



# Human Centered Design Enhances MnDOT's Agency-wide Construction Application

State of Minnesota – Minnesota IT Services

**CATEGORY:**

Business Process Innovations

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Photo courtesy of the Minnesota Department of Transportation

Information Technology for Minnesota Government

## Executive Summary

The Minnesota Department of Transportation (MNDOT) has used AASHTOWare agency-wide for more than a decade to manage the business processes that support their work and mission. AASHTOWare leverages cutting edge research from AASHTO\* to promote innovation in this product.

This project enhanced MnDOT's agency-wide construction application, AASHTOWare, significantly improving the business processes for internal and external partners, including streamlining processes and improving user experience.

Minnesota IT Services (MNIT) is committed to continuously improving the technologies that support MNDOT's mission, fortifying the value and delivery of projects and initiatives. MNIT promoted a customer-centered focus with this project, ensuring that we advanced the state's ability to analyze and create value from digital services data to measure, improve, and support the important work that our MNDOT partners do on behalf of all Minnesotans. This aligns closely with our agency strategies to:

- Build closer relationships with the people we serve by instilling adoption of human-centered design principles and practices within MNIT and across the executive branch.
- Improve collaboration and communication within and between state agencies to drive insight and value from data.
- Promote benefits of cross-agency data sharing across the executive branch.
- Adopt project management best practices and ensure flexibility, stability, and transparency for all projects.
- Deliver the maximum value by ensuring alignment of projects and programs to [MNIT](#), [agency partner](#), and [One Minnesota](#) strategies.
- Engage and co-create solutions proactively with business partners and end users to foster trust and mutual accountability.

\* [AASHTO](#) (the American Association of State Highway and Transportation Officials), is a nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the Dist. of Columbia, and Puerto Rico.

## Idea

### What problem or opportunity does the project address?

MNDOT needed significant upgrades to AASHTOWare in order to improve efficiency and security for the 4,000+ end users who rely on this system to complete their work.

This project provided the following solutions:

- Agency views are now associated to Project and Proposal entities. Making this enhancement provided increased efficiency in the estimation process.
- Agencies now control their access rights to the associated Cost Estimates as a Project or Proposal goes through its life cycle. This workflow enhancement prevents unauthorized users' access and allows the right access to the right people at the right time.
- The system can now accommodate and capture data from the commercially useful function (CUF) reviews needed for Civil Rights and Labor compliance.
- A more efficient workflow now allows AASHTOWare Project Construction/Materials users to interact with multiple sample record tests on LIMS (Laboratory Information Management System) queues.
- Training to ensure state internal controls are met for transportation construction projects.

## Why this is important

AASHTOWare is an industry standard enterprise software suite designed by transportation professionals for transportation professionals. The Authorization Model Service (AMS) API is now fully aligned with the OpenAPI specification and compatible with Swagger tools.

This continuous modernization effort aligns with State CIO priorities for Digital Government/Services, Cybersecurity and Risk Management, and Budget, Cost Control, and Fiscal Management. It also aligns with MNIT's [Strategic Plan](#), and our mission to partner to deliver secure, reliable technology solutions to improve the lives of all Minnesotans, and our vision of an innovative digital government that works for all.

## Implementation

### What was the roadmap?

This was a collaborative effort that included MNIT staff (project management and application development, support and hosting), our partners in MNDOT (sponsor, subject matter experts, etc.), [AASHTO](#) (other state DOTs who guide what new functionality and fixes are included in each new release of the software) and the developers at [Infotech](#).

We were able to successfully upgrade our current system, providing more functionality for our partners and vendors. By collaborating across our four organizations, we were able to solve defects and issues quickly so we could implement on time.

This project work exemplified MNIT's strategic commitment to partner with agencies to meet their missions by:

- Adopting project management best practices and ensure flexibility, stability, and transparency for all projects.
- Delivering the maximum value by ensuring alignment of projects and programs to MNIT, agency partner, and One Minnesota strategies.
- Engaging and co-creating solutions proactively with business partners and end users to foster trust and mutual accountability.

- Embedding data-driven decision-making and communication across the project portfolio to deliver solutions that lead to improved outcomes for our business partners and end users.

This project used an Agile, iterative project management methodology.

We measured our success based on the scope delivered (requirements/testing/defects/resolved), that it was within budget, within schedule and based on customer satisfaction.

## Who was involved?

- MnDOT: Executive sponsor, subject matter experts, end users
- MNIT: Project management; application development, support and hosting
- [AASHTO](#): software expertise from other state DOTs who guide what new functionality and fixes are included in each new release of the software
- [Infotech](#): application development

## Impact

### What did the project make better?

When MnDOT can more effectively work to achieve its vision of a Minnesotan Multimodal transportation system that maximizes the health of people, the environment and our economy, the entire state benefits.

This project impacted approximately 4,000 end users who use the system on a daily basis: state employees, external construction partners and vendors working on MNDOT projects. Their work significantly impacts the business processes that fuel the completion of transportation infrastructure construction. Modern, automated digital systems streamline our state's business processes. This reduces costs, time, and resources needed to complete transportation infrastructure work.

MNDOT can now automate the construction contract process from estimation to closeout, and modernize the business processes that power road and highway construction in Minnesota. This project provided new functionality:

- Construction project workflows were improved.
- Agency reports for projects and proposals were enhanced new fields and options.
- Provided new review functionality to the compliance area for Civil Rights and Labor.
- Easier data entry for project estimation.
- New payment functionality.
- Improved efficiency and user experience.

Adding functionality to AASHTOWare, and upgrading systems meets the state's goal of securing the state, and implementing continuous improvement.