for which FHWA was the lead agency required an EIS. About twice as many (4.6-6.8%) of the projects required an EA, leaving 90 percent or more with categorical exclusions (*6*). In addition to NEPA review, projects are subject to other environmental reviews and permit processes. These processes sometimes coincide with NEPA, but sometimes occur before or after NEPA review is completed.

Existing Research: National

Given the national focus on environmental streamlining, some research completed recently addresses our research questions at a national level.

How long does the environmental review process take?

The Louis Berger Group sampled 100 EISs from the 1970s, 1980s, and 1990s, to help FHWA obtain a baseline for measuring performance (*2*). They estimated the length of time taken to complete the NEPA process based on the information in the EIS. The end date was the date on the final EIS. The start date varied. In Phase II of the project, the Louis Berger Group collected data on 244 projects from 1995 to 2001 and calculated the length of the NEPA process using the Notice of Intent (NOI) as the start date and the Record of Decision (ROD) as the end date. In addition, for the past five years, FHWA has tracked the length of time to complete the NEPA process, also using the NOI and ROD dates (*7*). The data from these three sources is shown in FIGURE 1. The two studies by the Louis Berger Group noted that the time to complete NEPA was not normally distributed, and that a handful of very lengthy projects often skewed the data. In such cases, the median may be a better indication of central tendency. For example, the median time to complete NEPA for the projects from the 1970s through 1990s was 3.0 years, compared to a mean of 3.6 years for all three decades. FIGURE 2 shows the medians from the same three data sources.

In addition, in 1994 the General Accounting Office (GAO) reviewed 76 projects with EISs completed between 1988 and 1993 (*5*). The average time from NOI to ROD was about 4.5 years. This figure is consistent with the Berger Group data. At the request of the American Association of State Highway and Transportation Officials (AASHTO), in 2003 TransTech Management, Inc. surveyed 31 state departments of transportation about their most recent final EIS document (*8*). They found a median time taken from NOI to ROD of 3.7 years, ranging from just over two years to almost 12 years. The difference from the FHWA/Berger Group data was not explained, but may be due to the difference in sampling method. The latter looked at all EISs, while the TransTech survey only considered the most recent EIS.

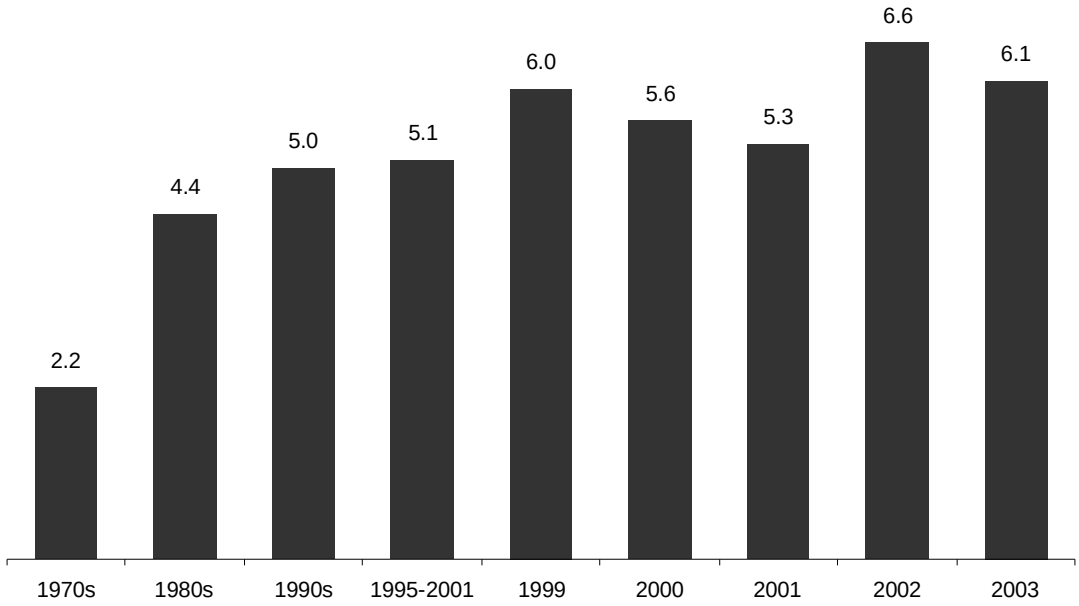

FIGURE 1 Time to Complete NEPA Process Nationwide (mean, years)

Sources: (2, 7, 9)
Note: The "1995-2001" grouped data is from the Louis Berger Group analysis. The annual data from 1999 to 2003 is from FHWA. Differences in methodology explain the differences in the means.

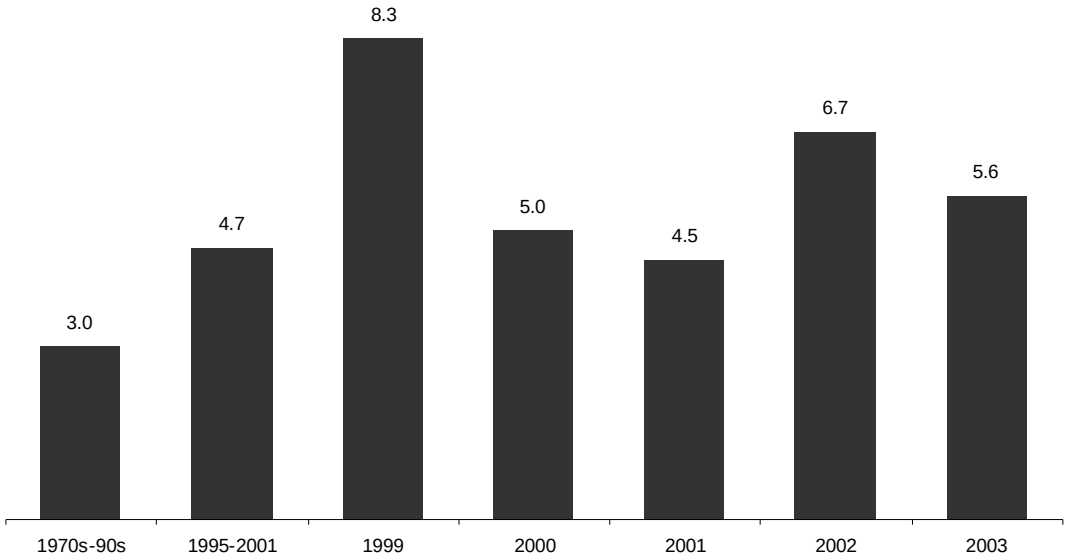

FIGURE 2 Time to Complete NEPA Process Nationwide (median, years)

Sources: (2, 7, 9)
Note: The "1995-2001" grouped data is from the Louis Berger Group analysis. The annual data from 1999 to 2003 is from FHWA. Differences in methodology explain the differences in the means.

The data above include only projects for which there was an EIS, not EAs. In 1999, FHWA estimated that it took an average of 1.5 years to complete an EA. A survey by AASHTO in 2000 estimated that EAs for projects that were not delayed took about 14 months (1.2 years), but when projects were delayed the EA took an average of 41 months (3.4 years) (*3*).

The environmental review process is just one phase of the entire project development and construction process. The first Berger Group study found that, for projects in the 1970s-90s, the NEPA process comprised about 27-28% of the entire length of the project (*2*). They measured the length of the project process as starting at either the beginning of the NEPA process or preliminary engineering (whichever was first) and ending at the end of construction. The FHWA estimated that a typical, major new highway project takes 9-19 years to complete (*10*).

What are the causes of project delay?

In response the a question from Congress, FHWA in 2000 examined projects for which the environmental impact statement took five years or longer to prepare (*11*). FHWA surveyed their staff located in each state and identified 89 projects that were active for more than five years. Staff members identified the reason(s) the project took so long, and an FHWA headquarters staff person assigned one reason as the primary reason. These are shown in TABLE 1. The top four reasons are not specific to the environmental review or permit process, though "local controversy" could involve environmental issues. At the request of Congress, the General Accounting Office reviewed the FHWA analysis and identified several limitations in the methodology (*12*). In particular, the survey question about reasons for project delay was open-ended. The responses were often not specific enough to identify the underlying problem. Moreover, the method of choosing the single reason to include in the data presented was somewhat arbitrary and may not be accurate.

In 2002, FHWA repeated the survey for projects that were completed in fiscal year 2002 after five or more years (*13*). There were 25 projects for which they were able to gather reasons for delay. The findings differ somewhat from the larger, older sample of projects. "Low priority" is the most common reason for delay, followed by "complex project." Funding was only cited for one project, perhaps reflecting the new levels of funding available through ISTEA and TEA-21.

TABLE 1 Reasons for project delay identified by FHWA on lengthy projects with EISs

	% of projects	
Reasons for Project Delay	**2000 survey**	**2002 survey**
Lack of funding	18%	4%
Local controversy	16%	
Low priority	15%	24%
Complex project	13%	16%
Resource agency review	8%	
Change in scope	8%	12%
Fish & Wildlife Service/Endangered Species Act	7%	
Section 106 of National Historic Preservation Act of 1966	6%	12%
Wetlands	4%	
Lawsuits	3%	4%
Hazardous materials	2%	
Poor consultant work		8%
Two state involvement		4%
Change in document from EA to EIS		4%
Project type		4%
Water supply protection		4%
City documentation		4%
N	89	25

The General Accounting Office conducted interviews with 39 people representing organizations with a role or interest in the environmental review of highway projects, including public and private organizations (*3*). These stakeholders had different views on which aspects of the project added undue time, as shown in TABLE 2. The groups did agree on the lack of staff being a problem.

TABLE 2 Stakeholders' Views on Aspects that Frequently Add Undue Time to Environmental Review

	Environmental Stakeholders	Transportation Stakeholders
State departments of transportation do not consider impacts early enough	70%	13%
State departments of transportation do not include important stakeholders early enough	64%	19%
State departments of transportation and federal resource agencies lack sufficient staff	50%	69%
The statutory section 4(f) requirement protecting historic properties on public lands is burdensome	30%	56%
Requirements for obtaining wetland permits are time consuming	0%	56%

Source: (*3*)

METHODOLOGY FOR OREGON EVALUATION

We identified twelve pre-streamlining projects in Oregon to review. The projects were selected using the following criteria:

- Class 1 (EIS) or 3 (EA)
- Construction completed or underway at time of data collection
- Most of the environmental review took place in the 1990s, rather than 1980s or earlier. This limitation helped maintain some consistency in applicable environmental regulations.
- Project was primarily highway-related and did not include a significant transit element (e.g. light rail construction)
- Lead agency was ODOT and/or FHWA, not a local government

After applying the criteria above, there were fewer than 20 projects to choose from. We were unable to locate files for two of the projects, which eliminated them from consideration. With input from ODOT staff, we then chose the most recent projects and ones spread throughout the state geographically and within different ODOT regions. There were four Class 1 projects requiring an EIS and eight projects with EAs. Most of the projects involved widening and/or a new or reconstructed interchange. One was a bridge replacement.

For each project, we collected information on milestone dates and costs, project delays and reasons for delays. Our data sources included all environmental project files at the ODOT headquarter offices and other public records and ODOT databases, which consisted of internal memos, official correspondence, and the environmental documents themselves. In identifying

sources of delay, we looked for documentation that specifically stated that the review process was delayed or behind schedule because of the issue. After exhausting these sources, we attempted to interview an ODOT staff person about each project to: (1) fill in missing data; (2) confirm our conclusions with respect to causes of project delay; and (3) identify any additional related information. Unfortunately, due to staff turnover at ODOT, we were not able to conduct interviews for three of the projects. And, in many cases, the original staff person was no longer available and someone less familiar with the project was interviewed.

In developing project timelines, it is necessary to have a start date. We chose the Notice of Intent as the start date because it is a date that is clearly defined and documented. In addition, it marks a formal start to the NEPA process, the focus of the Oregon's streamlining process. However, it may not be the best measure of when a project actually starts. NOIs are not always issued at the point in the process. Projects do not miraculously appear for the first time when the NOI is issued. They are initiated through various planning processes well before this point in time. However, these processes do not follow consistent patterns, making the designation of an earlier start date difficult. In addition, not all EAs have an NOI. In such cases, we identified an equivalent milestone as the start date.

FINDINGS

How long does the environmental review process take?

For the 12 projects reviewed, the average time to complete the NEPA process, from NOI to ROD was 6.1 years and the median was 5.7 years (Table 3). On average, the four projects requiring EISs took longer – an average of 7.5 versus 5.5 years for EA projects (median 6.6 and 5.4 years, respectively). The mean timeline for EIS projects is longer than the national averages shown in FIGURE 1. However, the median time for EIS projects (6.6 years) is comparable to the national data in FIGURE 2.

The time to complete projects requiring an EA was considerably longer than indicated by the limited national data, an average of 5.5 years versus 1.2 to 3.4 years. There are many potential reasons for this difference. First, we purposely sought major projects for inclusion in this analysis – projects that would be comparable to those that would go through ODOT's streamlining process. Therefore, these EA projects may have taken longer than all projects with EAs. Second, the methodology for how the national data was obtained does not appear to be as thorough as it was for the EIS project data. Finally, there could be some differences in how Oregon uses and completes the EA process compared to other states.

For the Oregon projects reviewed, the NEPA process took about half of the entire project time. This is longer than the 27-28% found nationwide in the first Berger Group study. However, that study sometimes defined the start of the project before the NOI, which would reduce the share of time attributed to the NEPA process.

Table 3: Time to Complete NEPA Process and Complete Project

	Mean (years)			Median (years)			Minimum	Maximum	n (all)
	All	EIS	EA	All	EIS	EA			
From Notice of Intent to:									
Draft Environmental Document	4.0	3.9	4.1	3.8	3.9	3.8	2.1	8.0	12
Final Environmental Document	5.4	5.9	5.1	5.2	5.7	4.8	2.7	8.6	12
Record of Decision	**6.1**	**7.5**	**5.5**	**5.7**	**6.6**	**5.4**	**2.7**	**11.2**	**12**
Bid Let Date	9.0	11.0	7.7	8.9	11.3	7.2	3.6	14.2	13*
Construction Completion	11.8	13.7	10.3	11.6	13.9	10.9	7.4	16.6	12
From Draft Environmental Document to:									
Final Environmental Document	1.4	2.1	1.0	1.2	2.2	0.8	0.2	2.6	12
Record of Decision	2.1	3.6	1.4	1.8	2.7	0.8	0.2	6.5	12
Bid Let Date	5.1	7.3	3.6	5.3	6.9	2.3	0.4	11.2	13*
Construction Completion	7.7	10.1	6.0	8.6	9.5	4.7	3.5	13.6	12
From Record of Decision to:									
Bid Let Date	2.9	3.9	2.2	2.2	4.2	1.6	0.1	8.5	13*
Construction Completion	5.4	6.7	4.5	5.1	7.0	4.5	2.5	10.9	12
NOI to ROD as % of total time (NOI-construction completion)	56%	54%	56%	53%	51%	54%	34%	81%	11

**One project was split into two projects after the ROD, before construction.*

What are the causes of project delay?

We attempted to answer this question in two ways. First, we searched for potential reasons for delay in the project files, indicated in memos and other documents. These findings were confirmed during the interviews, if possible. Second, we looked at the actual data. In the data analysis, we looked for correlations between project timelines and project attributes, including various facets of the environmental review process.

Causes of delay from the project files and interviews

The review of the project files and interviews with ODOT staff revealed a range of sources of project delays, which are shown in TABLE 4. Citizen concerns, including those of adjacent property owners, were identified as a source of delay in eight of the 12 projects. Some of these concerns were not related to natural environmental impacts. Traffic, safety, and access concerns were often raised. These concerns may have led to the most frequent cause of delay – changes in the project design. For example, on one project citizen concerns about safety lead to additional review of traffic data and the inclusion of a new traffic signal and raised median in the project. The raised median warranted a reevaluation of the FEIS. Sometimes the design changes are related to environmental concerns, such as the inclusion of a fish passage. These changes presumably improve the environmental outcomes of the project.

TABLE 4: Sources of Project Delay Identified in Project Files and Interviews

	Total # of projects experiencing this source of delay	% of projects
Design changes	10	83%
Citizen/property owner concerns	8	75%
Communications & staffing problems, including turnover	5	42%
Funding availability	5	42%
Endangered species act listings	4	33%
Land use planning processes	4	33%
Coordination with other transportation projects/plans	3	25%
Changes in environmental regulations	2	17%
Duration of the project	2	17%
Inadequate consultant or contractor work	2	17%
Intergovernmental coordination	2	17%
Wetlands mitigation requirements	2	17%
Agency concern over inadequate analysis	1	8%
Air quality or conformity analysis	1	8%
Dispute over environmental classification	1	8%
Location in National Forest	1	8%
Presence of historical properties	1	8%
Additional value engineering study requested	1	8%

Design changes can result from a number of reasons including citizen input, the need to better meet project goals, required environmental mitigation, changes in highway designations, or budget constraints. These changes may indicate that issues were not adequately addressed in the preliminary alternative selection process or were factors that ODOT could not reasonably anticipate. The stage in the planning process at which these design changes are made can determine whether or not studies, such as noise, traffic, or right of way, need to be re-done. In some cases the entire environmental document needed to be reviewed for legitimacy after a design change. Depending on how drastic the design change is, the public comment period for the project can also be re-initiated, also adding to the project's timeline.

Communications and staffing problems, including staff turnover, caused delays in just under half of the projects. Staff turnover also makes communication between agencies more difficult, if the contact person for a project at ODOT or a resource agency is constantly changing. Lack of funding or reorganization of funds was cited several times as a reason for project delay. This is sometimes an indication that the project is not a priority for the DOT or local partners. Phases of projects would remain incomplete due to lack of funding or were put on hold completely. In one instance, the actual delay in the project's progress, for other reasons, caused it to be reclassified as a lower priority project, resulting in the withdrawal of its funding, causing further delays.

The length of the project's timeline itself can result in project delays due to the need to re-conduct research and analysis. Original studies can be considered invalid due to the time that had passed between the their completion date and the issuance of the final environmental document. It is even federally mandated that when major steps to advance a project have not been taken within three years of the FEIS being approved, a re-evaluation is required. Ironically, delays in project advancement are often linked to a scarcity of staff time available and financial constraints.

The causes of delay identified for the 12 Oregon projects are somewhat consistent with the FHWA findings in TABLE 1. The percentage figures are higher for the Oregon projects because multiple sources of delay were be identified for most projects, whereas the FHWA analysis only identified one source for each project. Design changes were not specifically identified by FHWA. However, several of their identified sources of delay – complex project, change in scope, and local controversy – can lead to design changes. Low priority projects, identified as a source of delay by FHWA, may be the reason behind staffing problems and turnover and funding availability problems, identified as sources of delay in many of the Oregon projects.

Data analysis of potential causes of delay

Our review of the project files produced over 100 different variables describing each project and the NEPA process involved. These variables are separate from the identified sources of delay and are based solely on the documents in the project files. In some cases, the variables are similar. For example, there is a variable for whether or not the project experienced issues regarding funding. If there was any documentation in the file that funding was an issue for the project, the database indicates “yes” (coded as a 1) for that project for that variable. However, the funding issue may or may not have been an identified source of delay.

We examined the correlation between the project timelines and over 50 different variables that might impact the length of the NEPA review timeline. Not all 100+ variables were analyzed because many variables were not applicable to enough projects or there was missing data. Three different timelines were used: (1) from NOI to ROD; (2) from NOI to draft environmental document (EA or EIS); and (3) draft to final environmental document. Overall, very few of the variables were correlated with longer (or shorter) timelines. This may be due to the small sample size (12) and limitations in the methodology. It may also indicate that project timelines are very difficult to explain and are dependent upon a wide range of factors that vary tremendously. The statistically significant ($p<0.10$) results are shown in TABLE 5. The variables are in order of the absolute value of the magnitude of the correlation with the overall timeline, from NOI to ROD. Therefore, the strongest correlations are at the top of the list. When the correlation coefficient is positive, that means that the variable is associated with a longer project timeline.

TABLE 5: Significant Correlations of Project Timeline to Variables

Variable	NOI to ROD	NOI to Draft	Draft to Final
Number of business relocations	0.840		
Number of design changes mentioned in project file	0.744		
Total project cost: Initial estimate	0.656		0.686
Bikeway added	0.615		
Final length of project	0.586		
Biological Assessment required	-0.579		
Need to re-do studies due to project duration	0.546	0.684	
Comprehensive plan or state planning goal exception required	-0.539		-0.555
Funding issues	-0.534		-0.699
Acres of wetlands affected		0.716	
Acres of wetlands mitigated		0.665	-0.675
Raised median		0.555	
Agency Concern: Number of comment letters from state/federal agencies in the file			0.937
Class 1 project (EIS)			0.588
Change in length of project (final – anticipated)			0.583
Total project cost: Actual			0.582
Number of structures added			0.572
Widening			0.516
Number of state and federal agencies mentioned in project files			0.504

Pearson correlation coefficients, $p<0.10$.

In the case of overall timeline, from NOI to ROD, six variables were correlated with longer timelines:

- number of business relocations;
- number of design changes;
- initial estimate of the total project cost;
- having a bikeway added as part of the project;
- the final length (in miles) of the project; and

- Re-doing studies (e.g. noise, air quality, etc.) that became out-of-date due to the length (in time) of the project.

These variables all relate to the size, scope, and complexity of the project and not directly to the environmental review process. The number of design changes can be related to environmental issues; design changes are sometimes made to reduce environmental impacts identified during the review process. Design changes can also be the result in changes in priorities, responses to land owner concerns, and other issues.

Contrary to expectations, three variables were correlated with shorter overall timelines:

- whether a Biological Assessment was required;
- whether a change to a local comprehensive plan or an exception to a statewide planning goal was required; and
- whether funding was an issue for the project.

The unexpected finding regarding projects where funding was identified as an issue (though not necessarily a source of delay) was confirmed by looking at the average timelines for projects with funding issues (1840 days, NOI to ROD) versus without funding issues (2791 days). The difference between the means was statistically significant.

The potential influence of natural environmental issues on time frames shows up more in the second and third columns in TABLE 5. For example, a larger number of acres of wetlands affected and mitigated was associated with a longer timeframe between the NOI and the draft EIS or EA. The strongest correlation was between the number of comment letters from state and federal agencies and the time between the draft and final documents. This makes sense; responding to comment letters is one of the primary purposes of the final document and the volume of comment letters is likely correlated with the number of issues and problems the document and project must address. Other variables associated with longer timeframes between the draft and final document relate to the size and scope of the project, particularly if the project changed in length.

Many of the variables in TABLE 5 are “dummy” variables, i.e. the choices are yes (coded as 1) or no (coded as 0). This includes many of the variables related to the environmental review process. To examine these variables further, we compared the average number of days between various time points for projects with and without a particular environmental review requirement or issue. The results are shown in TABLE 6. The findings confirm the correlation analysis. The need to perform a particular type of environmental analysis did not mean that the overall NEPA review process took longer.

TABLE 6: Differences in Average Timelines for Environmental Review Variables

Environmental Review Requirement or Issue	NOI to ROD (days)			Significant differences in other timelines (with vs. without mean)
	Significant? p<0.10	With	Without	
Class 1 project (EIS vs. EA)	NO	2720 n=8	1998 n=4	Draft to Final 760 vs. 382 days Final to construction complete 2938 vs. 1780 days
Hazardous Materials Analysis required	NO	2483 n=8	1709 n=3	Final to construction complete 2074 vs. 3352 days ROD to construction complete 1749 vs. 3039 days *Final to bid let day and ROD to bit let date also significantly different.*
Floodplain Analysis required	NO	2228 n=8	2011 n=2	NONE
Section 4(f) Requirement required	NO	2405 n=7	2005 n=5	Final to bid let date 855 vs. 1879 days ROD to bid let date 567 vs. 1637
Air Quality Analysis required	NO	2348 n=5	2209 n=6	NONE
Endangered Species Analysis required	NO	2087 n=9	2691 n=3	NONE
Endangered species raised as a possible concern	NO	1870 n=6	2606 n=6	NONE
Biological Assessment required	**YES p=0.08**	**1930 n=6**	**2983 n=4**	NONE
Comprehensive Plan or State Planning Goal Exception Required	**YES p=0.09**	**1749 n=5**	**2708 n=6**	Draft to Final 331 vs. 680 Final to construction complete 1656 vs. 2778

CONCLUSIONS

This paper set out to examine how long the NEPA review process takes and what causes the lengthy timelines that have drawn national attention. The review of the national data showed that the NEPA process is taking longer now than two decades ago. The lengthy average times to complete an EIS are often heavily influenced by a few extreme cases. Our review of twelve Oregon projects found lengthier average timelines, but a median timeframe to complete the NEPA process that was comparable to the national data. The average time to complete the NEPA process, from NOI to ROD was 6.1 years and the median was 5.7 years. Projects requiring EISs took longer (mean 7.5 years) than those with EAs (5.5 years). These timelines are significantly longer than FHWA year 2007 objective of 36 months. For the Oregon projects reviewed, the NEPA process took about half of the entire project time. This is longer than the 27-28% found

nationwide in one study. Some of this difference may be due to differences in defining the start of a project. In addition, there may be differences in construction, contracting, and funding processes.

A limited national survey found that environmental issues were not the most frequently cited reasons for project delays. Similarly, in Oregon, natural environmental issues do not appear to be the major cause of lengthy NEPA processes. Highway projects that require an EIS or EA are generally complex. Therefore, the environmental review process is influenced by many factors, some of which are related to natural environmental concerns and many others are not, though they may arise during the environmental review. For example, the number of business relocations was the variable most highly correlated with how long the entire NEPA process took. These impacts are analyzed as part of the NEPA process, but are not a natural environmental issue. Some indicators of natural environmental concerns, such as the number of wetland affected or number of comment letters from other agencies, are correlated with longer timelines to complete a draft or final environmental document, but not the overall process from start (NOI) to finish (ROD).

The primary sources of delay identified by our examination of the project files and interviews were design changes and concerns raised by citizens and property owners. These sources can be related to natural environmental concerns, but are not solely environmental issues. The data analysis confirmed these findings. The environmental review for projects with more design changes and more business relocations took longer to complete. Factors relating solely to natural environmental issues (e.g. endangered species listings, wetlands mitigation, etc.) were identified as a source of delay in one-third or fewer of the projects examined, based on either the files or interviews. Moreover, the data analysis did not show that any of the environmental process variables were related to longer review periods. In fact, some of the environmental process variables were associated with shorter review periods.

Efforts to streamline the process may not alter overall timelines significantly simply because deadlines are set. Instead, the most significant improvements to the process are likely to come from better communication and information, along with earlier involvement. If a streamlining effort can succeed in these areas, the formal review process may be shorter. Perhaps more importantly, the process could result in better projects and better environmental outcomes.

We encountered various challenges in conducting this research. Many issues involved the inconsistency of the contents of the files examined. Better documentation and organization would improve this type of research. One issue in doing this research is defining the start of a project. For comparison purposes, we had to choose a clear date – the Notice of Intent. Even with this clear definition, there were difficulties. Some projects with EAs do not have a NOI. In such cases, we used a comparable starting point. Perhaps more important is the question of when does a project actually begin? Early involvement and early integration of environmental concerns into the planning process is largely viewed as one of the most important improvements an agency can make in the process. In which case, early involvement might move official start dates earlier, thus lengthening the time from an NOI to ROD. Comparing such project timelines to projects completed in an era when the process was initiated later (and thus ran into more problems) is not fair. That is one reason we looked at various parts of the review timeline, e.g. from draft to final document, as well as the overall timeline. For example, starting the process earlier might lengthen the time between the NOI and a draft EIS. But, if the early involvement was successful,

the time between the draft and final EIS might be shortened because there are fewer negative comments to address. Early involvement might also reduce other timeframes, such as between the FEIS and ROD and bid let date.

Another research issue that arose was the definition of "delay." Some of the ODOT staff we interviewed objected to the use of this term. Without clear time frames established ahead of time, it is very difficult to determine whether delay is occurring. What one person might consider a "delay" another considers a normal part of the process. Moreover, it was difficult to attribute any perceived delays to a particular cause. Often, there are numerous things going on which may impact a project's schedule. The differences in our findings – between what was in the project files and interviews compared to the data analysis – points to the difficulty in attributing longer timelines to any particular factor.

As highlighted in the findings, the small sample size of projects also limits the conclusions we can draw, even if the findings are statistically significant. This is particularly difficult given that the projects vary in terms of size, scope, location, type, and cost. Ideally, we would have, for example, ten bridge projects, ten lane additions, ten interchanges, etc. for both before and after CETAS. But, there simply aren't that many highway projects being planned and constructed in the time periods we examined. Within the next few years, additional projects will have gone through the CETAS streamlining process that can be compared to these baseline pre-CETAS projects.

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