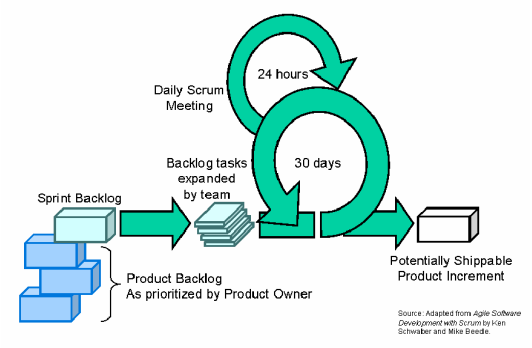

This agile approach has benefits for users. The frequent review and hands-on validation by the TTF enable early discovery of opportunities. Issues with the software are caught before they are incorporated into the production code. Priorities for future sprints are tuned for maximum benefit based on insights gained during the process while enhancements can be reviewed during development. Reliable results are gained by engaging the user in frequent interaction and shared ownership and tuning the work to meet those priorities. The fine-tuned priorities give the Info Tech team an obtainable goal for each sprint. The result is a better, higher quality solution. The agile methodology is an ongoing part of the future maintenance and enhancement of Trns•port products, and as such should enhance future testing and development to meet the needs of the customers.

Go online to Cloverleaf (www.cloverleaf.net) to view more information:

Trns•port Long Range Work Plan:
products/trnpsport/secure_docs/lrwp.pdf

NGT and NGT Roadmap:
ngt/ngt_roadmap.pdf

More information on the agile approach can be found at http://agilealliance.org/

Several terms used in Agile Development may be unfamiliar. They are explained here with regards to the Next Generation Trns•port initiative.

Agile	A software development tool using refactoring, feature-driven cycles, and customer focus groups.
Business Manager	Responsible for maximizing the value of the product to the customers, users, and stakeholders. Represents the TTF's interest with the NGT team.
Daily Scrum Meeting	The daily team-member meeting during development.
Product Backlog	An emerging and evolving list of all features and changes that have yet to be made to the product, prioritized by the TTF and the Business Manager.
Product Owner	Owner of NGT and maintains the sprint Product Backlog with the help of the Business Manager.
Refactoring	Improving the design of existing software code by improving the actual structure of the code.
Scrum	An agile process for managing software development projects.
Sprint	A month-long cycle used for developing specific aspects of the software.
Test Driven Development (TDD)	Writing test code before the functional code, unlike the usual process of writing functional code before test code.

AASHTO Trns•port®
Transportation Software Management Solution

Introduction to

Next Generation Trns•port and Agile Methodology

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info tech
The Information Technology Company

The vision for Next Generation Trns•port is driven by a need for a modern system that is easier to set up and use by the agencies, easier to integrate and access by other systems, and reduces the cost of ongoing maintenance and enhancements.

Next Generation Trns•port advances the system from a thick client/server platform with connected logical tiers for user interface and batch processing, to a loosely coupled service-oriented architecture that uses modern user platforms and offers a more open path to future platforms. Integration of Trns•port with the agencies' other enterprise systems is made easier by using interfaces based on industry standard communications and Web service protocols.

Currently, Next Generation Trns•port has several goals for its development:

- Align with the AASHTOWare® strategic direction
- Eliminate unnecessary boundaries between and within systems
- Bring Trns•port's value to a broader audience
- Reduce agency Total Cost of Ownership (TCO)
- Provide architecture that meets the needs of current and future customers
- Build a consistent, unified data model, leading to a single database and data model representation that supports all parts of Trns•port

The evolution to a Web-based, service-oriented system coupled with a Web-based user interface makes Trns•port information and functionality more accessible. Through the Web browser, an authorized user is able to access business functions across all of the Trns•port modules, which is in contrast to the physical boundaries imposed by the separate modules in the client/server system.

Unification of the business, data, and security models results in smoother integration throughout the construction project lifecycle. For example, reference information such as the master item and vendor lists is global in Trns•port, eliminating redundant reference data management.

Agile Development is the force behind the creation of Next Generation Trns•port. This approach leads to high involvement of users with frequent end-user review of the software throughout development, and application of modern testing and design methods and tools.

Traditional approaches to software development fix scope, budget, and schedule at the beginning of a project. Quality is assured through alpha, beta, and warranty provisions, and flexibility to change the scope, budget, or schedule is limited once the contract is executed. Agile Development focuses on the delivery of high quality software by allowing budget, schedule, and scope adjustments as required to achieve that high quality. Quality is managed through test-driven development and heavy customer involvement throughout development. Customer choices to change direction are increased throughout the project. Since each development time period is measured in days, customer needs can be much more easily met as the project is constantly reviewed and evaluated.

Here is a summary of the Agile Development practices for the Next Generation Trns•port initiative:

- Dedicated team of developers and analysts
- Collective ownership by team, with members co-locating and participating in each aspect of development, including interpreting requirements and defining and estimating backlog items
- Sprint plan and estimates reassessed daily based on team progress and knowledge gained
- Retrospective at end of every sprint to identify and leverage lessons learned

The agile process for Next Generation Trns•port starts with a Product Backlog. From there, high priority items are selected to be worked on during the next sprint. Sprints are approximately 30 days in length. In this short time frame, a potentially releasable part of product functionality is produced. While the sprint is in process, the TTF and the Info Tech Business Manager continually develop and prioritize the Product Backlog. At the end of the sprint, the current product and team accomplishments are presented to the TTF. After the TTF evaluation, a new sprint starts, again using the Product Backlog to decide what parts of the product to work on next, and the whole process starts over. During this process the System Design Specification document and System Requirements Specification document are created.