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<http://roadsoft.org/help>

Engagement Drives Design

The Center for Technology & Training (CTT) values every opportunity to work directly with our customers. In addition to providing our customers with quality technical support, we believe that networking can give our customers even more Roadsoft insight. Whether it is by attending Roadsoft User Group (RUG), the annual Roadsoft User Conference of the United States (RUCUS), or by calling us with questions, the CTT encourages our customers to stay up to date with current Roadsoft releases and to stay engaged not only with the CTT, but with each other. Agency engagement is what drives the design of Roadsoft!

Roadsoft User Group Meeting

The latest RUG meeting, held on August 1, 2017, covered the 2017 Roadsoft work plan progress and discussed possible development options for the 2018 work plan. Following the meeting, Roadsoft customers received an anonymous survey by email providing them an opportunity to voice their opinion on the proposed development ideas for 2018. The Center for Technology & Training (CTT) received fifty-seven responses for the survey. Participation was noticeably down from the ninety-three responses received from last year's survey. The [RUG meeting recording](#) is available for those that were unable to attend the meeting.

Roadsoft 2017 Work Plan Progress

During the online discussion, Gary Schlaff, senior project manager, provided an outline of the progress made on the 2017 work plan. Highlights from the discussion include:

- Preliminary work (year one of two) on the Intersection Module conversion to .Net
- Preliminary work (year one of two) on the Traffic Signal Module conversion to .Net
- Planning and design of a new module, Catch Basin/ Storm Water

- Continued development of Roadsoft Mobile, Sidewalk Work Orders and Inspections
- Completion of the Sidewalk conversion to .Net
- Release of the TAMC Export and Reporting conversion to .Net
- Development of a new feature, Project Planning and Selection Tool
- Continued map improvements for performance and usability

Module “conversions” include a change from outdated code language to a modern language. These updates are necessary to ensure long-term viability for the Roadsoft code base, in addition to allowing for performance enhancements and interoperability functions. The Traffic Signal Module is the last of over 720,000 lines of code in Roadsoft to go through code conversion.

Senior software engineer Nancy Moore explained the information gathering process as she begins the preliminary work on the Traffic Signal Module. The first phase of the process includes several focus group meetings and initial software architecture plans. Nancy gave an open invitation to anyone with interest in traffic signals to join the focus group or submit ideas to roadsoft@mtu.edu.

Senior software engineer Mike Pionke elaborated on the development progress of the new Project Planning Tool. The tool will assist agencies with the selection of candidate road segments for future projects with or without using a saved strategy from the Strategy Module. The tool is the second part of the Pavement Management code conversion plan. The original concept for the tool came from the Pavement Management focus group. The main interface is mostly complete and final work on reporting is heading towards completion.

The Center for Technology & Training at Michigan Technological University publishes Roadsoft Roundup four times a year. To obtain permission to reprint any articles or graphics from Roadsoft Roundup, or to subscribe, please contact the CTT.

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Roadsoft 2018 Work Plan Discussion

The CTT is preparing the Roadsoft 2018 work plan proposal. Principal Programmer Nick Koszykowski led the group through preliminary development ideas we have on file before opening up the discussion to meeting participants.

During the meeting, participants were free to comment on any of the future Roadsoft development suggestions introduced by the CTT or to provide additional ideas based on their needs. New ideas ranged from including a custom report builder and developing a railroad module to completing standardization across the existing modules (have multi-edit, work orders, etc. for all). Suggestions from previous RUG meetings that did not make the 2017 work plan, like developing a generic point module, road data collection in Roadsoft Mobile, Fixing America's Surface Transportation Act (FAST Act) compliance, and a bicycle facility tracking were re-discussed in the 2017 RUG meeting.

Unlike last year, the CTT grouped the ideas and suggestions discussed during the RUG meeting into three voting categories: major tasks, maintenance items, and mobile tasks. Major task items are more complex in nature and require a more significant amount of time than maintenance items. Work plan proposals contain a "Maintenance & Small Enhancement Backlog" task. As time and budget permits, we respond to requests for small maintenance items and enhancements under this task. Mobile tasks pertain only to Android and iOS development platforms.

With the completion of TAMC Import/Export and the start of Traffic Signal, and Intersection, the 2018 work plan proposal will include the second year code conversion for both the Intersection and the Traffic Signal modules. There are no new code conversion tasks after the completion of Traffic Signal and Intersection in 2018. With all the remaining code conversion in progress, this broadens the possibilities adding additional major tasks to the 2018 work plan proposal.

Proposed Major Tasks

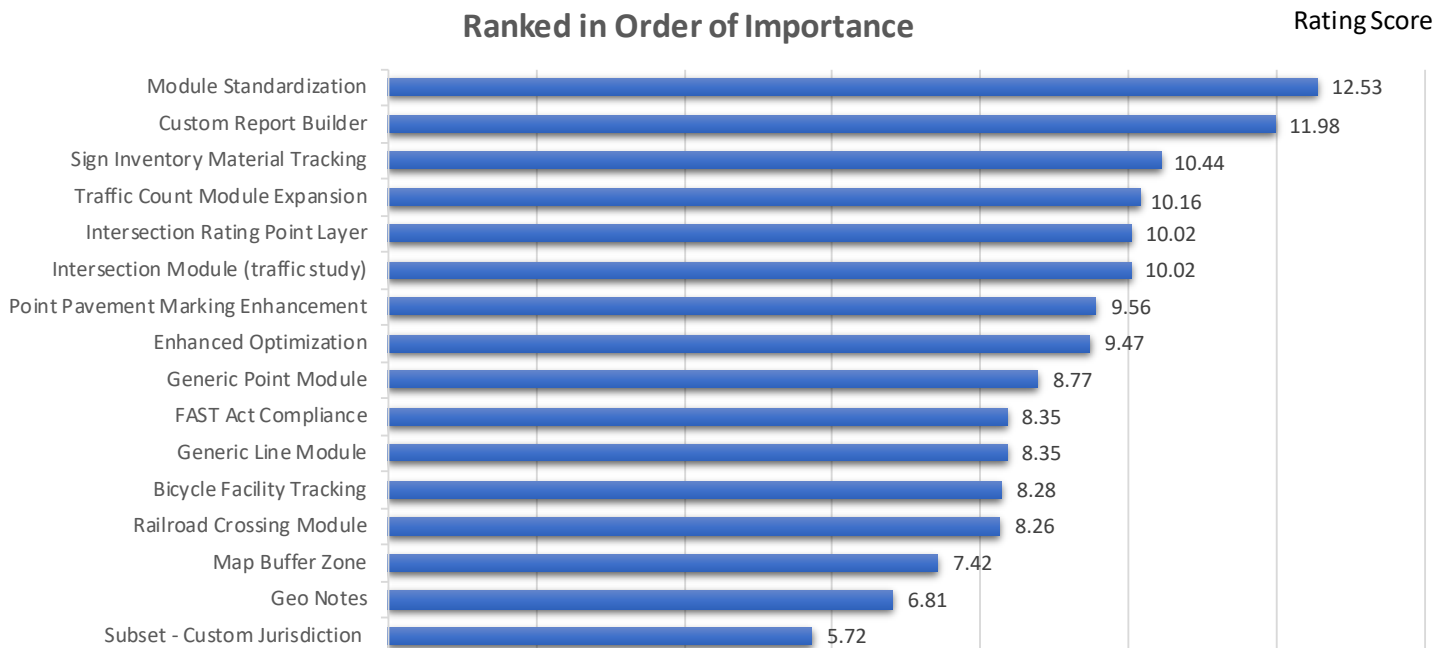
The CTT arrived at a list of seventeen major tasks based on the customer suggestions received during this RUG meeting, carried over from the last RUG meeting, and those captured throughout the year. Not all suggestions made the list; however, they are on file for future discussions.

The list of seventeen major development tasks helped us gauge what our Roadsoft customers feel is of high priority for new features and more complex tasks as we plan for 2018 Roadsoft development:

- Module standardization (add multi-edit, work orders, etc. for all modules)
- Custom report builder (ability to set fields, layouts, and other formatting)
- Sign inventory (stock/materials tracking)
- Traffic Count Module expansion (new fields, such as user defined, peak hours, and status)
- Intersection Rating (point layer)
- Intersection Module (traffic study)
- Point Pavement Marking enhancement (visual schematics/visual reference)
- Enhanced optimization
- Generic Point Module
- FAST Act Requirement Compliance (formulas/datasets for crash rates)
- Generic Line Module
- Bicycle Facility tracking
- Railroad Crossing Module
- Map buffer zone (capture boundary roads in adjoining jurisdictions)
- Geo notes (addable during data collection)
- Subset/custom Jurisdiction (example: airport)

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2018 Roadsoft Major Development Ideas Ranked in Order of Importance



Rating Score is listed from highest rating to lowest rating. The rating score value is a calculation of weighted rank responses divided by the total number of responses.

Figure 1: Calculated score for question number one on the Roadsoft User Group Meeting - 2018 Work Plan Survey

Figure 1 demonstrates the ranking of the seventeen major tasks in order of preference by survey respondents. Based on the survey results and the complexity of the potential tasks, the CTT will discuss module standardization as a top priority, a custom report builder as a second priority, and we plan to combine the Intersection Module (traffic study) with the expansion of the Traffic Count Module as the third priority for the 2018 work plan proposal. The ranking of the other remaining ideas shows lower priority. The higher ranked tasks, which are not under consideration for the 2018 proposal due to complexity and budget constraints, remain on the suggestion list for next year's RUG meeting discussion.

Proposed Maintenance Items

The CTT arrived at a list of thirteen maintenance items based on the customer suggestions received during this RUG meeting, carried over from the last RUG meeting, and those captured

throughout the year. Not all suggestions made the list; however, they are on file for future discussions. Although we do not explicitly list maintenance items on the work plan, we want to know which items rank as most important to them so we included the following items on the survey:

- Add ability to copy/paste sign and maintenance data between posts
- Add Routine maintenance filtering (from main reporting tab by twp, by legal system)
- Overall bridge condition (good/fair/poor, map, and export)
- Search by Memo field (all modules)
- Include culvert unit labels (height/diameters)
- Link to Project Builder from the Road Module

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- Work Order enhancements (editable numbering in control & modules, ability to track time/cost, access work order control from module)
- Filter definition dates (created, modified, last run)
- Project memo date stamp
- Archived sign/support changes (add filter ability, archive date, memo field, remove map labels)
- Reorder routine maintenance activity types (by job numbers and delete/archive option when activity is associated with a record)
- Investigate screen mirroring (LDC to tablet)
- Carry offsets forward (last entered linear pavement marks)

Figure 2 demonstrates the survey respondent ranking of the thirteen maintenance items. Based on the survey results the CTT will complete the maintenance items in ranking order if time and budget allow. The CTT transfers ideas that do not make the 2018 proposal to next year's RUG meeting discussion.

Proposed Mobile Tasks

First released in 2015, Roadsoft Mobile is now two years old. Roadsoft Mobile is available for Android and iOS platforms. The mobile application features include sign and culvert management for work orders, inspections, and maintenance. Roadsoft Mobile is currently in development to include sidewalk management for work orders, inspections, and maintenance for release by the end of 2017.

2018 Roadsoft Maintenance Development Ideas Ranked in Order of Importance



Rating Score is listed from highest rating to lowest rating. The rating score value is a calculation of weighted rank responses divided by the total number of responses.

Figure 2: Calculated score for question number two on the Roadsoft User Group Meeting - 2018 Work Plan Survey

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The CTT plans to continue the development of more features into our mobile application in 2018. During the RUG meeting, we discussed four task options for mobile development:

- Ability to Collect Road Data
- Ability to Collect New Inventory for Existing Assets
- Guardrail Module (work orders, inspections, and maintenance)
- Project Builder Component (create new projects from mobile & LDC)

The results of the survey for mobile development tasks include 43% in favor of road data collection, 35% in favor of adding the ability to collect inventory for existing assets, and an equal amount of interest (11% in favor) for developing a Project Builder component or adding the Guardrail Module. Based on the survey results represented in Figure 3, the CTT will give priority consideration to road data collection for mobile as we develop the 2018 work plan proposal. Mobile development ideas that do not make the 2018 proposal will transfer to next year's RUG meeting discussion.

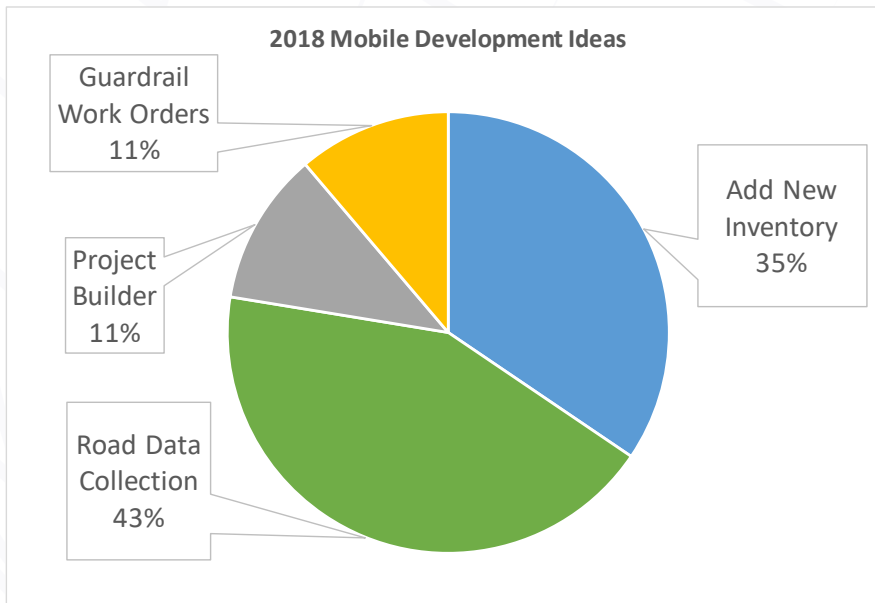


Figure 3: Calculated score for question number three on the Roadsoft User Group Meeting - 2018 Work Plan Survey

Open Comments

There were 16 additional comments and suggestions made by respondents in the open comments section of the survey. We appreciate both the candid feedback as well as the positive reinforcement. It is rewarding to receive comments like, "Thank you for all you guys do!" and "Keep up the good work!" We always strive to meet or even exceed our customer's expectations. We also find it equally valuable to know when we have not quite reached the mark.

There were a few comments regarding Roadsoft features and opportunities that we feel it is important to share with our newsletter subscribers and also provide our assessment of the request for further clarification.

"Work on a Roadsoft web interface that will allow an agency to communicate the information to the public with live updates of system conditions relative to the data that is available." – We think this is a valuable idea and will bring it up for discussion for next year's work plan.

"Need integration with Roadsoft DB to third parties GIS Software like PowerBI, ArcMAP, and ArcPro. Our organization uses PowerBI and ESRI for all other analysis tasks outside of road conditions and it is laborious to export and import." – Our goal at the CTT is to make road agency data as useful and accessible as possible. The import and export functions available in Roadsoft provide a viable method of using road data across multiple software packages and platforms. Roadsoft import and export features do not provide a fully seamless integration with other software; however, seamless software integrations are not trivial. Integrating with ESRI products (ArcGIS, etc.) will require developing Roadsoft on a completely different platform, which does not fit the CTT's current development model. We could develop for the ESRI platform, but it is not feasible to change our development model under our current budget and contract with Michigan Department of Transportation (MDOT).

ESRI requires licensing to develop on their platform

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that would increase the current development platform costs between \$10,000 and over \$30,000 annually. It would also require a complete redevelopment of Roadsoft while continuing to support the current software. Subsequently, this would exponentially increase our labor costs. Because of significant increases in licensing and labor costs, it would be necessary to increase our budget with MDOT. Furthermore, the current contract between the CTT and MDOT requires us to provide software at no cost to Michigan road agencies. If we developed on the ESRI platform, it would require all applicable road agencies to purchase ESRI licenses. We recognize that there are road agencies that can support ESRI licensing costs; however, in our experience, the majority cannot.

As always, Michigan road agency needs drive the direction of Roadsoft development. If the majority of road agencies support changing Roadsoft's development platform, we could explore this option for future work plans.

“We would like to permanently combine segments. Often the segments are ridiculously small and as that may work for urban areas, for rural areas it is a nightmare. If we could combine segments and make them come in line with the segments in which we have constructed, maintained, and analyzed we could use it way more. But even the multi-selection option is a pain as often there will be 10-15 segments to select for one segment. In rural areas we maintain roads miles at a time not a block at a time.” – Roadsoft has multiple selection options aside from selecting by Road Segment. Customers can avoid the frustration of small segment selection by using other selection options aside from Road Segment. The select by PR option grabs all the segments along the PR selection or use the select by Framework Segment option that generally selects from intersection to intersection. Segments splits occur for many reason including changes in the number of lanes, application of treatments, and road ratings. Changes like these create a history and in order to maintain the history, we need to keep the splits. However, we are happy to consider doing things differently in the future. We will keep this topic on file for a future RUG meeting discussion.

“It seems like this program has become an all things to all people software. Typically, this makes software become more cumbersome to those who don't have someone working in Roadsoft full time. In summary, this makes the program less

useful to smaller organizations.” – Roadsoft continues to grow as agency needs grow. Our job is to provide the best possible solution for local agencies small to large. With a module-based system like Roadsoft, you do not have to use or even see all its possibilities. One of our strengths is our technical support, we are always willing and happy to assist agencies with whatever struggles they are experiencing with our software. If any size agency feels overwhelmed by the system or processes do not hesitate to have us visit your location during our Roadsoft on the Road sessions, participate in meetings to voice your concerns, and simply pick up the phone and talk to us. Often we can provide tips for using the software with the lowest impact to our customers. Additionally, we are working on including the ability for interface customization at the field level where customers can hide fields that are not relevant to them within the modules providing a less daunting interface.

The CTT extends its thanks to everyone who participated in the meeting and the survey.

Roadsoft User Group Conference of the United States (RUCUS)

The CTT is preparing for the second annual RUCUS occurring on November 1st in Lansing, Michigan. About 100 Roadsoft customers came together last year for the very first RUCUS to learn about Roadsoft features from the experts and hear about Roadsoft use cases from peers. From basic Roadsoft principles to more robust features, RUCUS has something for attendees of all experience levels. RUCUS is an opportunity to learn how other Roadsoft customers get the most out of the software suite, to get questions answered, to experience unreleased features, and to have one-on-one discussion time with CTT technical support staff. For a full perspective of last year's conference, read the [Building Community at RUCUS 2016](#) issue of the Roadsoft Roundup.

[Register now](#) to join the 2017 RUCUS!

New to Roadsoft or need a refresher? Get a jump -start on RUCUS, and join us on October 31st in Lansing, Michigan for full day hands-on Introduction to Roadsoft training. [Register now!](#)