Research Summary

South Carolina Department of Transportation | Office of Materials and Research

Project Information

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Research Administration

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This final report is available online at:

http://www.scdot.scltap.org/projects/completed/

Improving SCDOT Project Delivery Through Identifying Potentially Suitable Locations for Mitigation and Standardizing Section 401/404 Permit Application Process

Problem

The South Carolina Department of Transportation (SCDOT) identified three areas that have significant effect on its ability to deliver projects on time and on budget: 1) inconsistent permit application submittals among consultants that led to delay in approval by the U.S. Army Corp of Engineers (USACE), 2) inability to consistently identify "red flags" early in the project development process, and 3) lack of mitigation credit coverage.

These projects have impact on freshwater wetlands and streams, and thereby require Section 404 permits and mitigation. These projects may also affect threatened and endangered species, essential fish habitat, and/or Section 106 properties, which if not identified early in the project development process could delay their completion.

Objectives

The objectives of this research project were to: 1) review existing mitigation and conservation assessment models/tools used in the U.S. and use the gathered information to develop GIS-based applications that are implementable by the Environmental Services Office (ESO) to provide a sustainable statewide mitigation program, and 2) review existing Section 404 permit application processes and tools used in the U.S. and use the gathered information to develop web-based, interactive applications that are implementable by ESO staff and consultants to streamline the submittal process for Section 404 permit applications submitted to the U.S. Army Corps of Engineers (USACE).

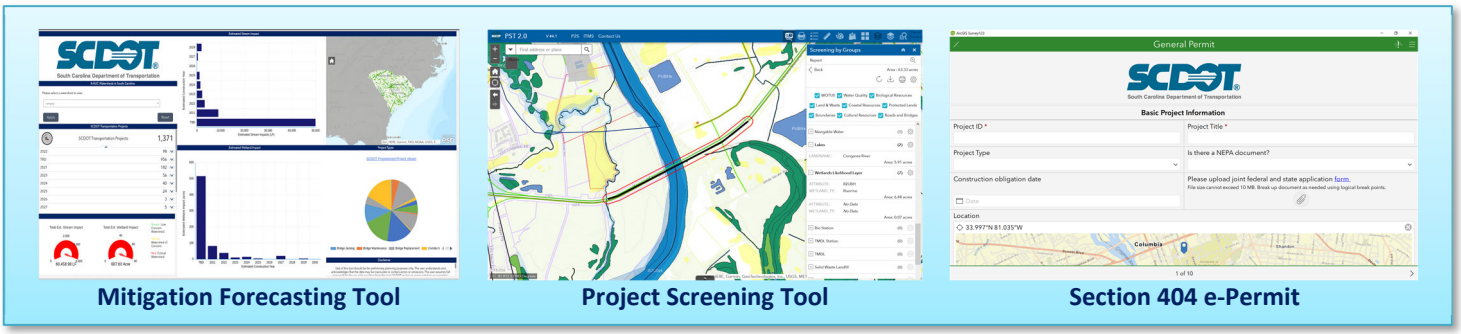
Research

The findings from the literature review indicated that no other state DOT has developed an electronic permitting application for Section 404 general permits and a few agencies have developed mitigation tools and project screening tools (PST). None of the off-the-shelf products and other agencies' in-house applications can be easily tailored to the SCDOT's practice.

As a result, the project steering committee directed the project team to develop applications that address SCDOT specific needs. Extensive research was conducted by the project team to determine the most suitable platforms and development tools to use to develop the webapps and smart forms for the SCDOT.

Products

Three web applications (webapps) and two web-based smart forms were developed for the SCDOT's ESO: 1) the **Mitigation Forecasting Tool (MFT)** aims to reduce the number of projects at risk due to the lack of wetland and stream mitigation bank credit coverage and the number of projects at risk due to low wetland and stream credit availability; 2) the **Project Screening Tool (PST 2.0)** aims to ensure that SCDOT projects are developed in a way that avoids, minimizes, and mitigates impacts to South Carolina's natural and human environment; 3) the **Jurisdictional Determination (JD) webapp** aims to facilitate the creation of maps for the JD application; 4) the **JD smart form** works in conjunction with the JD webapp to produce the JD application package; and 5) the **Section 404 e-permit** aims to standardize permit submittals in terms of what information to include, how the documents should be presented, where in the package each document should be placed, and how permit drawings should be presented.



Recommendations

It is recommended that the SCDOT consider adopting and utilizing the developed applications in its day-to-day operations. Results from actual use and beta testing of these applications indicate the following tangible benefits for the SCDOT:

1. The external MFT webapp has strengthened the relationship between the SCDOT and the mitigation banking community. As a result, the mitigation risk in South Carolina has been significantly reduced and will continue to be reduced with the increase in the number of approved banks across the state, with more on the horizon, pending approvals.
2. The use of the PST 2.0 webapp is expected to save ESO staff 20 to 25 hours per month based on a monthly average of one feasibility report and four to five project screenings.
3. The use of the e-permit smart form is expected to save SCDOT money by reducing consultants on contract by 30 to 40 hours per month based on a monthly average of two general permits.
4. The average USACE review and approval time over the past 2 years is 75 days with the longest duration being 243 days. It is anticipated that with the use of the developed e-permit smart form, the majority of the general permits will be approved within 2 months.

Technology Transfer and Implementation Plan

The developed applications have been transferred to the SCDOT IT. Several initiatives have been implemented and several more are being planned to assist SCDOT staff, consultants, and partners in using the developed tools. Training was provided to SCDOT superusers throughout the project duration, and these superusers in turn have produced video tutorials for their colleagues and consultants. The SCDOT superusers have also shown the mitigation bankers how to use the external MFT webapp. Current initiatives to further assist with the implementation of the tools include working with the SCDOT video production office to produce shorter how-to video tutorials, a workshop for select consultants in March of 2022, a workshop for all consultants that do business with SCDOT ESO in May of 2022, and demonstration of the tools at the 2022 SC Highway Engineers Conference. Lastly, a promotional YouTube video is being put together to showcase the tools developed in this project for the benefit of SCDOT peers.

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