

Benefits and Costs of Programmatic Agreements

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Programmatic Approach Benefit-Cost Case Study Analysis: Executive Summary

Summary of Analysis

The Programmatic Agreement (PA) benefit cost analysis conducted by the Volpe Center took the form of three unique case studies, focusing on different PA types. These PA types were: Endangered Species Act (ESA) Section 7 PAs, National Historic Preservation Act (NHPA) Section 106 PAs, and National Environmental Policy Act (NEPA)/Clean Water Act (CWA) Section 404 merger processes. The studies focused on agreements or processes in the following States:

- ESA Section 7: Kentucky, Oregon, and Washington
- NHPA Section 106: California and Ohio
- NEPA/CWA Section 404: Illinois and North Carolina

The studies were conducted by interviewing State and Federal stakeholders regarding the impact of their particular PA. A baseline for comparison was established and the estimated quantitative impact was calculated, where data was available. In all cases these studies were retrospective and in some instances, the PA had been in place for over 10 years.

The analysis confirmed that, where determined by available data, PA processes and approaches are cost-beneficial tools that lead to time savings and multiple forms of qualitative and non-quantifiable benefits. However, a large learning curve exists and there are various challenges and limitations that need to be addressed when implementing PAs. A summary for each case study follows:

ESA Section 7

- Kentucky's ESA Section 7 PA focusing on the Indiana Bat has resulted in estimated savings of \$150,000 from projects in the last year alone, against implementation costs of \$43,000. The PA also resulted in the avoidance of seasonal tree cutting restrictions, which has led to shortened project timelines.
- Oregon's statewide ESA Section 7 PA has resulted in estimated savings of \$1.23 million over an 18 month period against implementation costs of approximately \$350,000. Project review time has also been streamlined and decreased from an average of 200 days to an average of 29 days.
- Washington's statewide ESA Section 7 PA has resulted in estimated annual savings of \$103,000 over the last two and a half years, 98% time savings for WSDOT biologists, and increased predictability and efficiency against total estimated costs of \$216,000. Even with ongoing maintenance costs, the estimated break-even point for the PA was just over two years after implementation.

NHPA Section 106

- California's statewide NHPA Section 106 PA has resulted in estimated annual benefits in the form of redirected staff of approximately \$800,000 from 2005 to 2006. Unquantified annual

benefits are expected to be similar for 2007 through 2013. Implementation costs could not be estimated as implementation labor costs were unavailable.

- Ohio's statewide NHPA Section 106 PA has resulted in annual savings of over \$1.5 million compared to early 2000 spending levels. Implementation costs could not be estimated.

NEPA/CWA Section 404

- Illinois' NEPA/CWA Section 404 merger process has resulted in increased coordination and communication leading to enhanced project outcomes and unquantifiable cost savings from avoided Section 404 permit challenges. Implementation costs could not be estimated.
- North Carolina's NEPA /CWA Section 404 merger process has resulted in increased certainty regarding project timelines, improved public opinion and project decisions, and unquantifiable avoided costs from Section 404 permit challenges. The process required an estimated initial and refinement investment of approximately \$775,000.

Key Takeaways

Below is a set of key takeaways to consider as States develop and implement PAs based on this research effort:

- The more projects processed under the PA, the larger the impact and potential benefits will be. This is based on the fact that each project under the PA produces some level of cost or time saving that can be utilized. As a result, stakeholders should generally strive to establish agreements and approaches that could apply to a large number of projects, particularly for:
 - ESA Section 7 and NHPA Section 106 PAs that could be statewide or apply to a range of species
 - Projects that are complex and would generate a large degree of benefit if they are streamlined.
- In general, establishing a PA resulted in shortened task and project timelines of over 50%. This estimate is based on shortened review times, avoided permit challenges, and avoidance of seasonal restrictions.
- Developing and implementing a PA is a lengthy process that often takes multiple years. Additionally, PAs must be updated and revised over time based on changing needs and requirements. As one State described it, a PA is a "breathing document."
- While non-quantifiable, a key universal benefit of PAs is the increased levels of predictability that they provide stakeholders as they move through project processes. This predictability is valuable as it improves decision-making on a broad level.
- An additional key component to consider when developing a PA, as determined by this research effort, is the importance of developing relationships amongst stakeholders. PA effectiveness is enhanced when agencies and relevant entities are able to collaborate and develop a strong working relationship.

Challenges and Opportunities

The sections below highlight the primary limitations faced during the course of the research study, particularly in terms of data collection, and also outline key steps that can be taken to improve PA implementation moving forward.

Study Challenges

The challenges associated with the benefit cost analysis revolve primarily on data availability. The case studies selected had relatively long timeframes and, as a result, certain data elements were no longer available or no longer possible to estimate. In some cases this included the origins of the agreements themselves. It was particularly difficult to determine the cost and time associated with developing various PAs. An additional complicating factor was that most of the PAs studied had experienced multiple iterations and therefore isolating the costs and time associated over expended periods of time and multiple versions was also difficult.

Other limitations consisted of the following:

- The agreements incorporate multiple agencies and, in some cases, receiving actual or estimated data related to percentages of time and wages was unfeasible.
- In some cases the way that metrics or statistics were measured changed over time, making standardization or comparisons difficult.
- Benefits in the form of time savings or increased predictability were difficult to monetize or quantify.
- In some cases it was difficult or impossible to compare projects under the PA with a concurrent or pre-PA baseline as there were not enough suitable projects with which to make a comparison.

While these challenges limited the results of the case studies and impacted the retrospective analysis, there is a silver lining. These above challenges helped to determine the status of State DOT data tracking, particularly as it relates to PAs, and also highlighted which data elements were critical to track in order to determine efficacy, as summarized below.

Improvements Moving Forward

In terms of developing and implementing PAs themselves, the analysis determined several factors that would be beneficial for States to consider in the future.

First, States should focus on tracking the time requirements associated with various tasks and the resulting cost of completing those tasks. This should be done not only for existing projects but also for the development of the PA and for any projects that fall under the PA. These measurements can be utilized to determine a benefit-cost ratio overall and for individual components of the PA. By tracking these project inputs beforehand, States can determine which areas would most likely benefit from being streamlined or addressed by a PA.

Second, once a PA is implemented, it is often important to determine how the savings or benefits will be applied. In some cases time savings for employees have led to the ability to focus on different or more complex projects. In other cases the time savings led to reductions in staff. In other words, while time and cost savings are important benefits that can result from implementing a PA, the real impact comes from how those savings are utilized.

Third, establishing a PA or similar approach is a lengthy process that includes a large learning curve. Often agreements are altered over time, in some cases significantly. At a minimum, the agreements must be maintained and updated periodically to ensure relevance and effectiveness. Prior to implementing a PA, States should be aware of the effort and process that is required and, while the burden can be reduced, the process typically requires a significant upfront and ongoing investment before benefits can be maximized.

Key Metrics

Prior to implementing a PA, it would be advantageous for States to consider tracking various data points and monitoring key metrics. These metrics and the data elements they require are detailed in Table 1 below.

Table 1: Metrics and Data Elements to Consider when Implementing a PA

Process	Metrics	Data Elements
Planning	Percentage of staff time diverted to other projects (or dismissed)	<ul style="list-style-type: none"> • Staff labor hours both under the PA and for baseline projects • Number of employees working on PA and baseline projects
Planning	A reduction in project timelines relative to a baseline	<ul style="list-style-type: none"> • Beginning and completion dates of all relevant project steps under the PA and for baseline projects • Length of time required to complete each project step under the PA and for baseline projects
Budgeting	A reduction in project costs relative to a baseline	<ul style="list-style-type: none"> • Cost to complete each project under the PA and for baseline projects, including employee labor hours • Costs broken down by task
Mitigation/Conservation	Improved project delivery relative to a baseline (this could include improved environmental impact, improved habitats, preserved cultural area)	<ul style="list-style-type: none"> • Project delivery or outcome rating for projects under the PA and for baseline projects • Possible public opinion poll of project outcome

Programmatic Approach Benefit-Cost Case Study: Endangered Species Act Section 7

As part of the Every Day Counts (EDC) initiative, the Federal Highway Administration (FHWA) has promoted the use of Programmatic Approaches (PAs), which include programmatic agreements, in order to shorten project delivery times. Specifically, programmatic approaches establish a streamlined process for handling routine environmental requirements for commonly executed project types. Qualitative support for implementing Endangered Species Act (ESA) Section 7 PAs includes improving environmental protection, communication, and collaboration; however, limited quantitative reporting of these benefits exists. The purpose of this case study is to provide quantitative information on the benefits and costs resulting from certain existing PAs, centering specifically on time, labor, and administrative burden impacts. This case study highlights three unique ESA Section 7 programmatic approaches (PAs):

- *Effects on the Indiana Bat Associated with Minor Road Construction Projects in Kentucky*
- *Endangered Species Act Programmatic Consultation for the Federal Aid Highway Program in the State of Oregon*
- *Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Washington State Department of Transportation Preservation, Improvement, and Maintenance Activities*

The following sections provide background information on ESA PAs, describe the research methodology, and then individually evaluate the PAs by establishing a baseline and describing findings related to the benefits and costs of the approaches themselves.

Background

The Endangered Species Act of 1973 is designed to “protect and recover imperiled species and the ecosystems upon which they depend.”¹ The Act is administered by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS).² As a result, when conducting transportation activities and projects, State Departments of Transportation (DOTs) and FHWA must work with the USFWS and NMFS in order to ensure that all ESA Section 7 requirements are being met.

Based on the large number of projects that State DOTs and the FHWA complete annually, a method was needed to streamline the consultation between these agencies. One successful method is the use of programmatic approaches which are designed to apply to multiple forthcoming projects. PAs have been promoted as part of the FHWA’s Every Day Counts (EDC) initiative with the intended impact of streamlining repetitive processes, helping organizations save time and money, and maintaining

¹ Endangered Species Act, U.S. Fish & Wildlife Service. Last updated 7/15/2013.
<http://www.fws.gov/endangered/laws-policies/>

² Ibid.

appropriate consideration for the environment. ESA Section 7 programmatic approaches provide benefits by accelerating the process and reducing labor hours associated with certain requirements.

According to the American Association of State Highway and Transportation Officials (AASHTO) Programmatic Agreements Library Database, there are a total of fourteen active ESA Section 7 PAs within nine States. These agreements range from covering specific species or specific geographic areas to covering the entire State and a broad number of species. These agreements typically involve clear guidelines on: (1) which projects can be covered; and (2) the procedures for each agency under the ESA Section 7 programmatic approach.

Methodology

In order to identify the costs or benefits associated with each of the ESA Section 7 PA cases, the Volpe Center researched various programmatic approaches and agreements, developed a set of key valuable metrics, consulted with FHWA on a selection of case studies, and then created corresponding interview questions. The metrics identify the key areas of quantitative assessment, categories of potential benefits and costs, and the data elements that inform this analysis.

The Volpe Center discussed these questions with representatives of each selected Case Study State. Following the discussion, each State provided responses to the questions with data and qualitative information. A key challenge presented by this data collection method is that all cases were retroactively studied. As a result, the information is not comparable across all cases and, in some instances; key variables were not available because they were not tracked from the onset of the PA. This challenge is exhibited most clearly within the establishment of the baseline and counterfactual.³

In general, the PAs studied had varied origins and timelines. As a result, establishing an appropriate baseline varied as well. The period of time against which to compare the PAs was determined on a case-by-case basis. Depending on the context, there were two clear methods to apply. These methods are as follows:

- **Concurrent:** If there are certain projects that fit under the PA and others that instead undergo individual consultation, these two project types could be used to determine the effectiveness of the PA and the particular results or changes that the PA caused. In other words, the individual projects can serve as a counterfactual to the projects conducted under the PA. However, this strategy is most effective if the projects are sufficiently similar.
- **Before and After:** If the PA was implemented in the relatively recent past then it is possible to compare the projects that were completed prior to the introduction of the PA with similar projects that are now completed under the PA. However, this method is most effective if: (1) there is a clear point in the timeframe where the agreement took effect and changes were enacted; and (2) data and information are available from prior to the implementation of the PA. An important consideration with ESA Section 7 PAs is whether the agreement has been

³ The counterfactual is what would happen in the future, absent the proposed program or action. An assessment of benefit requires a counterfactual against which any changes resulting from a proposed regulation or program are measured. Baselines develop comparable measures for that counterfactual scenario.

updated or amended. Depending on the data, it is possible to compare the different iterations of the PA to each other.

In both cases certain key variables are necessary; however, given the retroactive nature of this study, States did not always track these variables. As a result, the Volpe Center considered data limitations when establishing the baseline for each case as well.

In some ways, evaluating the PA itself is easier than isolating the baseline. The two primary quantitative results of the PA are impacts on time and costs to State DOTs and other stakeholders, as appropriate. Generally, an increase in time and cost used to establish and maintain the PA lead to a larger decrease in time and costs spent on the projects that fall under the PA. Each section below provides a detailed analysis of each of the three cases studied.

Kentucky

Background

The Kentucky Transportation Cabinet's (KYTCs) first agreement concerning the Indiana Bat was developed in 2006, designed to last 5 years, and expired in May 2011. This agreement was entitled the *Final Programmatic Biological Opinion on Minor Road Construction Projects in Kentucky and their Effects on the Indiana Bat*. In 2011 a new, more broad and inclusive agreement was pursued. KYTC, FHWA, and the USFWS signed the current agreement in September 2012. Although not a signee, the United States Army Corps of Engineers (USACE) has reviewed Clean Water Act Section 404 permit applications for projects where the PA was utilized. The agency is now fully aware of how the agreement has been implemented to address ESA Section 7 needs for the Indiana Bat.

The current programmatic conservation memorandum of agreement (MOA) is an updated approach to the previous (2006) Programmatic Biological Opinion (PBO). Both the previous and current agreement involved paying into the Indiana Bat Conservation Fund when it was determined that a habitat would be impacted by the project. As of November 2014, 78 projects have required formal consultation under the current agreement and consequently paying into the fund as a form of mitigation.

Discussion of Baseline

The baseline for the Kentucky Indiana Bat PA is difficult to establish. The PA is very specific to certain project types and as a result it is difficult to determine any projects that are adequately similar, which do not fall under the PA. Based on the timeframe of the two agreements, it is also difficult to isolate and determine any before and after effects as they could be a result of preparing for the first agreement, the first agreement itself, the second agreement, or a combination of all three activities.

Based on these limitations, the best information for comparison purposes can be drawn from prior to the development of the first agreement. In the early 2000's KYTC experienced an increase in biological assessment (BA) consultations, culminating in a high of approximately 120 individual projects per year involving preparation of a BA. A vast majority of these included Indiana Bat analysis. Based on this high level of projects KYTC believed a programmatic approach was necessary.

Project cost and time data was not tracked during this time period. However, it is possible to estimate the costs of current projects, had the PA not been in place. For roughly two-thirds of the 42 formal consultation projects completed in the last year, KYTC estimates that the average cost would have been approximately \$15,000 in the absence of the PA.

Analysis of PA

As noted above, the previous 5-year agreement expired in May 2011 and KYTC pursued a new, more flexible and inclusive agreement. This new agreement took over a year to complete. One salaried biologist spent 4 months working on the PA, monetized at about \$14,000. Other KYTC and FHWA employees spent approximately 2-3 weeks (in labor hours) to establish the agreement, which is approximately \$12,000 when monetized. A KYTC funded staff member at the USFWS spent approximately \$17,000 to establish the agreement. This sums to an upfront investment of approximately \$43,000.

The benefits of the agreement resulting from this investment have been significant and widespread. For projects along existing highways, the PA has led to an approximate 50% reduction in costs. This is based on clarified guidelines incorporated within the PA that distinguish when a project should be classified as an improvement along an existing corridor. When given this classification, the payment factor for funds into the Indiana Bat Conservation Fund (IBCF) is decreased by half.

Of the 42 projects completed in the last year, the median payment into the IBCF, and consequent cost for the project, was \$2,500. The payment for two-thirds of these projects was below \$10,000 and of these; approximately 12 projects had payments of below \$2,000. All of these payments are a direct result of implementing the PA. Based on the estimated average cost in the absence of the PA described above, the average per project savings is at least \$5,000. These estimates are based on roughly two-thirds of the 42 projects in the last year. As a result, KYTC estimates the overall quantifiable cost savings from the last year is estimated to be at least \$150,000 (\$5,000 x 30 projects).

Additionally, the absence of the PA would have resulted in difficult to quantify costs. This would have included the possibility of seasonal tree cutting restrictions, leading to lengthened timelines and site management issues, and costly surveys to determine if the species was present. The seasonal restrictions and delayed projects would have led to indirect costs. Alternatively, KYTC could have implemented a tree cutting program in the winter under a separate contract prior to the project being awarded to a contractor, but this would have led to additional expenses that the PA avoided.

Finally, most projects can now be quickly assessed and addressed in-house, eliminating consultant fees. The PA has also reduced the number of BAs needed to determine the presence or absence of the Indiana Bat. These factors lead to a reduction in paperwork passing between agencies, avoiding potential delays or miscommunication.

Based on these findings, the estimated time and cost savings generated by the PA far exceed the estimated initial investment and maintenance costs associated with its development and use.

Oregon

Background

The Oregon Department of Transportation (ODOT), NMFS and the Oregon Division of the Federal Highway Administration developed a PA to provide ESA coverage for approximately 95 percent of ODOT projects. The approach, officially entitled the Endangered Species Act Programmatic Consultation for the Federal Aid Highway Program in the State of Oregon, was implemented in January 2013, involves 17 NMFS-listed species and 16 critical habitats, and includes activities that would result in informal or formal consultations and complex potential effects.

Discussion of Baseline

Oregon's Statewide ESA Section 7 PA allows for a comparison between projects under the agreement and individual projects prior to the agreement's implementation. In general, for individual projects, formal consultations involve costly and complex BAs that require approximately three to five months to prepare. Once completed, up to 200 additional days are necessary to reach a signed biological opinion (BO). In addition, the individual BOs sometimes face regulatory uncertainty, resulting in project delays or constructability issues.

Analysis of PA

ODOT, FHWA, and NMFS worked together for approximately two years to develop a programmatic BA and BO. The three agencies dedicated key staff to the effort, increasing communication and collaboration. Region biologists from ODOT participated in a technical working group which assisted with BA chapter and database form development. The partnering agencies met weekly throughout BA and BO development. Given these activities, the estimated monetized labor cost to create and implement the PA is approximately \$350,000. This assumes approximately 2.5 full-time employees dedicating approximately 50% of their time to PA development for two years.

Along with these specific upfront costs, ODOT participated in various other activities to facilitate the development and implementation of the PA. In January 2013, the agency partners collaborated on an initial training for consultants, ODOT and FHWA staff. This one-day training provided an overview of the PA and interim submittal and approval processes. Several projects were waiting to use the PA so this training was provided to address this backlog. Later, in the summer of 2013, the partners developed a User's Guide and provided in-depth two-day trainings for each ODOT region.

The PA has been in use for 18 months, with 93 projects processed or under way. This constitutes approximately 95% of ODOT's FHWA funded projects. Cost savings based on the agreement are generated from a reduction of NMFS liaison staffing from 3 employees to 1 (at \$100,000 annually each), a 50% reduction in the average BA preparation costs of \$20,000 per project based on programmatic form completion versus completing an entire BA, and reduced project delays. The PA has decreased review time from an average of 200 days to an average of 29 days and ultimately resulted in savings of approximately \$1.23 million.

There are additional cost savings associated with staff and consultant time as the project goes through consultation, conducting formal consultation in the traditional, individual manner typically results in back and forth between NMFS and ODOT with requests for additional information. These types of requests are greatly reduced through the PA.

Additionally, the PA provides environmental streamlining through form-based documentation, instead of multi-page assessments, and uses agreed-upon minimization and offsetting measures. Thus, project proponents know design expectations in advance, making project-specific terms and conditions no longer necessary. The PA also contains a no-NMFS-approval pathway that allows certain project categories, including bridge replacements, to continue with FHWA-only approval if all PA conditions can be met. This pathway has an expedited average approval process of 8 days.

Finally, the PA achieves better conservation outcomes for ESA-listed species by incorporating standard avoidance, minimization, and mitigation measures including, but not limited to, storm water treatment retrofit, fill removal, and bridge design that supports more natural fluvial processes. These standard measures lead to the added benefit of increased regulatory and process certainty that is difficult to quantify.

Based on these findings, the estimated time and cost savings generated by the PA exceed the estimated initial investment and maintenance costs associated with its development and use.

Washington

Background

The Washington Department of Transportation's (WSDOTs) ESA Section 7 Programmatic Approach was completed in September 2012, with the start of project processing under the Programmatic Biological Assessment (PBA) in February 2013. The approach, officially entitled the *Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Washington State Department of Transportation Preservation, Improvement, and Maintenance Activities*, was led by the FHWA and WSDOT and approved by the National Oceanic and Atmospheric Administration (NOAA) through issuance of their Biological Opinion. The agreement provides coverage for all 24 NOAA listed endangered and threatened species and all 18 critical habitats within Washington. The PBA is currently being updated to cover an increased amount of fish passage improvement projects as well as three recently designated critical habitats.

Thus far under the PBA (since February 2013), there have been nine formal consultations, nine informal consultations, and five individual essential fish habitat consultations completed.

Discussion of Baseline

Similar to the Oregon PA, prior to the implementation of Washington's ESA Section 7 PA, there were a sizable number of projects that completed individual consultation and are useful for comparison purposes. In the last 5 years there were 38 formal and 50 informal individual consultations for projects in the State. Formal consultations took an average of 249 calendar days and informal consultations took

an average of 40 calendar days. The averages for labor hours and cost for a formal consultation were 264 and \$15,500, respectively. The averages for labor hours and cost for an informal consultation were 64 and \$3,750, respectively. For the biological assessment specifically, the averages for labor hour and cost for formal consultation were 220 hours and a range of \$12,000–\$13,000. For an informal consultation biological assessment, the averages were 160 hours and a range of \$8,600–\$9,400.

Analysis of PA

The current PA took approximately two years to develop. During that time there was a mid-level employee at WSDOT spending 50% of their time developing the PA at a cost of \$94,351. There was also a WSDOT supervisor biologist spending approximately 12.5% of their time on the PA at cost of \$27,109. WSDOT worked with an NOAA liaison who is believed to have spent approximately 50% of their time working on the PA at an estimated cost of \$94,351. This liaison also worked with a supervisor, for whom the labor cost is unknown. In addition to these employees, there was support from an FHWA biologist who completed reviews and participated in the meetings and negotiations. Monetizing the labor costs, this sums to a known estimated upfront investment of over \$216,000.

Based on this investment, nearly 75% of WSDOT Federal-Aid Highway Program projects now fit under the NOAA PA. While the number of projects WSDOT has to complete Section 7 consultations for is decreasing overall, due to program budget decreases, the number of projects under the PA has increased. The time spent by biologists on projects has been reduced by over 98% under the new PA, which has led to cost savings by having fewer liaisons and the ability to spend more time on other consultations. These time savings have shortened the amount of processing time that is required for the projects as whole. While difficult to quantify specifically, the PA has led to dramatic cost and time savings for the projects that it incorporates.

While the actual cost for construction has not changed, the consultation costs and timelines under the PA have. There are brief amounts of time (days) spent in early coordination prior to submitting projects for consultation; from that point it takes NOAA an average of 3.5 calendar days to complete each formal consultation and an average of 1.2 calendar days for each informal consultation. Minimal additional review time is required within NOAA, and once a project meets the conditions, the project is permitted to move forward. Since approvals and submittals are completed by email, information is processed more efficiently.

In terms of costs for WSDOT biologists, the PA has led to reduced labor hours for completing the BA. As a result under the PA, the averages for labor hours and cost for formal consultation were 100 hours and a range of \$5,300–\$5,800. The averages for labor hours and cost for an informal consultation, for the biological assessment, was 80 hours and a range of \$4,300–\$4,700. Taking the middle point of these ranges, the PA led to per project time and cost reductions of roughly 120 hours (55%) and \$6,950 (56%) for formal consultations and roughly 100 hours (50%) and \$4,500 (50%) for informal consultations. Based on the number of projects completed under the PA, these savings total approximately \$62,550 for formal consultations and \$40,500 for informal consultations. This is an annual figure based on one year's worth of data.

Additionally, the PA provides predictability and efficiency in the consultation process through the establishment of clear standards that can be incorporated into the design of the project. The PA also provides assurance that it will be possible to efficiently address the projected increase in upcoming work.

While quantifiable cost savings are only available for the BA portion of the PA, the overall estimated quantifiable and non-quantifiable time and cost savings generated by the PA exceed the initial investment and maintenance costs associated with its development and use.

Conclusion

Based on the analysis of these three cases, there are clear benefits for establishing an ESA Section 7 programmatic approach or agreement. These benefits outweigh the upfront and maintenance investment costs of the agreement. In all three cases the benefits of the agreement outweigh the costs. Additionally, in comparing these agreements to their respective baselines, in all cases the pursuit of a PA appears to be justified and more beneficial than handling projects individually. A summary of the findings for each case can be found in Table 2 below.

Table 2: Summary of ESA Section 7 PA Impact

	Kentucky	Oregon	Washington
PA Creation	Estimated \$43,000 and one calendar year	Estimated \$350,000 and two calendar years	Estimated to be over \$216,000 and two calendar years
Cost Savings	Estimated savings of \$150,000 from projects in last year alone	Estimated savings of approximately \$1.23 million over 18 months	Estimated total savings of \$103,000 annually for BA completion alone
Time Savings	Avoidance of seasonal tree cutting restrictions has led to shortened timelines	Review time has decreased from an average of 200 days to an average of 29 days	98% time savings for WSDOT biologists and generally shortened consultation timelines
Other Impacts	Improved environmental outcomes and reduction in consultant fees	Environmental streamlining and an expedited NMFS approval pathway	Predictability and efficiency that can be incorporated into project design and planning for an increase in upcoming work
Conclusion	Quantifiable benefits exceed costs	Quantifiable benefits exceed costs	Quantifiable and estimated non-quantifiable benefits exceed estimated costs

In addition to this finding, this analysis also determined several qualitative findings of note that were relevant for all three PAs. These findings are as follows:

- **Evolution of the PA:** In analyzing the origination of the PAs studied, a clear timeline is present in which the agreements are first developed and then either updated, amended, or completely

re-written and re-agreed upon. In some cases these changes can be built into the agreement, such as Kentucky building in rate changes and the automatic acceptance of new maps into the existing agreement; in other cases this maintenance is more expansive, such as Washington expanding their agreement to cover an increased amount of fish passage improvement projects. These trends demonstrate that a clear learning curve exists and that PAs are alterable documents that can be improved upon and refined over time.

- **Relationship Building:** In addition to establishing the agreement and working in conjunction with each other, agencies have found it effective to hold training sessions, conduct seminars, or hold informal meetings that are beneficial to all parties. These activities can be used to facilitate communication between agencies as well as to enhance cooperation. In the case of Oregon's training sessions, these activities can also be educational and used to convey the procedures that result from the PA.
- **Predictability:** A final qualitative trend that was evidenced in all cases was the enhanced level of predictability that the PAs offered. Prior to the PAs, there was inherent uncertainty regarding the status of certain projects and there were commonly discrepancies regarding how much time and labor would be required to complete the ESA Section 7 portion of each project. With the PA in place, agencies experienced an increased level of certainty and predictability, including knowing which mitigation measures would be required and incorporating them into the project scope and budget accordingly. As Washington noted, the PA provided increased predictability during the consultation process. This increased predictability allows for better planning and an overall increase in efficiency that is difficult to capture quantitatively.

Programmatic Approach Benefit-Cost Case Study: Clean Water Act/National Environmental Policy Act Merger Process

As part of the Every Day Counts (EDC) initiative, the Federal Highway Administration (FHWA) has promoted the use of Programmatic Approaches (PAs) which include programmatic agreements, in order to shorten project delivery times. Programmatic approaches establish a streamlined process for handling routine environmental requirements for commonly executed project types. Qualitative support for implementing National Environmental Policy Act (NEPA) / Clean Water Act (CWA) Section 404 merger processes PAs includes improving environmental protection, communication, and collaboration; however, limited quantitative reporting of these benefits exists. The purpose of this case study is to provide quantitative information on the benefits and costs resulting from certain existing PAs, centering specifically on time, labor, and administrative burden impacts. This case study highlights two unique NEPA / CWA 404 merger process programmatic approaches (PAs):

- *Statewide Implementation Agreement (SIA) for National Environmental Policy Act (NEPA) and Clean Water Act Section 404 Concurrent NEPA/404 Processes for Transportation Projects in Illinois*

- *Section 404 of the Clean Water Act and National Environmental Policy Act Integration Process for Surface Transportation Projects in North Carolina*

The following sections provide background information on NEPA/ CWA 404 PAs, describe the research methodology, and then individually evaluate the PAs by establishing a baseline and describing findings related to the benefits and costs of the approaches themselves.

Background

The Clean Water Act of 1972 “established the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.”⁴ The National Environmental Policy Act “requires federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.”⁵ As a result, when conducting transportation activities and projects, State Departments of Transportation (DOTs) and FHWA must work with the U.S. Army Corps of Engineers (USACE) in order to ensure that all NEPA and CWA Section 404 requirements are being met and appropriately coordinated.

Based on the large number of projects that State DOTs and the FHWA complete annually, a method was needed to streamline the consultation between those agencies, EPA, and the USACE. One successful method is the use of programmatic approaches which are designed to apply to multiple forthcoming projects. PAs have been promoted as part of the FHWA’s Every Day Counts (EDC) initiative with the intended impact of streamlining repetitive processes, helping organizations save time and money, and maintain appropriate consideration for the environment. Programmatic approaches provide benefits through these objectives by shortening project lags and reducing labor hours associated with NEPA and CWA Section 404 requirements. One method by which this is done is through a merger or synchronization process which aligns the requirements of both Acts to avoid any unnecessary delays.

According to the American Association of State Highway and Transportation Officials (AASHTO) Programmatic Agreements Library Database, there are a total of four active CWA Section 404 PAs within four states and 24 active NEPA PAs within 15 States, the majority of which relate to categorical exclusions. These existing approaches range from covering specific projects or types of projects to covering the entire State and a broad number of project types. These agreements typically involve clear guidelines on: (1) how to approach certain project types; and (2) the role of each agency under the programmatic approach.

Methodology

In order to identify the costs or benefits associated with each of the two NEPA / CWA 404 merger process cases, the Volpe Center researched various programmatic approaches and agreements, developed a set of key evaluable metrics, consulted with FHWA on a selection of case studies, and then

⁴ Summary of the Clean Water Act, Laws & Regulations. United States Environmental Protection Agency. Last updated 2/10/2014. <http://www2.epa.gov/laws-regulations/summary-clean-water-act>

⁵ National Environmental Policy Act (NEPA). U.S. Environmental Protection Agency. Last updated 7/22/2014. <http://www.epa.gov/compliance/nepa/>

created corresponding interview questions. The metrics identify the key areas of quantitative assessment, categories of potential benefits and costs, and the data elements that inform this analysis.

The Volpe Center discussed these questions with representatives of each selected Case Study State (the Illinois Department of Transportation and Illinois FHWA and the North Carolina Department of Transportation). Following the discussion, each State provided responses to the questions with available data and qualitative information.

A challenge presented by this data collection method is that both cases were retrospectively studied. Both agreements have been in place for an extended period of time. Therefore certain records, data points, and historical information are no longer available or known. As a result, the information is not comparable across both cases and, necessary variables were unobtainable because they were either not tracked from the onset of the PA or the records were lost or not maintained. This challenge had broad impacts but was exhibited most clearly within the establishment of the baseline and counterfactual.⁶

As noted, the PAs from the two cases had varied origins and timelines that span a number of years. Additionally they were designed to be specific to a particular subset of projects, requiring individual permits. These factors made establishing either a “before and after” comparison, or a concurrent baseline, particularly difficult. As a result, the Volpe Center managed data limitations when establishing the baseline for each case. In both cases, the baseline itself was primarily comprised of qualitative or anecdotal evidence.

Determining the metrics for evaluating the PA itself is, in some ways, easier than isolating the baseline. The two primary quantitative results of the PA are impacts on time and costs to State DOTs and other stakeholders. Generally, an increase in time and cost used to establish and maintain the PA lead to a larger decrease in time and costs spent on the projects that now fall under the PA. In terms of the cases described below, data was more readily available for quantifying the costs of the PAs, while information on benefits was either non-quantifiable or qualitative in nature. The sections below provide a detailed analysis of the two cases.

Illinois

Background

The Illinois Department of Transportation (IDOT) and the FHWA began developing their NEPA/404 merger process in the early 1990s and the process took several years to initiate. The first agreement was ratified in 1996 by the FHWA Illinois Division, IDOT, the USACE, the U.S. Fish and Wildlife Service (USFWS), the U.S. Environmental Protection Agency (USEPA), and the U.S. Coast Guard (USCG). The

⁶ The counterfactual is what would happen in the future, absent the proposed program or action. An assessment of benefit requires a counterfactual against which any changes resulting from a proposed regulation or program are measured. Baselines develop comparable measures for that counterfactual scenario.

agreement was formally updated in 2008. The merger process applies to projects that require an individual Section 404 permit and an Environmental Assessment or Environmental Impact Statement.

As stated in the agreement, the purpose of the merger process is to establish a system to coordinate the review among resource agencies of transportation projects that impact waters of the United States to:

- Expedite construction of necessary transportation projects, with benefits to mobility and the economy at large, and
- Enable more transportation projects to proceed on budget and on schedule, while
- Protecting and enhancing the chemical, physical, and biological integrity of the waters of the United States in Illinois.

The signatory agencies commit to:

- Considering the potential impacts to waters of the United States in Illinois at the earliest practicable time in the planning phase of project development;
- Avoiding adverse impacts to such waters to the extent practicable;
- Minimizing the mitigating unavoidable adverse impacts and for wetlands, striving to achieve a goal of no overall net loss of values and functions; and
- Pursuing interagency cooperation and consultation diligently throughout the integrated NEPA/404 process to ensure that the concerns of the signatory agencies are given timely and appropriate consideration and that those agencies are involved at key decision points in project development.

The resource agencies will also provide input on the adequacy of the avoidance, minimization, and mitigation analysis of the project alternatives.

The merger process consists of three concurrence points that must be individually agreed upon by all signatories for a particular project to proceed: 1) Purpose and Need, 2) Alternatives to be Carried Forward, and 3) Preferred Alternative. These points are discussed at tri-annual meetings involving the signatories mentioned above. Generally, concurrence is given at these meetings, but may also be given via email to FHWA. Occasionally, additional meetings are scheduled if expedited schedules require them. Meetings often involve other project specific participants. For example, at the September 2014 merger meeting, five projects were discussed. Besides FHWA and IDOT, agencies present were: the Chicago Department of Transportation (CDOT), the Illinois Department of Agriculture, the Illinois Department of Natural Resources (IDNR), the Illinois Historic Preservation Agency (IHPA), the Missouri Department of Transportation (MDOT), and the USACE, USCG, the USFWS, and project consultants. An immeasurable advantage to these meetings is that the agencies can benefit from hearing each other's questions and comments, leading to more comprehensive knowledge of the projects.

Discussion of Baseline

Isolating a baseline to compare Illinois' NEPA/404 merger process against is difficult because the process applies to a specific subset of projects requiring individual permits and has been in place for an extended period of time. As a result, there are no applicable concurrent projects to compare merger

process projects against, and there are no relevant data from projects that occurred prior to the establishment of the merger process.

Despite this, there is anecdotal evidence of how projects were conducted and completed prior to the merger process. Resource and regulatory agencies would meet with FHWA and IDOT to discuss individual projects; however, this was not done in a systematic coordinated manner, but in a sequential process that lacked efficiency. As a result, agencies did not have the same level of commitment to completing each project, which typically led to project delays. This lack of communication and commitment led to a desire for agencies to coordinate with each other both earlier in the process and in a more systematic, concurrent manner. This sped up the CWA Section 404 permit process and led to the overall merger process.

Analysis of PA

While refined over time, the current Illinois NEPA/404 merger process appears to be both efficient and effective. As described above, the process concurrence points are discussed at tri-annual meetings involving all relevant stakeholders. These meetings typically last one day and cover five to seven projects. In general, the merger process covers approximately 15 to 20 projects per year compared to the roughly 1,000 projects covered by IDOT overall.

Based on the nature of the merger process, and how it has evolved over time, it is difficult to quantify the costs that were required to establish the merger process. It is possible, however, to determine the commitment necessary to conduct each of the tri-annual meetings. The three types of costs required to conduct the merger process meetings include pre-meeting preparation, meeting day, and post-meeting follow-up. These costs are detailed as follows:

- **Pre-meeting preparation:** Costs are associated with preparing project materials for resource and regulatory agency review (typically a minimum of two cycles of review and comment).
 - FHWA will generally have two staff members per project review for a total of four hours each prior to a meeting. Assuming an average of five projects leads to a total of 20 hours. Assuming that the staff members are General Schedule (GS) Grade 13 Step 1 employees, they earn \$82,642 per year or \$39.73 per hour (\$82,642 divided by 8 hours a day, 22 work days per month, 12 months per year). This amounts to a total cost of approximately \$800 per meeting and \$2,400 per year. Additionally, FHWA will spend approximately five hours sending materials to resource and regulatory agencies and holding a conference call to discuss potential questions. Using the same GS-13 wage rate described above, this amounts to approximately \$200 per meeting and \$600 per year.
 - The length of time and cost for IDOT to prepare documents and for resource and regulatory agencies to review them is unknown. What is known is that for each projects there are typically 2 USEPA, 1 USACE representative, 1 USFWS representative, 1 IDNR representative, and 1 Illinois Department of Agriculture representative. There are also additional representatives from other agencies depending on the specific projects being discussed and its impacts.
- **Meeting Day:** Costs are associated with the time for each agency representative.

- FHWA will typically have two staff members for the day. Assuming five projects and one hour per project amounts to a total of 10 hours. Using the GS-13 wage rate described above, this equates to approximately \$400 per meeting and \$1,200 per year.
- Approximately ten to fifteen representatives from IDOT and their contracted consultants (roughly 2-3 per project) attend the meeting as well. However, costs based on the meeting time and wage rate of these representatives, as well as the representatives from other resource and regulatory agencies, are unknown.
- **Post-meeting follow-up:** Costs are associated with compiling and reviewing meeting proceedings and summaries.
 - FHWA spends approximately 3 hours compiling and finalizing the meeting proceedings and sending them to participants. Using the GS-13 wage rate described above, this equates to approximately \$120 per meeting and \$360 per year.
 - Additional costs based on the review time and wage rate of representatives from IDOT and other resource and regulatory agencies are unknown.

This totals to approximately \$4,500 annually plus the unknown time and costs needed from IDOT and the various resource and regulatory agencies to prepare for and participate in the meetings. Based on the assumed time commitments, it is possible to estimate a total overall annual cost of between \$9,000 and \$11,000.

The resulting benefits of this investment manifest themselves in several ways. The primary benefit is the fact that the concurrence points and repeated meetings lead to avoided costs and avoided complications when attempting to receive an individual CWA Section 404 permit. Questions that arise during the NEPA process and the merger process in general are addressed early on. As a result, when the Section 404 permitting stage begins, the answers are already available, streamlining the project process and leading to time and cost savings.

The merger process system also generates trust between agencies. By meeting three times per year, representatives are able to build a working relationship that develops over time. This facilitates communication, coordination, and ultimately leads to better outcomes. As a result, the merger process is particularly beneficial for addressing complex projects.

Based on these findings, the perceived and assumed non-quantifiable benefits of the merger process likely exceed the estimated initial investment and maintenance costs associated with its development and use.

North Carolina

Background

The North Carolina Department of Transportation (NCDOT) began to develop a process for addressing projects that were held up based on regulatory issues and receiving a CWA Section 404 permit. The

development began in the early 1990s and led to an official agreement signed in 1998. This agreement established various project milestones and alternatives that require concurrence from transportation, resource, and regulatory agencies. The merger process was redesigned in 2001 and various refinements have been made since then. The primary participants include FHWA, NCDOT, North Carolina Division of Coastal Management, North Carolina Division of Water Resources, and the USACE.

Typically any project requiring a USACE Individual Permit is processed through the NEPA/404 merger process. Through project screening, primary agencies can decide whether or not to complete a project through the process or to move forward with the project individually or “outside” of the process.

Discussion of Baseline

Similar to the Illinois merger process described above, it is difficult to adequately quantify a baseline for the North Carolina merger process based on the specificity of projects that apply to it and the length of time over which the process has evolved. However, there is anecdotal evidence from two projects that were pursued either prior to the merger process or individually without using the merger process. The description of this evidence is below.

- **Owen Drive Extension in Fayetteville, Cumberland County, NC**
 - An EA was prepared, followed by a finding of no significant Impact. Project design proceeded and right of way was acquired. NCDOT was then unable to obtain the Section 404 permit for the selected alternative due to a permit denial by the USACE regarding the wetland impacts.⁷ The EA had to be reevaluated for an alignment that met the LEDPA criteria for the USACE and other regulatory agencies. Therefore, unrecoverable costs associated with planning, designing, and buying a right of way corridor for a non-permissible alternative were lost.
 - The original EA was approved on March 10th, 1995. After the original finding of no significant impact and the permit denial mentioned above, the draft reevaluation was approved in June, 2001 and the reevaluation of finding of no significant impact was approved on June 27th, 2002. The project letting occurred on January 15th, 2005.
 - The cost for not developing this project through the NEPA/404 merger process amounted to approximately \$500,000 for reevaluating the planning and design work. Additional cost was incurred for purchasing right of way for an alignment that did not receive a 404 permit. The right of way purchase included the potentially unnecessary purchase of five properties.
- **NC 24 Improvements in Sampson County, NC**
 - A draft EIS was prepared which included several alternatives – all on a new location, with many impacts to high quality wetlands. The USACE and other regulatory agencies advised that none of these options were likely to receive needed permits. The draft EIS was then successfully revised through the NEPA/404 merger process. The project received all needed permits, moved forward, and is now under construction.

⁷ USACE Permit Denial: [http://www.sad.usace.army.mil/Portals/60/docs/regulatory/appeals/NCDOT%20\(1999-1232\).pdf](http://www.sad.usace.army.mil/Portals/60/docs/regulatory/appeals/NCDOT%20(1999-1232).pdf)

- The original draft EIS was completed in 1994. The project alternatives were then presented at a Corridor Public Hearing and a preferred alternative was identified. After this, resource agencies made it clear that needed permits for the preferred alternative were unlikely. The project was then revisited in the mid-2000s with the second draft EIS sent in May 2006, final EIS in March 2010, and the record of decision in September 2010.
- The cost for not developing this project through the NEPA/404 merger process, based on reevaluating the planning and design work for the draft EIS, initially amounted to approximately \$1.5 million.

Analysis of PA

NCDOT's NEPA/404 merger process was first developed through a series of team meetings between all relevant stakeholders. The interagency team consisted of 32 individuals at a seven day workshop. The cost for this workshop, including participant salaries and overhead costs, was approximately \$225,000. After the workshop was completed, there were additional costs for implementation teams to conduct work, approximately \$200,000, and to train employees, approximately \$150,000. Finally, since the 2001 redesign, there have been additional training and refinements that cost approximately \$200,000 total. These figures equate to a total initial and maintenance investment of approximately \$775,000 since 1998.

For the average project, the NEPA/404 merger process adds approximately \$300,000 for project development. These costs are related to meetings and other coordination required for resource and regulatory agency concurrence at various decision points. This also accounts for preliminary design and analysis of additional alternatives that may not have been included without the merger process. The merger process can be viewed as a project efficiency tool where decisions that are made early in the project development process will result in successful permit issuance later in the process. The merger process has incorporated approximately 100 projects since 2001, resulting in total project costs of approximately \$30 million and annual project costs of approximately \$2.3 million.

These costs result in benefits on several different levels, however, these benefits are difficult to quantify. While it is believed that on average the merger process results in time and cost savings, it is difficult to determine the magnitude of these savings. This is because it is not known which projects would have failed to receive a Section 404 permit, had the merger process not been in place. Had a project failed to receive a permit, it would have possibly resulted in years of delay and hundreds of thousands or millions of dollars in additional costs for major projects. However, no permits have been denied for projects under the merger process, justifying the use of this method. Along these lines, mitigation costs have been significantly reduced as a result of the merger process.

In addition to these potential time and cost savings, a valuable benefit of the merger process is an increased level of certainty that work will not need to be redone or revisited, since resource and regulatory agencies are engaged early on in the project development process. This has led to improved public perception as there has been a reduced chance that options shown to the public will be changed, increased certainty regarding project schedules and timelines, and improved quality of decisions and project design.

Based on these findings, the perceived and assumed non-quantifiable benefits of the merger process likely exceed the estimated initial investment and maintenance costs associated with its development and use.

Conclusion

Based on the analysis of these two cases, there are clear benefits for establishing a programmatic merger process for the National Environmental Policy and Clean Water Acts that outweigh the upfront and maintenance investment costs of the agreement. In both cases, the benefits of the agreement outweigh the costs. Additionally, in comparing these agreements to their respective baselines, in both cases the pursuit of a programmatic merger process appears to be justified and more beneficial than handling projects individually. A summary of the findings for each case can be found in Table 3 below.

Table 3: Summary of NEPA/404 Merger Process Impact

	Illinois	North Carolina
PA Creation	Merger process has evolved and been refined over a long period time. Cost estimates are unknown.	Total initial and refinement investment of approximately \$775,000.
Cost Savings	Annual investments of approximately \$10,000 lead to unquantifiable cost savings from avoided CWA Section 404 permit challenges.	Investments of approximately \$300,000 per project are viewed as an efficiency tool used to avoid costly Section 404 permit challenges.
Time Savings	Tri-annual meetings lead to avoided time lags and project delays by allowing the resource and regulatory agencies to engage early in process.	Merger process is believed to save years in project development by way of improved project coordination leading to early permit decisions.
Other Impacts	Increased coordination and communication leading to enhanced project outcomes.	Increased level of certainty regarding project timelines, improved public opinion, and improved project decisions.
Conclusion	The estimated, non-quantifiable benefits of costs avoided enhanced project outcomes and exceed the estimated cost and time commitment to implement the merger process.	The estimated, non-quantifiable benefits of costs avoided increase certainty and exceed the estimated cost and time commitment to implement the merger process.

In addition to this finding, this analysis also determined several qualitative findings of note that were relevant for both two PAs. These findings are as follows:

- Evolution of the PA:** In analyzing the origination of the two PAs studied, a clear timeline is present in which discussions and informal collaboration first occurred, and then the agreements were first developed. Over time, the agreements were then either updated or amended. For both Illinois and North Carolina, this development process has spanned over ten years and continues today. This trend demonstrates that a clear learning curve exists and that PAs are alterable documents that can be continuously improved upon and refined over time.

- **Relationship Building:** In addition to establishing the agreement and working in conjunction with each other, agencies have found it effective to hold formal or informal meetings that are beneficial to all parties. These activities can be used to facilitate communication between agencies as well as to enhance cooperation. In the case of Illinois’s tri-annual meetings, these activities can be used to fulfill the purpose of the PA as well as intrinsically enhance its effectiveness.
- **Predictability:** A final qualitative trend apparent in both cases is the enhanced level of predictability that the PAs offered. Prior to the merger process, there was inherent uncertainty regarding the status of certain projects and there are often discrepancies regarding how much time and labor would be required to complete the NEPA/404 portions of each project. This uncertainty manifested itself most significantly when expenditures were lost, such as in the case of North Carolina’s Owen Drive Extension project. With the merger process in place, agencies experienced an increased level of certainty and predictability. As North Carolina DOT noted, the merger process increased certainty by serving as a form of efficiency tool. This increased predictability allows for better planning, an overall increase in efficacy, and avoided costs or expenditures that are difficult to capture quantitatively.

Programmatic Approach Benefit-Cost Case Study: National Historic Preservation Act Section 106

As part of the Every Day Counts (EDC) initiative, the Federal Highway Administration (FHWA) has promoted the use of Programmatic Approaches (PAs), which include programmatic agreements, in order to shorten project delivery times. Specifically, programmatic approaches establish a streamlined process for handling routine environmental requirements for commonly executed project types. Qualitative support for implementing National Historic Preservation (NHPA) Section 106 PAs includes improving cultural resource protection, communication, and collaboration; however, limited quantitative reporting of these benefits exists. The purpose of this case study is to provide quantitative information on the benefits and costs resulting from certain existing PAs, centering specifically on time, labor, and administrative burden impacts. This case study highlights two unique NHPA Section 106 programmatic approaches (PAs):

- *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California*
- *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the Ohio Historical Society, State Historic Preservation Office, and the State of Ohio, Department of Transportation Regarding Implementation of the Federal-Aid Highway Program in Ohio (Agreement No. 12642)*

The following sections provide background information on Section 106 PAs, describe the research methodology, and then individually evaluate the PAs by establishing a baseline and describing findings related to the benefits and costs of the approaches themselves.

Background

The National Historic Preservation Act of 1966 “established the framework that focused local, State and national efforts on a common goal – preserving the historic fabric of our nation.”⁸ To that end, Section 106 of the NHPA requires Federal agencies to “take into account” the effects of their actions on “historic properties” which may be historic or pre-contact resources listed on or eligible for listing in the National Register of Historic Places. Among other things, the act created the Advisory Council on Historic Preservation,⁹ and established State Historic Preservation Offices (SHPOs) for each state. In amendments to the NHPA in 1992, Tribal Historic Preservation Offices (THPO) were established to assist federally recognized Indian tribes in preserving their particular historic properties. The NHPA directed the ACHP to promulgate regulations (36 CFR Part 800) which established the process for Federal agencies to meet their responsibilities under Section 106 of the act. The resulting process, commonly referred to as the Section 106 process, requires Federal agencies to work with the SHPOs, THPOs, the Advisory Council on Historic Preservation, and other relevant stakeholders, including state DOTs for FHWA funded projects, in order to meet the Section 106 requirements.

Based on the large number of projects that State DOTs and the FHWA complete annually, a method was desired to streamline the consultation among agencies. One successful method is the use of programmatic agreements which are designed to apply to multiple forthcoming projects. PAs of various types have been promoted as part of the FHWA’s Every Day Counts (EDC) initiative with the intended impact of streamlining repetitive processes, helping organizations save time and money, and maintaining appropriate consideration for the environment and historic properties. Section 106 PAs provide benefits toward these objectives by shortening project lags and reducing labor hours associated with historic preservation and cultural resource requirements.

According to the American Association of State Highway and Transportation Officials (AASHTO) Programmatic Agreements Library Database, there are a total of 23 active NHPA Section 106 PAs within 18 States. These agreements range from covering specific project types or types of resources, to covering minor projects across an entire State. Additionally, some agreements may address coordination with specific tribes. These agreements typically involve clear steps for: (1) how to approach certain project types; and (2) the roles and responsibilities of each agency or other participants in meeting the Section 106 requirements. One approach commonly included is through limiting the SHPO review requirements for routine projects.

⁸ 40th Anniversary, National Historic Preservation Act. National Park Service, U.S. Department of the Interior. <http://www.nps.gov/history/40th/>

⁹ Ibid.

Methodology

In order to identify the costs or benefits associated with Section 106 PAs, the Volpe Center researched various programmatic agreements, developed a set of key evaluable metrics, consulted with FHWA on selecting cases for further analysis, and then created corresponding interview questions. The metrics identify the key areas of quantitative assessment, categories of potential benefits and costs, and the data elements that inform this analysis.

The Volpe Center discussed these questions with representatives of each selected Case Study State. Following the discussion, each State provided responses to the questions with data and qualitative information. Specifically, States provided relevant data related to tracking projects. In California's case this was in the form of annual and biennial assessments and in Ohio's case this was in the form of on-time performance reports and annual project reviews. In both cases these reports informed the analysis. A challenge presented by this data collection method is that all cases were retroactively studied. As a result, the information is not comparable across all cases and, in some instances, variables were not available because they were not tracked from the onset of the PA. This challenge is exhibited most clearly within the establishment of the baseline and counterfactual.¹⁰

The PAs from the two cases had varied origins and timelines that span a number of years. Additionally, they were designed to be broad enough to address all projects that could have impacts on historic properties. These factors made establishing either a "before and after" comparison, or a concurrent baseline, particularly difficult. As a result, the Volpe Center managed data limitations when establishing the baseline for each case.

In some ways, evaluating the PA itself is easier than isolating the baseline. The two primary quantitative results of the PA are impacts on time and costs to State DOTs and other stakeholders. Generally, an increase in time and cost used to establish and maintain the PA lead to a larger decrease in time and costs spent on the projects that fall under the PA. Each section below provides a detailed analysis of the two cases studied.

California

Background

The Section 106 PA in California was originally implemented on January 1, 2004 as a joint agreement between the FHWA, the Advisory Council on Historic Preservation, the California SHPO, and Caltrans. The PA intended to streamline the process of conducting environmental analysis in developing Federal-aid highway projects that have the potential to impact historic and archeological resources. Notably, the PA does not apply on Tribal lands. The agreement took approximately three and a half years to establish. It was renewed on January 1, 2014 with minimal amendments to clarify the process.

¹⁰ The counterfactual is what would happen in the future, absent the proposed program or action. An assessment of benefit requires a counterfactual against which any changes resulting from a proposed regulation or program are measured. Baselines develop comparable measures for that counterfactual scenario.

Before the implementation of the PA, all projects were reviewed by the California SHPO to assess the degree that the project would impact historic properties and concur with the agency's determination. In the majority of cases under the PA, however, this review is no longer necessary. Caltrans Professionally Qualified Staff (PQS) are certified by the Cultural Studies Office (CSO) and are able to determine the extent of project impacts without SHPO concurrence. This allows Caltrans staff to "screen out" projects with negligible impacts, eliminating the need for SHPO to review each project individually. While some projects with large impacts still need to be sent for review, the ability to screen out less complex projects has cut time and project costs significantly.

The PA affected and streamlined major areas of the process for reviewing impacts to historic properties. These areas included the delegation of responsibilities to Caltrans PQS, the elimination or reduced review times required by the California SHPO and FHWA, and the definition of properties that could be screened out of additional agencies' review. In the two year period of 2011-2013, 2,539 projects requiring Section 106 clearance were completed, 2,341 were screened out, and only 195 required California SHPO review.

Discussion of Baseline

Isolating a baseline to compare the effectiveness of the Caltrans Section 106 PA is difficult because the agreement has been in place for over ten years and has evolved over that time. While there is limited cost data relating to projects from prior to the PA, the time requirements are clear. Prior to the implementation of the PA, each action within the project process (setting the area of potential effects, determining the survey effort, evaluating historic properties, and determining effect findings), required a 30 day review by the California SHPO. This amounts to a total review time of approximately 120 days. In addition to this requirement, prior to the PA all archeological sites required subsurface testing, which would take approximately three months to a year to complete depending on the project.

These baseline requirements highlight the fact that all project work and proper documentation still needs to be completed. It is simply the process, notably the consultation with the California SHPO, which has been streamlined.

Analysis of PA

The time and cost to establish the original PA is unclear. While the agreement was developed over the course of approximately three to four years, the amount of time and resources expended are unknown. The updated version established in 2014 clarified the roles of each member agency and was a significantly smaller undertaking.

In order to maintain the PA there are a number of meetings and reports that occur on a regular basis. These include quarterly meetings between the districts, the CSO and the California SHPO, quarterly district consistency reviews by the CSO, monthly meetings between Caltrans and the SHPO, monthly CSO review and approval of "No Adverse Effect without Standard Conditions" reports. In addition, there are costs related to training of new Caltrans staff as PQS.

California averages approximately 1,285 projects per year. The ability to screen out some of these projects from further review (on average 1,065 or 83%) and the reduction of review times has reduced the time and resource costs significantly. From 2004-2013, the time saved from screening projects averaged 45.5 labor hours per project. Based on the fact that Caltrans completes over 1,000 projects per year, this amounts to tens of thousands of hours saved. Within this average saving, specifically from 2005-2006, screening out 796 of 959 projects for Section 106 effect determination findings led to saving an estimated 49,966 total labor hours. At the average salary earned by an Associate Environmental Planner Archeologist or Architectural Historian, this saved approximately \$1.6 million over the two year period and \$800,000 annually.

On average, 143 projects go on to the California SHPO for review annually. For these projects, review times were greatly reduced and, in some cases, eliminated entirely. In total, project review was reduced from approximately 120 days prior to the PA to 30 to 60 days depending on the effect finding. This allowed for a quicker project turnaround time.

From 2006-2007, by reducing the review time on effects finding, Caltrans saved approximately 8,376 hours or an average of 54.4 hours per project. The 2005-2006 study finds a time savings of 10.19 hours per project. This difference is likely based on variability of project complexity and reporting discrepancies.

Prior to the PA, Caltrans Districts submitted compliance documents to the FHWA who performed their own review, then forwarded documents to the California SHPO. Given limited staffing at FHWA, reviews could take 3-6 months. The 2004 PA streamlined the process and permitted Caltrans Districts to consult directly with SHPO on the eligibility of historic properties. Districts still consulted with FHWA on No Adverse Effect and Adverse Effect findings. In 2007, Caltrans assumed FHWA responsibility for Section 106 of the NHPA for most federally-funded highway projects, pursuant to sections 6004 and 6005 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). With that assumption, CSO took over the role of FHWA with resulting time savings of 30 to 120 days depending on the complexity of the issues.

Further time savings of 30 to 60 days occurs by delegating Area of Potential Effects (APE) mapping to Caltrans PQS. Finally, there is an additional time savings by allowing archeological sites to be exempt from subsurface testing by classifying these sites as Environmentally Sensitive Areas (ESA), thereby eliminating the need for testing by putting these areas off-limits to the project. As noted above, this process took approximately three months to one year prior to implementing the agreement.

The PA effectively streamlines projects and reduces time and resource costs, allowing the state to handle more projects without creating a backlog of unfinished work. In this way, the state can focus its time on more complex and high priority projects. Additional benefits of streamlining the process include increasing the speed of initiating projects in times of emergency such as damage caused to roadway by an act of nature and the consolidation of authority involved in approving projects.

While the costs to establish and maintain the agreement are unknown, the PA clearly streamlines and expedites processes resulting in clear and significant time and cost savings.

Background

The Ohio Department of Transportation (ODOT) first developed a Section 106 Memorandum of Understanding (MOU) in 2001. Signatories to this “Minor Projects” MOU were ODOT, FHWA, and the Ohio State Historic Preservation Office (SHPO). The MOU covered “exempt” projects included in the version of the Programmatic Categorical Exclusion Agreement (CE PA) that was in place at that time and allowed ODOT Districts to have parallel approval authority for the same actions under both NEPA and Section 106. These project types are c-listed CEs in 23 CFR 771.117 and could be processed under 36 CFR 800.3 for cultural resources. In 2003, the MOU was revised to include items that had been added to the CE PA “exempt” list. The MOU was revised again in 2005; however, in that instance the revisions were relatively minor. Throughout this time, the signatories on the MOU remained the same.

In 1998, prior to any formal Section 106 MOU or PA, a funding agreement was developed between ODOT and the Ohio SHPO. This agreement provided for funding two review positions at the Ohio SHPO; one for history/architecture and one for archaeology. These positions were designed to ensure the Ohio SHPO’s timely participation in the Section 106 process in accordance with the agreement and to streamline the consultation process. The positions, funded by ODOT, are dedicated to the review and processing of ODOT projects. This measure has resulted in a collaborative Section 106 consultation process between the two agencies.

In 2006, the first official PA was signed between FHWA, the Advisory Council on Historic Preservation (ACHP), Ohio SHPO, and ODOT. One major aspect of the revision was that the PA specifically stipulated the funding of the two liaison positions at the Ohio SHPO. The 2005 MOU was formally cancelled once the 2006 PA was executed. The 2006 PA was the first agreement to include the ACHP as a signatory.

The PA was most recently revised in 2011. The signatories for the 2011 agreement remained FHWA, ACHP, Ohio SHPO, and ODOT. As before, while FHWA retains responsibility for compliance with Section 106 of the NHPA and the requirements of the agreement, they delegate the authority to complete certain tasks on their behalf to ODOT-Office of Environmental Services (OES). These include: determination that an undertaking exists, determination of the APE, determination of the National Register eligibility of properties in the APE, determination of effect, interpretation of the Secretary of Interior’s Archaeology and Historic Preservation guidelines, determination of historic property boundaries, and conformance with the Ohio SHPO’s *Archaeology Guidelines* (1994) and ODOT’s Cultural Resources Manual. FHWA remains responsible for all findings and determinations under the agreement including consultation with federally recognized Indian tribes, notification of adverse effect to the ACHP and Secretary of Interior, and dispute resolution. In January 2015, signatories will begin working on revising the Section 106 PA based on pending changes to the CE PA, which are anticipated to go into effect in early 2015.

Overall, ODOT completes approximately 1,000 projects per year. Of these, approximately 500 to 600 are processed through the cultural resources section at ODOT-OES and a subset of these, roughly 200 to 300, required formal or informal review by the Ohio SHPO based on the Section 106 PA.

Discussion of Baseline

Isolating a baseline to compare ODOT's Section 106 PA against is difficult because the agreement has been in place and evolving over an extended period of time. However, some broad information is available from that timeframe that is useful for comparative purposes. In the early 2000's ODOT was spending approximately \$2.5 million annually on historic preservation activities. Additionally, the review process for individual projects spanned, in general, six months to one year. This large sum and lengthy timeframe led to, and in some ways necessitated, the decision to work with the Ohio SHPO to change how business was conducted. By developing and refining the funding agreement, both agencies felt there was potential for enhancing project outcomes and increasing project efficiency long term.

Analysis of PA

As the PA evolved over time, it is difficult to assess the precise cost of the agreement. Since the framework was largely in place, establishing the second PA in 2011 was largely a matter of updating the details and further streamlining the first PA. Additionally, both PAs were designed to be consistent with the Categorical Exclusion PA that ODOT had with FHWA, so establishing these agreements was done based on and in conjunction with that effort.

In order to establish both the 2006 and 2011 PAs, three to four representatives from ODOT, one representative from FHWA, and two to three representatives from the Ohio SHPO worked together as a team. Establishing the agreements took approximately 18 months each. During that time, staff members spent a total of roughly one month each working on the effort. Information on wages and the related costs of establishing the PA are unavailable.

As noted in the discussion of the baseline above, ODOT was spending approximately \$2.5 million annually on historic preservation activities and project review timeframes spanned approximately six months to one year for each project. With the PA in place in the mid-2000s, spending dropped to under \$1 million annually and timeframes shortened to approximately two weeks to one month. Time savings are also generated by the fact that less complex projects are now handled under the PA within ODOT, and do not need to be reviewed by the Ohio SHPO. As a result, 75% of projects can now be cleared within one day of receiving them, which allows for others at FHWA, ODOT, and the Ohio SHPO to focus on more complex projects that have larger impacts.

Because of the PA, Section 106 review is no longer viewed as a critical path issue for any ODOT projects, meaning fulfilling Section 106 requirements has been eliminated as a source of project delay.

As mentioned above, there are two unique aspects of ODOT's PA that include the following:

- The PA is consistent in nature with the Categorical Exclusion programmatic agreement. This has the benefit of being familiar to users in the districts and various consultants and allowing for low level actions to be consistent across agreements, where possible.

- The PA includes a funding agreement for two liaisons. These liaisons focus on two broad subject matters, archaeology and history/architecture and work on projects accordingly.

These factors contribute to the effectiveness of the PA and the coordination between ODOT with the Ohio SHPO. Importantly, developing the relationship between these two particular agencies has enhanced project outcomes within the PA and has been critical to its overall success. One example of this is the fact that ODOT has been willing to invest in other initiatives lead by the Ohio SHPO in order to further build the relationship between the two agencies and develop mutual support moving forward. This has been done specifically on projects that improve the GIS database. Finally, specific to the PA, all agreement signees meet yearly in order to summarize and review what occurred over the course of the previous year and to determine goals moving forward.

While the costs to establish and maintain the agreement are unknown, the PA had led to a significant reduction in spending levels and proven to be beneficial.

Conclusion

Based on the analysis of these two cases, there are clear benefits for establishing a Section 106 programmatic agreement. These benefits outweigh the upfront and maintenance investment costs of the agreement. Additionally, in comparing these agreements to their respective baselines, in all cases the pursuit of a PA appears to be justified and more beneficial than handling projects individually. A summary of the findings for both cases can be found in Table 4 below.

Table 4: Summary of NHPA Section 106 PA Impact

	California	Ohio
PA Creation	The original agreement was negotiated over approximately three and a half years. Precise costs estimates are unknown.	Coordination process evolved and has been refined over a long period of time. Precise cost estimates are unknown.
Cost Savings	Annual benefits in the form of redirected staff of approximately \$800,000 from 2005 to 2006. Unquantified annual benefits expected to be similar from 2007 to 2013.	Annual savings of over \$1.5 million compared to early 2000 spending levels.
Time Savings	Review times were reduced by approximately 45 labor hours, per project, over the ten year period of the agreement (in total, tens of thousands of hours saved).	Review times ranged from 6 month to a year and were reduced to two weeks to a month, per project, on average.
Other Impacts	Faster project turnaround, an increased ability to focus on complex projects, and increased schedule predictability.	Improved coordination between agencies and increased predictability regarding project timelines.
Conclusion	The estimated and non-quantifiable benefits exceed the estimated cost required to implement and refine the agreement.	The estimated and non-quantifiable benefits exceed the estimated cost required to implement and refine the agreement.

In addition to this finding, this analysis also determined several qualitative findings of note that were relevant for the two PAs. These findings are as follows:

- Evolution of the PA:** In analyzing the origination of the two PAs studied, a clear timeline is present in which discussions and informal collaboration first occurred, and then the agreements were first developed. Over time, the agreements were then either updated or amended. For Ohio, this development process has spanned over ten years and continues today. This trend demonstrates that a clear learning curve exists and that PAs are alterable documents that can be continuously improved upon and refined over time.
- Relationship Building:** In addition to establishing the agreement and working in conjunction with each other, agencies have found it effective to hold formal or informal meetings that are beneficial to all parties. These activities can be used to facilitate communication between agencies as well as to enhance cooperation. In the case of California’s quarterly and monthly meetings, conducting status updates and consistency reviews can be used to fulfill the purpose of the PA as well as intrinsically enhance its effectiveness.
- Improved Outcomes:** In both cases, implementing the PA led to improved and enhanced outcomes. By streamlining the process and eliminating confusion and unnecessary obstacles, cultural resources were effectively and efficiently protected. This was magnified by the increased ability of both California and Ohio to focus attention on and improve the result of complex projects. While unquantifiable, this is an important impact in terms of fulfilling Section 106 requirements.