Roadsoft® Roundup

Planning for the Road Ahead
Roadsoft User Group & 2019 Survey Results

Sidona Debrule, Technical Writing Intern
Center for Technology & Training

The Center for Technology & Training (CTT) takes every opportunity to work closely with our software users to ensure that Roadsoft meets their needs. One way we connect with them is through annual Roadsoft User Group (RUG) webinars, where Roadsoft users, MDOT contacts, and CTT employees get together to review the development work done over the past year and discuss possible ideas for future work plans. RUG meetings also provide a way for users to get in touch with the CTT and network with other organizations.

Roadsoft User Group Meeting and Updates

The latest RUG meeting, held on August 6, 2019, had 46 attendees representing 34 agencies. If you missed the meeting or just want to review the discussion a recording of the 2019 RUG meeting is available for review at https://mtu.adobeconnect.com/_a825757681/pxqo0792a42m.

During the meeting, Senior Software Architect Nick Koszykowski updated the group on the progress made working through the 2019 work plan and highlighted the latest improvements made to Roadsoft over the past year. Highlights include adding road data collection and Project Builder features to Roadsoft Mobile (the update is out for Android and iOS), progress on storm water sewer line data collection and field layout customization in Roadsoft, and the completion of Roadsoft's conversion to .NET. General improvements and standardization for work orders, Project Planning & Selection Tool tweaks, and custom reporting features are also gradually being released as they are completed. One important note he mentioned was that the focus group for improving and standardizing the Traffic Count Module is reconvening - anyone interested in providing feedback is invited to contact the CTT at roadsoft@mtu.edu.

2020 Work Plan Discussion

After reviewing the progress made during 2019, Koszykowski presented attendees with possible development ideas for Roadsoft's 2020 work plan and held an open discussion on those ideas along with new ones brought up by meeting participants. Shortly after the RUG meeting, a link to an anonymous online survey was sent out to Roadsoft users about potential development ideas for the upcoming 2020 work plan. The survey, which received 63 responses, asked participants to vote on proposed development ideas and to submit any additional comments or ideas. The CTT would like to thank everyone who submitted input and encourage everyone with an interest in Roadsoft to consider filling out next year's survey when it becomes available. User feedback is vital to planning Roadsoft's future!

Potential future development ideas were grouped into three categories for the survey: major tasks, maintenance tasks, and mobile tasks. Major tasks are the most complicated to implement and require the most time to complete, such as creating new asset modules or features. Major tasks take up the majority of the annual work plan, and may take multiple years to fully implement. Maintenance tasks are simpler improvements like enhancing existing tools or features which then go into a backlog to be developed if they fit into the time and budget during the year. Mobile tasks involve developing the Roadsoft Mobile application for both Android and iOS. Each survey respondent could vote for the five major and maintenance tasks most useful to their agency and rate the proposed major, maintenance, and mobile tasks in terms of relevance.

Proposed Major Tasks

The CTT compiled a list of twenty-six potential major tasks from staff ideas, user suggestions, and items from previous discussions. User responses to this list from the survey helped the CTT get an idea of what improvements users are most interested in

seeing as Roadsoft development continues. The major tasks in the survey were:

- Continue module standardization (modules, features, filters, names, layouts, icons, etc)

- Continue Project Planning & Selection Tool enhancements (reports, maps, road types)

- Add a Generic Asset Point Module

- Add a Generic Asset Line Module

- Expand the Capital Plan Tool

- Add new Map-21/FAST Act formulas & datasets for crash rates, reports, and compliances

- Add new curve identification algorithms for crash rankings

- Investigate adding a Not-Certified Roads Module (for decertified/private roads)

Potential 2020 Work Plan Major Task Priority Ranking

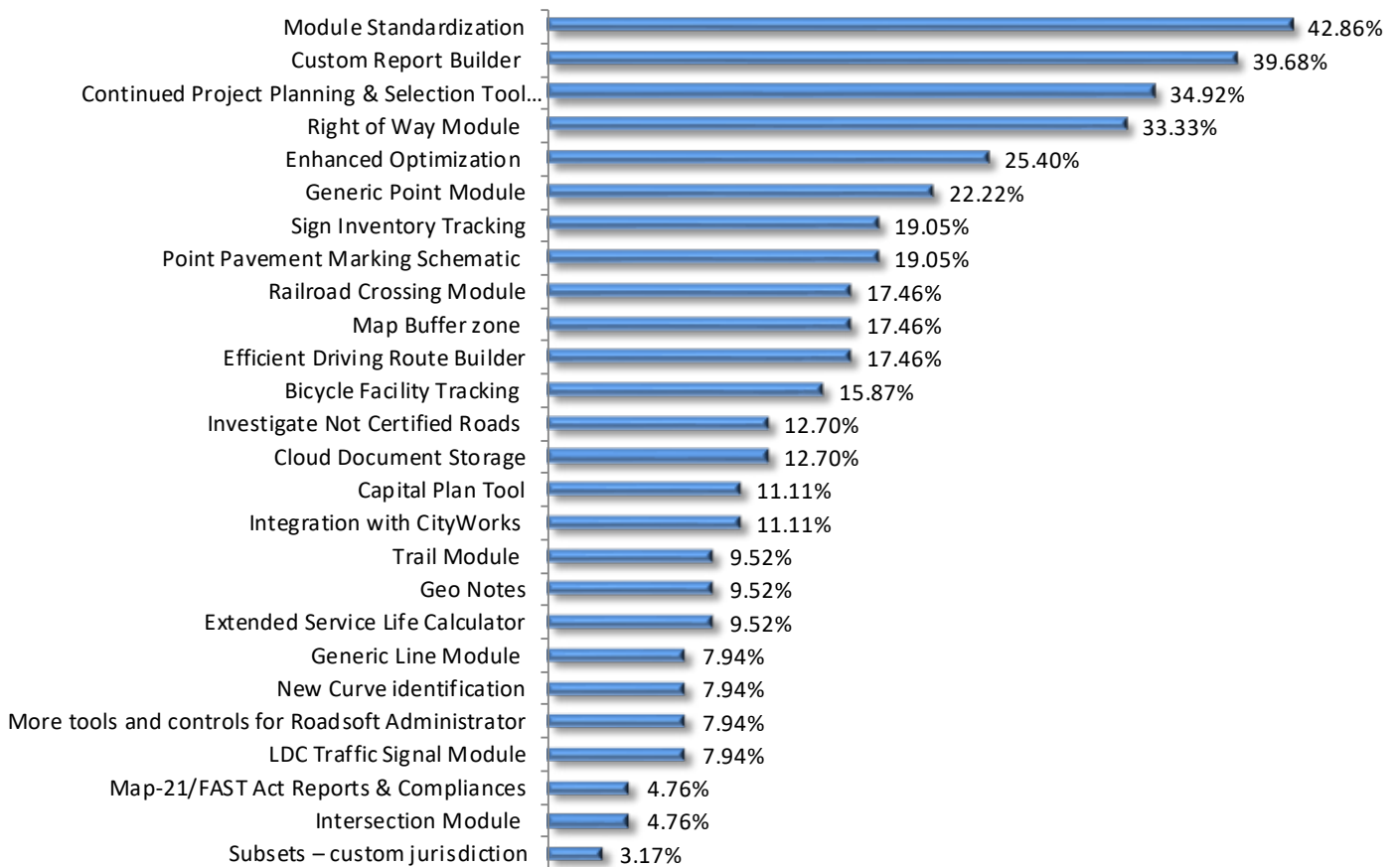| Task	Percentage
Module Standardization	42.86%
Custom Report Builder	39.68%
Continued Project Planning & Selection Tool…	34.92%
Right of Way Module	33.33%
Enhanced Optimization	25.40%
Generic Point Module	22.22%
Sign Inventory Tracking	19.05%
Point Pavement Marking Schematic	19.05%
Railroad Crossing Module	17.46%
Map Buffer zone	17.46%
Efficient Driving Route Builder	17.46%
Bicycle Facility Tracking	15.87%
Investigate Not Certified Roads	12.70%
Cloud Document Storage	12.70%
Capital Plan Tool	11.11%
Integration with CityWorks	11.11%
Trail Module	9.52%
Geo Notes	9.52%
Extended Service Life Calculator	9.52%
Generic Line Module	7.94%
New Curve identification	7.94%
More tools and controls for Roadsoft Administrator	7.94%
LDC Traffic Signal Module	7.94%
Map-21/FAST Act Reports & Compliances	4.76%
Intersection Module	4.76%
Subsets – custom jurisdiction	3.17%

Figure 1 - Rankings of major tasks survey participants consider most important. Item ranking based on the number of responses received in the survey.

Proposed Major Tasks continued from page 2

- Expand the Intersection Module (for traffic information)
- Add a Railroad Crossing Module
- Add a Bicycle Facility Tracking Module (line module)
- Add a sign materials inventory tracking feature (for sheets, posts, etc)
- Add a Trail Module (including those not along roadways)
- Add a map buffer zone (show roads near but outside of jurisdiction)
- Add a custom report builder (definable fields, layouts, and other formatting)
- Add a Geo Notes feature to mark locations on the map and add notes (likely not a full module)
- Make Strategy Evaluation & Optimization feature improvements for creating and evaluating pavement management plans
- Add Extended Service Life Calculator options/settings (rounding vs truncating decimals)
- Add custom jurisdiction subsets to the map (airports, multiple townships, etc)
- Add a schematic feature to the Point Pavement Marking Module that illustrates where marks are located on the road
- Add a Right of Way Module for areas agencies control adjacent to their roads
- Add additional Roadsoft administrator tools (give users permissions to update only certain fields, ability to review LDC files before import, more tracking of updates by name)
- Add Cloud document storage for attached documents/images
- Add the Traffic Signal Module to the Laptop Data Collector
- Add an efficient driving route builder for PASER collection, pavement marking reviews, etc
- Integrate with CityWorks to allow data imports from CityWorks into Roadsoft

Figure 1 shows the number of votes for each potential major task. Based on the survey results and the complexity of the possible tasks, module standardization and usability, framework migration, Project Planning & Selection Tool/Pavement Management enhancements, and development of a Generic Point Module will be considered as goals for the 2020 work plan.

Proposed Maintenance Tasks

The CTT also put together a list of twenty-two potential maintenance tasks from previous suggestions and ideas. While maintenance tasks are not laid out in the work plan, it is useful to know what tasks are considered valuable by Roadsoft users when opportunities to perform maintenance tasks arise. The maintenance tasks presented in the survey were:

- Add Routine Maintenance filtering (from main reporting tab by township or legal system)
- Add a copy/paste feature for sign & maintenance data between supports
- Add reporting and exporting features for Good/Fair/Poor Ratings in the Laptop Data Collector
- Add managing options for field layouts in modules (show/hide/re-order fields)
- Add editable field descriptions to modules in Roadsoft and the Laptop Data Collector
- Add search feature for the Memo field in modules
- Add abilities to reorder Routine Maintenance activity types in modules and delete or archive forms (for example, reorder by job numbers)
- Add a Last Edited Date stamp to project memos
- Link to Project Builder from Road Module (link, button, etc)
- Add archived sign and support improvements (add filtering ability, archive dates, and memo fields, and remove map labels)
- Add relevant dates to filter notes (created, modified, last run)
- Have Laptop Data collector remember the last entered Linear Pavement Mark offsets and automatically enter them in the next linear pavement mark if the fields are empty

Proposed Maintenance Tasks continued from page 3

- Investigate screen mirroring/syncing between the Laptop Data Collector and tablets
- Add ability to archive culverts
- Add ability to archive guardrails
- Add a night mode setting to the Laptop Data Collector to make the background dark colored and roads light colored to help see things at night and maintain night vision
- Add features and functionalities for map creation in Roadsoft (adjusting size/location, being able to select by township/jurisdiction, etc)
- Add map and data preview for Laptop Data Collector imports
- Enhance the Point Pavement Marking Module in the

Laptop Data Collector (legend color changes based on condition assessment, offset overlapping markers on map so they aren't stacked, etc)

- Enhance filter capabilities (filter by last IBR date, created & last edited dates for other fields, etc)
- Revise Culvert Module photo attachments and how they work in conjunction with Stream Crossing Surveys
- Add auto-logout feature that automatically logs users out and exits from Roadsoft or the Laptop Data Collector after 12 hours of inactivity

Figure 2 illustrates the percentage of votes from all respondents for each potential maintenance task. While maintenance tasks are not cemented in the work plan, exporting and reporting options for ratings in the Laptop Data Collector, routine maintenance filtering in Roadsoft, and enhanced map printing had

Potential 2020 Work Plan Maintenance Task Priority Rankings

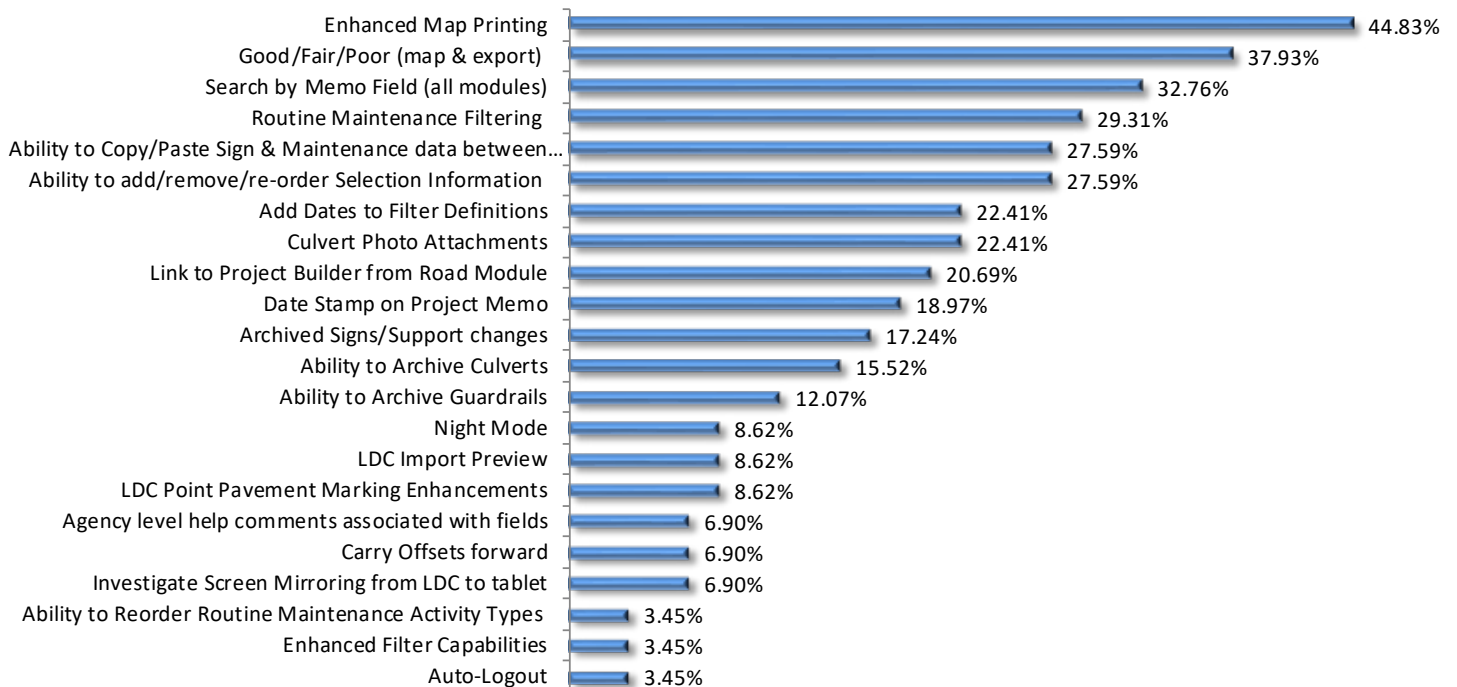| Task	Percentage
Enhanced Map Printing	44.83%
Good/Fair/Poor (map & export)	37.93%
Search by Memo Field (all modules)	32.76%
Routine Maintenance Filtering	29.31%
Ability to Copy/Paste Sign & Maintenance data between...	27.59%
Ability to add/remove/re-order Selection Information	27.59%
Add Dates to Filter Definitions	22.41%
Culvert Photo Attachments	22.41%
Link to Project Builder from Road Module	20.69%
Date Stamp on Project Memo	18.97%
Archived Signs/Support changes	17.24%
Ability to Archive Culverts	15.52%
Ability to Archive Guardrails	12.07%
Night Mode	8.62%
LDC Import Preview	8.62%
LDC Point Pavement Marking Enhancements	8.62%
Agency level help comments associated with fields	6.90%
Carry Offsets forward	6.90%
Investigate Screen Mirroring from LDC to tablet	6.90%
Ability to Reorder Routine Maintenance Activity Types	3.45%
Enhanced Filter Capabilities	3.45%
Auto-Logout	3.45%

Figure 2 - Rankings of maintenance tasks survey participants consider most important. Item ranking based on the number of responses received in the survey.

Potential 2020 Work Plan
Mobile Task Item Rankings

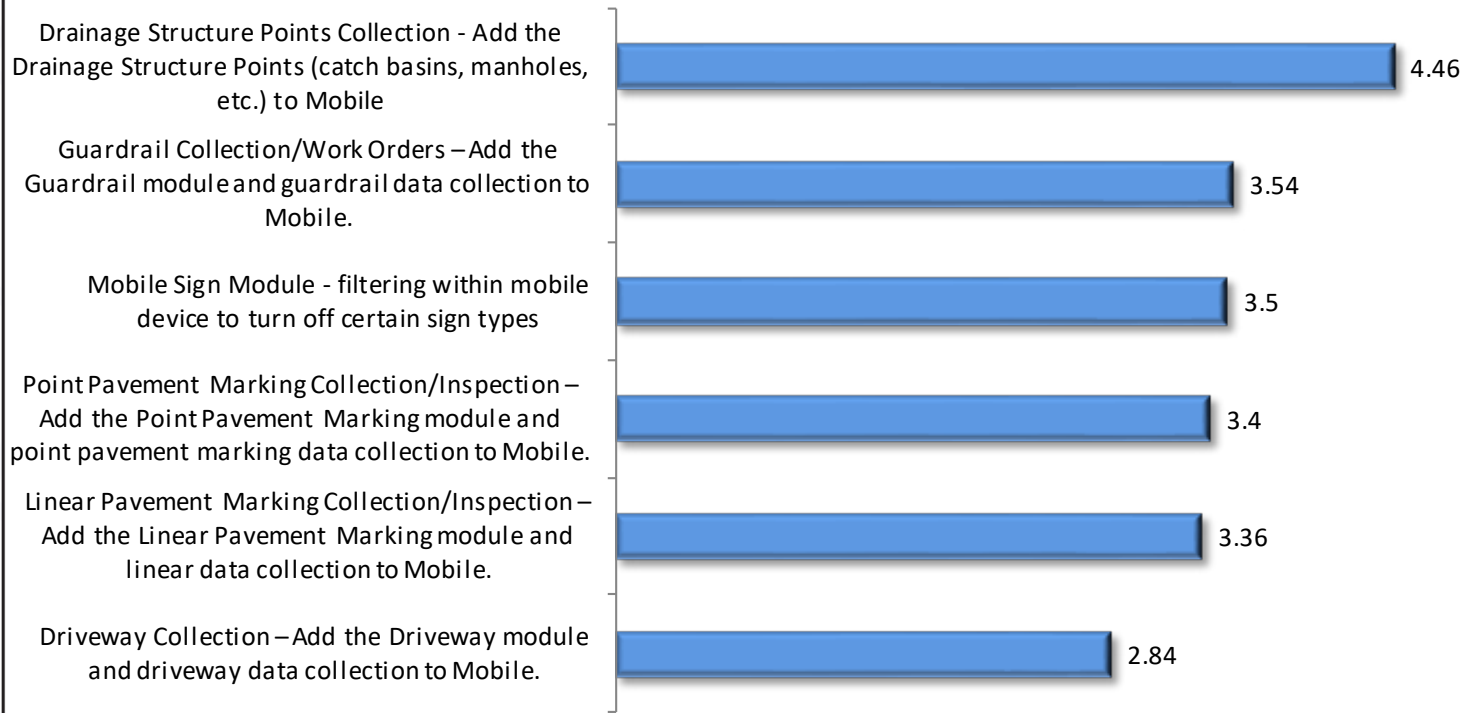| Task	Rating
Drainage Structure Points Collection - Add the Drainage Structure Points (catch basins, manholes, etc.) to Mobile	4.46
Guardrail Collection/Work Orders – Add the Guardrail module and guardrail data collection to Mobile.	3.54
Mobile Sign Module - filtering within mobile device to turn off certain sign types	3.5
Point Pavement Marking Collection/Inspection – Add the Point Pavement Marking module and point pavement marking data collection to Mobile.	3.4
Linear Pavement Marking Collection/Inspection – Add the Linear Pavement Marking module and linear data collection to Mobile.	3.36
Driveway Collection – Add the Driveway module and driveway data collection to Mobile.	2.84

Figure 3 - Rankings of Roadsoft Mobile feature development tasks survey participants consider most important. Item ranking based on the number of responses received in the survey.

high ratings in the survey and will be kept in mind during the 2020 work plan year.

Proposed Mobile Tasks

The CTT compiled a list of six potential mobile tasks and asked survey participants to rate each task from one to six based on how relevant or useful they thought the task would be. Some of the potential tasks are larger and more complex than others, and taking survey participant rankings into account helps us prioritize them in relation to other major and maintenance tasks. The mobile tasks in the survey were:

- Add driveway data collection
- Add guardrail data collection
- Add drainage structure point (catch basins, manholes, etc.) data collection
- Add point pavement marking data collection
- Add linear pavement marking data collection
- Add filtering to turn off certain sign types on the Sign Module map

Figure 3 shows the average ratings of potential mobile task importance. Based on the survey results and the complexity of the possible tasks, adding storm sewer drainage data collection to Mobile will be considered a high priority goal for the 2020 work plan.

CTT Response to General Survey Comments

There were seventeen additional comments and suggestions provided in response to the final question of the survey which asked for general user input and comments. The CTT welcomes

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all input and suggestions regarding the software, good or bad. We rely on user experiences and feedback to help steer the direction of future development and to address any potential issues, shortcomings, and user "wants and needs" in Roadsoft.

Due to the quality of the comments and suggestions provided in the survey, and the detail that we would like to provide in our responses, we will address them in an upcoming article in the next issue of the *Roadsoft Roundup*.

Download and Install Roadsoft 2019.10 & Roadsoft LDC 2019.10.1

Roadsoft 2019.10 and Roadsoft LDC 2019.10.1 are available for download. Local agencies should be running matching versions of Roadsoft and Roadsoft LDC. Before updating either Roadsoft or the LDC, it's recommended that users first complete the data collection cycle by exporting data from all LDC instances and importing it into Roadsoft. The *TAMC Data Collection Manual* has more information on this process. Once all the data from all LDC instances are imported, the agency should then perform a backup of their Roadsoft data. At this point it's then recommended to update Roadsoft and Roadsoft LDC.

Roadsoft 2019.10 can be downloaded at:
http://roadsoft.org/downloads

Roadsoft LDC 2019.10.1 can be downloaded at:
http://roadsoft.org/downloads/laptop-data-collector

Framework Migration Update

The CTT continues to work with the Michigan Department of Technology, Management and Budget (DTMB) and the Michigan Department of Transportation (MDOT) to finalize the data migration process for Roadsoft user data to the latest version of the Michigan geographic framework base map (MGF). Roadsoft relies on the MGF to geographically locate transportation assets and crash data that are stored in the program. The MGF is a unified base map that allows all of the local agencies in the state to share data because it is based on the same location system. Based on the progress and timing of the conversion, Roadsoft data migration and MGF version 20 implementation will occur with the 2020.3 release in March of 2020.

Windows 7 End of Service Life Reminder

As previously announced, Microsoft is ending their support for Windows 7 and will no longer provide security updates after January 14, 2020. In response to this announcement, the CTT will also no longer support or allow new software installations on PCs running Windows 7 starting January, 2020.

More information is available on the Roadsoft website at: http://roadsoft.org/windows-7-end-service-life.

Agencies that need assistance should contact Roadsoft technical support at roadsoft@mtu.edu.

Reminder - Roadsoft No Longer Supports SQL Server 2008 & 2008R2

As previously announced, Microsoft ended their extended support for SQL Server 2008, SQL Server 2008R2, and SQL Express 2008 in July, 2019. In response, the CTT ended Roadsoft and MERL support for all SQL 2008 products as of January 1, 2019. Beginning with the 2019.10 release, Roadsoft will no longer connect to any of the SQL Server 2008 products.

More information is available on the Roadsoft website at: https://roadsoft.org/roadsoft-support-sql-server-2008-and-2008r2-ending.

Update SQL Server

The CTT has information and software available to assist agencies with updating their SQL server software.

Three CTT-specific SQL Express installers are available for download at: http://roadsoft.org/downloads/sql-downloads.

Agencies running Roadsoft on a database using purchased versions of SQL Server (Enterprise, Business Intelligence, Standard, etc.) should contact their office technical support for SQL Server update assistance.

Agencies that need assistance with upgrading and moving their database should contact technical support at roadsoft@mtu.edu.

Roadsoft Student Programmer Spotlight

Erin Terbrack, Technical Writing Intern
Center for Technology & Training

Encouraging innovation through education is deeply rooted to our mission at the Center for Technology and Training (CTT). This extends to the professional development of students interning at our center during the Fall 2019 semester at Michigan Tech. The CTT employs student interns seeking various degrees from across multiple fields, including engineering, software development, website and application development, and scientific and technical communication. At any given time, the CTT will have between ten and fifteen student interns working in various capacities for the center. Of those, there are six interns working specifically on Roadsoft during the Fall 2019 semester.

By engaging students in the programming, testing, and troubleshooting processes, we improve Roadsoft's capabilities while simultaneously providing students with applicable professional experience. These students test the program and write code to add functionality and improve the user experience of Roadsoft.

With this in mind, we would like to take this opportunity to spotlight two of our current software interns and highlight their involvement with the Roadsoft development team. Additional interns and professional staff will be highlighted in upcoming issues of the *Roadsoft Roundup*.

Joshua Hansen

"Always be willing to adapt."

This is the advice of Joshua Hansen, a senior in software engineering at Michigan Tech and software intern at the CTT. Hansen has been a part of the team since November 2018, where he has gained professional experience with working on both Roadsoft and MERL. Hansen first became interested in the software intern position while he was working in the Information Technology (IT) department at Michigan Tech. "I was doing Linux system administration

Joshua Hansen

with IT […] but what I am doing here really nails it out of the park in what I am looking for in terms of software engineering and developing software."

Like the other software interns, Hansen is involved with the testing and development of Roadsoft. Currently, he works with a testing suite which assesses the database connection. "What I want to do is ensure that things can go to the database correctly—they can be pulled from the database correctly, be changed if need be, and removed safely," Hansen explained. "You don't want to change something and have something else mistakenly be deleted. And that's what I'm ensuring." Alongside this unit testing of Roadsoft, Hansen stated that his average day at the CTT includes problem solving with other interns. "We have this open pit ideology where people can toss ideas back and forth," Hansen said. Although this teamwork is encouraged, Hansen explained that as interns they also take initiative and work independently. This is one of the most challenging, but rewarding, aspects of the internship position. "I'm doing something that nobody else is doing here right now. And I'm kind of exploring on my own." Hansen stated that he receives insightful feedback from the team of interns and experts at the center, then focuses this feedback into the actual code creation. And this dynamic has led to some important professional development.

Outside of interning at the CTT and working hard as a student, Hansen said he loves the outdoors. He is originally from L'Anse and listed hiking and camping as common activities. Hansen added that he also enjoys weekends where he can spend time with good friends and good food.

Looking to the future, Hansen stated he hopes to continue working with the testing suite, which can be used to assess upcoming software builds. "I think that's something that will be very important in the long run," Hansen said. With his graduation from Michigan Tech fast approaching in December of this year, Hansen felt this software development represented the "final, big project that I get to work on." Hansen ended the conversation by saying he was thankful for the professional development he had gained at the center, and encouraged future interns to make the most out of new work environments.

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Will Kirkconnell

Will Kirkconnell

"Don't be afraid to ask for direction."

Will Kirkconnell shared this advice when discussing his experience at the CTT. Kirkconnell is a third year computer science major from Michigan Tech, who shared a similar transition from IT as software intern Joshua Hansen. Kirkconnell has since been working at the Center for Technology & Training since January 2019. "I really wanted a software development job on campus," Kirkconnell explained, hoping to have more experience in the field while also continuing school.

Now with several months of experience as a software intern with the CTT, Kirkconnell expressed that the work encouraged a personal interest in web development. "The way that you debug web programs or web development and websites is just different," Kirkconnell explained. His average day at the center begins by reviewing the work tickets posted by fellow staff and interns. The team dynamic is something new for Kirkconnell, as student coding in classrooms is largely private. "It's nice being able to work in a team," Kirkconnell added. Once he finishes addressing the tickets, most of Kirkconnell's work at the center includes manually testing the culvert module in Roadsoft. "I'm inputting examples in forms and fields and seeing if I can break the program. Then if I do break it, I create a new ticket for trying to solve the issue. Or try to solve it myself." Finding these technical issues and fixing them helps prevent future real-time issues in the field. And solving them, Kirkconnell suggested, is one of the most satisfying aspects of the job. Learning the current language of the program provides another challenge for interns, although Kirkconnell valued the opportunity to get feedback from the team. Relying on resources could result in a "five-minute problem instead of a two-hour problem."

Kirkconnell shared that he is originally from Holt, Michigan and discovered a love for the Houghton area by visiting his sister on Michigan Tech's campus. When asked about his hobbies, he quickly shared his interest in hiking and biking down the local river trails. Kirkconnell has also been swimming since elementary school and greatly enjoys the activity. He added that as a computer science major, he should include playing video games as an activity he loves to do during his free time. Kirkconnell clarified that it was not a specific game, but rather any game that gave him an opportunity to spend time with friends.

Continuing with his internship at the CTT, Kirkconnell hopes to learn more about the back end database used by Roadsoft. "All that data, I want to know how exactly we store that," Kirkconnell stated, "How it's changed. How we update it." On top of this interest, Kirkconnell was thankful for the opportunity to learn about languages such as C# and JavaScript. "It's a lot of practical programming language experience," Kirkconnell said. As a software intern, Kirkconnell collaboratively improves Roadsoft's functionality through work with the other interns, as well as with the professional staff.

Upcoming Training & Events

Introduction to Roadsoft Hands-on Training
DoubleTree Hotel
Bay City, Michigan
Wednesday, January 8, 2020

http://ctt.nonprofitsoapbox.com/roadsoft/event/894

Roadsoft Pavement Management
Hands-on Training
DoubleTree Hotel
Bay City, Michigan
Wednesday, January 8, 2020

http://ctt.nonprofitsoapbox.com/roadsoft/event/895

2020 Roadsoft User Conference of the United States (RUCUS)
DoubleTree Hotel
Bay City, Michigan
Thursday, January 9, 2020

http://ctt.nonprofitsoapbox.com/roadsoft/event/878

Questions? Email ctt@mtu.edu
Visit http://ctt.nonprofitsoapbox.com/upcoming-events to see all upcoming CTT training events.