

Transportation for Communities

Advancing Projects through Partnerships

OCTOBER 2013

Because many interests with diverse points of view and goals are represented in the process of planning and delivering highway capacity, finding the most appropriate solutions is inherently difficult. Transportation for Communities—Advancing Projects through Partnerships, or TCAPP, is a web-based resource for planning, programming, and developing highway capacity enhancement projects that may range from operational improvements to widening to new construction.¹ Available at www.transportationforcommunities.com, TCAPP provides a systematic approach for bringing multiple partners and stakeholders to the table to integrate environmental, economic, freight, financial, smart growth, operational, and community concerns. Systematic collaboration can facilitate the planning of capacity enhancement projects, pleasing stakeholders and accelerating the planning process. But failure to address the needs of key stakeholders can result in redo loops, delays, lawsuits, cost escalations, public opposition, and even project derailment.

TCAPP is meant to be used by transportation practitioners, environmental resource specialists, and stakeholders to improve how they lead, participate in, and inform transportation decision making. At its core, TCAPP offers a basic decision support system for planning, programming, and project development activities by providing information that practitioners need. TCAPP clarifies the decision-making process, which can be quite complex, by identifying data and tools to support all the key decisions. It can be used as a trouble-shooting guide or as a roadmap to a changing process.

TCAPP provides knowledge and tools to support collaboration among all partners, including resource agencies and transportation agencies. It was built by practitioners, for practitioners. TCAPP describes key decisions in the transportation decision-making process and the information needed to support collaboration.

TCAPP was initially built as part of SHRP 2 Project C01 in A Framework for Collaborative Decision Making on Additions to Highway Capacity. Over time the results of several other SHRP 2 projects were incorporated into TCAPP, and it was additionally refined based on the results of pilot tests.

Case Studies

TCAPP is built around data collected from 23 case studies of innovative and collaborative practice in several different types of projects, which range from a simple bridge reconstruction to a full corridor-wide planning program. Created in SHRP 2 Project C01, these case studies examine real-world practices, pitfalls, and lessons learned from notable success stories of delivering highway

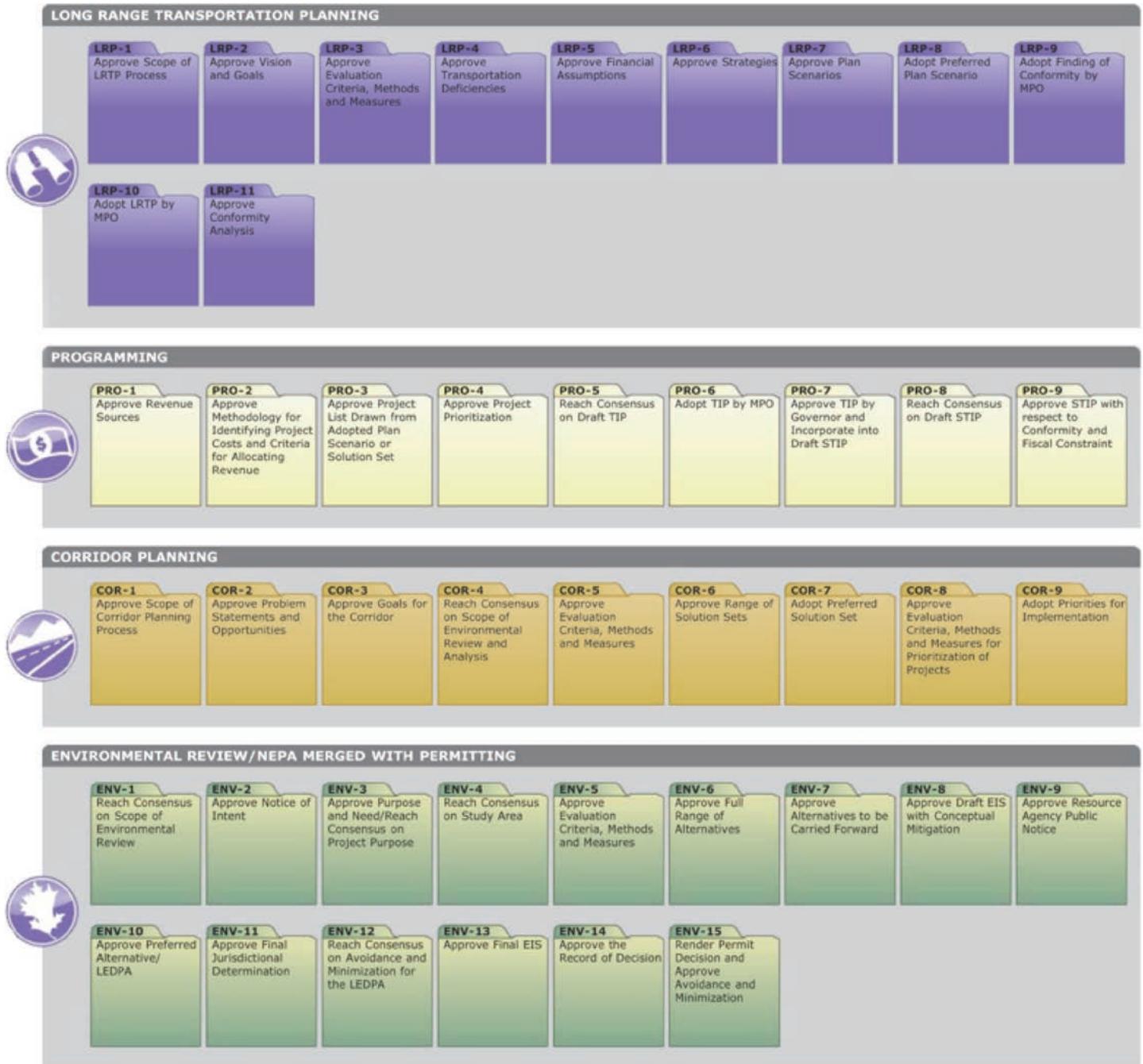
¹ The name TCAPP will change once revisions to the beta version of the web tool have been made by FHWA and an updated version is rolled out in 2014.

capacity projects. The case studies from C01 are available in the library section of TCAPP, along with case studies from other relevant SHRP 2 research projects. Data from the case studies were used along with a series of facilitated workshops with transportation professionals from the Federal Highway Administration (FHWA), state transportation agencies, metropolitan planning organizations (MPOs), resource agencies, and stakeholder representatives to create the Decision Guide—the underlying framework of TCAPP.

The Decision Guide

The Decision Guide is the foundation of TCAPP. It represents the key decisions in the transportation planning, programming, and project-development process and the data required to support collaboration. Key decisions are those that need consensus among decision makers, need approval from a higher level of authority, or are required by law or regulation. The Decision Guide can help transpor-

The Decision Guide 44 Key Decisions that Span the Four Phases of Transportation Decision Making



tation planners and resource specialists understand what information is needed at each key decision, how that information is used, and how the decisions can have an impact. TCAPP identifies and describes the roles of all participants and stakeholders at each key decision. The guide consists of 44 key decision points that span the four phases of transportation decision making: long-range planning, corridor planning, programming, and environmental review and permitting. The Decision Guide is a description of current practice, which was developed through five, week-long workshops and subsequently reviewed by SHRP 2's Capacity Technical Coordinating Committee.

The Decision Guide organizes key decision details in file folders. Clicking on one of these folders reveals the key decision details. These details provide the pertinent information at each key decision, and they are based on known successful practices. The Decision Guide can be used to compare the specifics of an agency's existing process to this information in order to see what could be changed to enhance collaboration.

Stakeholder Portal

Even though they are not formal decision makers, stakeholders have a large role in transportation decision making—they can propel a project forward or stop it dead in its tracks. The Stakeholder Portal provides access to all of the information available on TCAPP about collaborating with stakeholders. TCAPP defines a stakeholder as a person or group that may be affected by a transportation plan, program, or project. Stakeholders can include government agencies that are not decision-making partners, formal advocacy groups, and informal groups that come together during transportation decision making. The stakeholder portal includes a stakeholder collaboration assessment, which reflects how an agency addresses the viewpoints of those who do not have decision-making authority, but have an interest in the outcome; and a stakeholder collaboration application, which focuses on how transportation key decisions are informed by stakeholder collaboration and why it is important. The features of the stakeholder portal are useful for both transportation practitioners hoping to improve stakeholder collaboration and for stakeholders who want to increase their understanding of transportation decision making and improve their ability to communicate effectively.

Partner Portal

Partners are agencies that must agree to key decisions in order for a project to move forward. Each partner has a set of specific interests that guides their involvement in transportation decision making—some are shared by all part-

ners, while others relate to the agency's specific mission and authority. In order to collaborate, it is essential that each agency understand what other partners care about. Because each partner has the power to block the transportation decision-making process, partner collaboration is essential to making decisions that stick. The Partner Portal provides information that can help partners understand when it is most important for them to engage in the transportation decision-making process and the types of information they should provide. The Decision Guide is based on the collaboration of the primary partners in transportation decision making—FHWA, state transportation agencies, MPOs, and resource agencies. It offers a unique perspective by demonstrating that each partner is engaged at almost every key decision, but that the exact role for each partner changes from key decision to key decision.

Assessments

In general, assessments are meant to help overcome existing problems in transportation decision making or to guide the design of an approach to transportation decision making that will avoid problems. Assessments can help users identify barriers to successful project and plan development, and find strategies for overcoming those barriers. TCAPP offers three assessments: Partner Collaboration, Stakeholder Collaboration, and Expediting Project Delivery. These assessments help prioritize weak areas and offer strategies to improve the process or overcome a barrier.

Transportation plans and projects are at risk when collaboration is missing or ineffective. The Partner Collaboration Assessment is intended to pinpoint where process or team dynamics are not supportive of collaboration among key decision makers.

The Stakeholder Collaboration Assessment reflects the viewpoints of those who do not have decision-making authority, but clearly have an interest in the outcome. It is useful for transportation practitioners who hope to improve stakeholder collaboration or as a self-assessment by stakeholders who want to increase their understanding and improve their ability to communicate effectively.

Projects can be delayed or expedited in every phase of project delivery. The Expediting Project Delivery Assessment helps to streamline project delivery by identifying constraints to expediting project delivery and providing mitigation strategies for those constraints. This assessment can help transportation agencies conduct an efficient planning and project delivery process without sacrificing broad-based support for the outcome, and it is applicable to all phases of transportation planning. This tool is based on the results of *Expedited Planning and Environmental Review of Highway Projects* (SHRP 2 Project C19). The objective of

this project was to identify, describe, and evaluate effective tools and techniques for expediting the delivery of transportation projects.

Applications

Applications can be used to show how certain concerns and interests relate to specific key decisions. Applications indicate what steps need to be taken at key decisions to achieve a desired outcome. TCAPP organizes the applications into three categories:

- Phase applications, which can be used by all partners and stakeholders of transportation decision making for better understanding of the process and the key decisions.
- Special topics applications, which are most relevant to transportation practitioners who are leading or carrying out the decision-making process. Users turn to these applications for help incorporating a specific strategy or approach in the decision-making process.
- Integrated planning applications, which can be used by transportation practitioners who are leading or carrying out the decision-making process to identify what information is needed from technical processes to inform each key decision. These applications can also be used by resource specialists and stakeholders to understand when and how their process informs transportation decisions.

Phase Applications

TCAPP has four phase applications: Long-Range Transportation Planning, Integrated Programming and Fiscal Constraint, Corridor Planning Studies, and Environmental Review Merged with Permitting.

The Long-Range Transportation Planning Application can assist transportation planners by identifying how to increase collaboration at specific key decisions, as well as when and how to use long-range planning information as the starting point for corridor planning or environmental review.

Programming is the process through which a transportation improvement plan is funded and included in a transportation improvement program. The Integrated Programming and Fiscal Constraint application links fiscal constraint with project programming, which can result in the sharing and coordinating of information and decisions.

Corridor planning studies the concepts and solutions for individual corridors or small areas within a region, which helps lead to the selection of a preferred concept. The

Corridor Planning Studies application can be used in urban or rural areas, and may precede the programming process.

The environmental review merged with permitting phase represents the regulatory process that encompasses the actions required under the National Environmental Policy Act (NEPA), the Clean Water Act, the Endangered Species Act, and other various federal regulations. The TCAPP phase application for this process provides information on the ways that collaboration can be incorporated at specific points or key decisions within the environmental review process, including links to relevant case studies and links between these decisions and those in the other three phases of transportation decision making.

Performance Measures Application

Performance measures are a valuable tool for building consistency, transparency, and accountability into the transportation decision-making process. Performance measures can be used within a decision-making process as evaluation criteria. After completion of a plan or process, performance measures provide a way to monitor the effectiveness of implementing solutions. This application in TCAPP can assist decision makers in determining how and when to use performance measures, and to provide guidance on the types of measures that could be used. Several key decisions are directly related to the selection of appropriate performance measures. Performance measures can also be used as an analysis tool that informs the decision-making process at several points.

The content for the performance measures application came from two SHRP 2 projects: A Systems-Based Performance Measurement Framework for Highway Capacity Decision Making (Project C02) and Incorporating Reliability Performance Measures into the Transportation Planning and Programming Processes (Project L05). Project C02 identified 17 performance factors under 5 broad areas of performance: transportation, environment, economics, community, and cost. This project also developed the Performance Measurement Framework for Highway Capacity Decision Making, which is accessible through TCAPP. Project L05 developed guidance for transportation agencies to incorporate travel time reliability into the transportation planning and programming processes. TCAPP shows how reliability performance measures relate to three of the four decision-making phases—long-range planning, corridor planning, and environmental review.

Visioning and Transportation

Visioning is a planning and policy exercise that engages community stakeholders to create a consensus about the future of their community. Visions describe the desired

futures of communities and outline clear strategies for reaching those futures, based on present conditions and anticipated future trends. *Linking Community Visioning and Highway Capacity Planning* (Project C08) developed T-VIZ, a visioning activity framework that provides guidance for how transportation practitioners can participate in broad-based community visioning. This product, which is accessible through TCAPP, can be used with TCAPP to help practitioners engage in visioning to support transportation planning. T-VIZ identifies the visioning elements that are applicable to transportation, and TCAPP links these elements to specific key decisions during the four phases of transportation decision making.

Public-Private Partnerships

Public-private partnerships (P3s) are contractual agreements between public agencies and private entities that allow for greater private-sector responsibility in the design, delivery, financing, operation, and maintenance of transportation improvements than traditional design-bid-build procurements. P3 options range from design-build procurements—where design and construction services are bundled in a single, fixed-price agreement—to concessions—where a private investor or operator is responsible for financing, designing, constructing, operating, and maintaining new highway projects in exchange for the right to collect toll proceeds or to receive period availability payments for the duration of the concession period.

The Effect of Public-Private Partnerships and Non-Traditional Procurement Processes on Highway Planning, Environmental Review, and Collaborative Decision Making (SHRP 2 Project C12) studied P3s to determine when and how P3 procurements can best be considered during the transportation decision-making process. The Public-Private Partnerships application in TCAPP used the results of Project C12 to provide three areas of information that can support the application of P3s: 1) Partnership Options, which describes options for involving P3s before, during, and after the NEPA process; 2) P3s and the Decision Guide, which identifies which key decisions can support the integration of P3s; and 3) Innovative Financing, which describes how financial resources made available by P3s may free up traditional funding to be applied to other projects.

Streamlining a Bottleneck Project

When decision-making partners support the need for an improvement project and have the right data analysis to advance this need, project streamlining can occur. Bottleneck improvements address a confined problem area where the existing design or operation of a road or bridge limits traffic flow, resulting in congestion. The Streamlining a

Bottleneck Project application, which is based in part on the results of SHRP 2 Project C19, can help avoid the problems that may arise when trying to streamline a bottleneck. It can be used to highlight the key decisions in long-range planning, environmental review, and programming where communication between plan and project teams should be initiated and consistency checks should be made. This application can help move a bottleneck project from the very early steps of long-range planning directly into environmental review.

Linking MPO Planning and NEPA

Linking MPO planning with the NEPA process allows projects to advance quickly by building on existing decisions and taking advantage of prior work, which reduces redundancy in decision making. When NEPA practitioners and planners collaborate to successfully integrate the products from long-range planning into the consideration of project alternatives, project development is more efficient, programming is more realistic, and early protection of the environment is possible. This application identifies the data, analysis, and decisions that transfer between the process, as well as the individual key decisions that they support.

Stakeholder Collaboration

When stakeholders are not involved in collaborative transportation decision making, there is an increased risk that the best decisions will not be made and, ultimately, the improvements will be slowed or stopped. Conversely, transportation decisions often exhibit breakthroughs when decision makers engage collaboratively with those outside the process who are interested in and affected by the outcome. The Stakeholder Collaboration application identifies the points in the decision-making process where there should be a flow of information between decision makers and stakeholders. It also identifies questions that decision makers should ask to gather information from stakeholders and questions to incorporate their interests.

Capital Improvements

Capital improvement planning identifies and prioritizes investments for local infrastructure—including utilities, sidewalks and bike ways, schools, transit capital, and locally funded roads. The primary benefit of integrating capital improvement plans with transportation decision making is the sharing of information between the two processes. This information sharing occurs at multiple key decisions in long-range planning, corridor planning, and environmental review. The Capital Improvement application provides detailed information on the individual key decisions at which these processes are integrated.

Safety and Security

Safety and security are high priorities for all transportation agencies. TCAPP shows how these concerns can be integrated into all phases of transportation decision making. Explicitly integrating these considerations as early as long-range planning ensures that safety and security are built into the foundation of every project.

Human Environment

The human environment encompasses the issues of community characteristics, values, and vision. Integrating human environment data and information with transportation decision making helps ensure local support for plans and projects, and it can facilitate the sharing of information between these two processes. TCAPP shows how this information sharing can occur at specific key decision points.

Economic Impacts

Collaborating with economic development stakeholders can align transportation decision making and economic development efforts, which maximize investments in both. The Economic Development application can help transportation practitioners understand when and how to consider the economic development impacts of transportation choices.

TCAPP also provides a link to a web tool known as Transportation Project Impact Case Studies, or T-PICS, which uses pre-project and post-project data to show how economic and land-development conditions changed during the interval. Viewed in terms of the transportation planning process, T-PICS supports the initial screening of proposals and development of conceptual plans. T-PICS and the Economic Development application in TCAPP are both based on the results of *Interactions between Transportation Capacity, Economic Systems, and Land Use* (SHRP 2 Project C03).

Natural Environment and the Integrated Ecological Framework

Ecosystem and watershed restoration and species recovery needs are expanding as a more holistic view of the Endangered Species Act is taking hold. Stakeholders expect more from government agencies in terms of avoiding impacts to ecosystems and using transportation projects as a way to support ecosystem recovery. Furthermore, environmental mitigation comes at a real cost to transportation agencies: The Environmental Law Institute estimates that \$2.9 billion is spent annually on compensatory wetlands mitigation alone.

To help transportation agencies with environmental mitigation, the SHRP 2 C06 projects—An *Ecological*

Approach to Integrating Conservation and Highway Planning, Volumes 1 and 2 developed the Integrated Ecological Framework, or IEF, a nine-step process designed to bring about efficient, integrated consultation on natural resources to inform transportation and mitigation decisions. The companion *Guide to the Integrated Ecological Framework* supports transportation planners and resource specialists in the use of a standardized, science-based approach to the identification of ecological priorities and their integration into transportation decision making.

The IEF responds to two critical needs:

1. Identifying potential impacts to regulated resources very early in the planning process so that they can be avoided or minimized
2. Assuring that any mitigation that must occur will provide effective, measurable, and high quality environmental outcomes

TCAPP links the technical process of the IEF with key decisions in the Decision Guide. The IEF is intended to be scalable to the time, resources, data, and expertise available. Ideally, the IEF process is conducted in conjunction with long-range planning; however, it can be used during any of the four phases of transportation decision making.

Greenhouse Gas Emissions

Transportation is one of the leading contributors to greenhouse gas (GHG) emissions, contributing 28% of the United States' GHG emissions. Concerns about climate change and its impacts have led many public agencies, including transportation agencies, to consider ways to reduce these emissions. System strategies, which can be implemented during the transportation decision-making process, have the potential to reduce all transportation GHG emissions by 5–20%. The GHG application in TCAPP provides three types of information to help practitioners reduce GHG emissions; it describes a series of steps involving data collection and analysis of the implications of transportation choices on GHG; it shows which key decisions can support the reduction of GHG emissions; and it describes examples from practice that address GHG emissions. This application was based on the results of *Incorporating Greenhouse Gas Emissions into the Collaborative Decision-Making Process* (SHRP 2 Project C09).

Air-Quality Conformity

Transportation improvement projects in air-quality nonattainment or maintenance areas must undergo a rigorous analytical process to demonstrate that they do not negatively impact air quality. Decisions made by agencies

responsible for air-quality planning have direct effects on the transportation planning process; it requires transportation agencies to be responsible for ensuring that air-quality plans reflect community priorities and transportation plans. This TCAPP application provides detailed information for integrating air-quality planning with transportation planning at the key decision points.

Land Use and Smart Growth

Land use and transportation directly impact one another. The location and density of development affects travel demand, and the number and location of access points influences land-development patterns and growth. The need for additional transportation capacity depends strongly on anticipated changes in land use patterns that result in increased demand. This application can be used to facilitate collaboration between land use stakeholders and transportation decision makers to integrate land use planning and transportation decision making. It was based on the results of *The Effect of Smart Growth Policies on Travel Demand* (SHRP 2 Project C16), which examined the underlying relationships between households, firms, and travel demand.

Freight

Efficient freight movement is essential to the economic competitiveness and vitality of communities and regions. Freight operations also have a significant impact on air quality, land use, sustainability, and environmental conditions. The Freight application can help practitioners understand how freight providers will use the transportation system to ensure that reasonable future scenarios, sound investment decisions, and public safety will be considered. Effective freight planning requires multijurisdictional and multiagency collaboration across local and state boundaries. This application provides resources to help transportation practitioners better engage the freight industry and incorporate freight considerations at specific key decisions. The application was based on the results of *Integrating Freight Considerations into Collaborative Decision Making for Additions to Highway Capacity* (SHRP 2 Project C15), which explored how freight transport movements are considered in highway capacity planning and project development.

Library

The TCAPP library includes many resources on collaborative decision making. It includes case studies, SHRP 2 reports, and reference links, to find detailed information about each of the topics that TCAPP covers. The TCAPP

Quick Start Guide, which is available on the reports page, provides a brief overview of each of the features of TCAPP.

Pilot Tests

SHRP 2 ran two sets of pilot tests to test the premises of TCAPP and the IEF. The C18 series of pilots tested TCAPP in four scenarios in the Washington State Department of Transportation (DOT), Puget Sound Regional Council, Minnesota DOT, and the Pikes Peak Area Council of Governments (Colorado). The main objective of the C18 series was to test TCAPP while it was still under development and to use feedback obtained from the pilots to modify the product and enhance its usefulness to practitioners. The C18 pilots concluded that TCAPP was helpful in supporting collaborative decision making and at getting to decisions that stick. The C21 series of pilots (Pilot Test the C06 A&B Approaches to Environmental Protection) tested the IEF, which is in the TCAPP tool, in Colorado, Oregon, California, and West Virginia; each of these pilots tested specific steps of the nine-step IEF process. The C21 pilots found that the IEF is a useful process for guiding agencies through a multiagency ecology-oriented endeavor in a state or region, and the diverse scope of the four pilots indicate the IEF's range across a variety of applications. Pilot Tests to Improve TCAPP (SHRP 2 Project C39A) is under way with additional pilot tests by the South Carolina DOT, the Policy Consensus Initiative with Oregon DOT, The Thomas Jefferson Planning District Commission (Charlottesville, Virginia) and Metro Regional Government (Portland, Oregon).

TCAPP Pilot Tests

In the C18A pilot, TCAPP was pilot tested in Washington State DOT's (WSDOT) I-5/SR 509 Corridor Completion and Freight Improvement Project. WSDOT used TCAPP to work collaboratively with stakeholders to successfully define Phase 1 of the project. The resulting design reduced the initial project implementation costs by approximately \$400 million while preserving most of the project benefits.

In the C18B pilot, the Puget Sound Regional Council (PSRC) evaluated the ability of TCAPP to update the project prioritization criteria in PSRC's Transportation 2040 Update, the update to their long-range transportation plan. This pilot resulted in several suggested revisions to TCAPP.

The City of Grand Rapids, Minnesota; Itasca County; Minnesota DOT; and FHWA used TCAPP to develop a Complete Streets plan for the City of Grand Rapids in the C18C pilot test. TCAPP was used to provide guidance on effective collaboration beyond traditional highway improvements, including multimodal options, additional enhance-

ment features, and other innovative solutions for the Complete Streets plan.

In the C18D pilot, the Pikes Peak Area Council of Governments (PPACG) tested the applicability of the TCAPP process during their 2013 long-range transportation planning update. This project resulted in both specific recommendations about the use of TCAPP and overall recommendations about the use of the guidance and methods that are embodied in TCAPP.

IEF Pilot Tests

In the C21A pilot, Colorado DOT, Colorado State University, and numerous partners tested steps two through six of the IEF in the South Park area of Colorado. The project team for this pilot was able to bring conservation stakeholders and data together to generate a comprehensive vision for development, conservation, restoration, and mitigation; and the IEF promoted a more accurate assessment of the cumulative impacts by including a spatially explicit analysis using data not included in the original assessment.

In the C21B pilot, the IEF process was used to identify priority natural resource areas, to avoid impacts, and to select mitigation improvements for a section of US 20 between Pioneer Mountain and Eddyville in Oregon. It also compared the IEF with the process used by the Rogue Valley Council of Governments. The IEF recommended mitigation in larger priority wetland areas in the watershed that would provide opportunities to enhance salmon habitats.

The IEF was applied to a corridor planning study of Highway 37 in the San Francisco Bay Area in the C21C pilot. The lessons learned from this project included specific issues related to TCAPP and the IEF, as well as larger issues associated with combining transportation planning and environmental stewardship.

In the C21D pilot, the West Virginia Department of Highways (WVDOH) and West Virginia University (WVU) applied the IEF to two highways under construction in southern West Virginia—the Coalfields Expressway and King Coal Highway. The research team combined the IEF with other tools to create a framework specific to West Virginia for evaluating highway impacts on streams, wetlands, and terrestrial landscape integrity.

Implementation

At the request of the American Association of State Highway and Transportation Officials (AASHTO), SHRP 2 partnered with FHWA and AASHTO for a series of TCAPP reviews in 2013. Workshops were conducted in each of the four AASHTO regions to train practitioners in the use of TCAPP and to receive comments. The workshops were completed in May of 2013, and the recommendations were presented to the SHRP 2 Oversight Committee in June 2013. It was recommended that FHWA assume hosting and maintenance responsibilities for TCAPP, establish an oversight structure that includes state and MPO stakeholders, and make recommended improvements. During this process it was determined that FHWA would take delivery of the beta version of TCAPP in October 2013 and release an updated version in the summer of 2014.

In parallel with this activity, a rebranding study was conducted. Many stakeholders were presented with alternative names, logos, and color schemes through surveys and meetings. That work was completed in August 2013. FHWA will make a decision and roll out the new look in 2014.

FHWA will convene an Implementation Planning Workshop in 2014 to develop an implementation plan. Planning assistance may also be provided to states and MPOs.

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