Roadsoft® Roundup

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Model Inventory of Roadway Elements Fundamental Data Elements

The federal FAST (Fixing America's Surface Transportation) Act established seven Transportation Performance Management (TPM) measures for states to set targets towards meeting. Tied to the safety TPM is Federal Register 13722, which lays out a safety data item collection requirement called the Model Inventory of Roadway Elements Fundamental Data Elements (MIRE FDE). The MIRE FDE is a set of data items that must be collected based upon the National Functional Classification (NFC) and surface type of all public roads in Michigan. The MIRE FDE establishes a collection of data that supports Michigan's data-driven safety program. Roadsoft was determined to be the appropriate software to make the MIRE FDE data most accessible for users. Roadsoft traffic and safety analysis tools are already being used by the Michigan Department of Transportation (MDOT) and local agencies. Supplying the MIRE FDE data within Roadsoft enhances MDOT's and the local agency's ability to make decisions on the safety performance of roadways.

In addition to supplying MIRE FDE data, an annual data exchange process was also established between MDOT Roads and Highways (RH) and Roadsoft. Roadsoft uses the MDOT RH data as the framework basemap and including the MIRE FDE data was a natural fit. The newly created Roadsoft MIRE FDE review tools that were released with Roadsoft version 2022.3 allow local agencies and MDOT staff to review, maintain, and exchange MIRE FDE data. This data cycle process is designed to advance the state's capabilities for safety data collection and analysis by improving timeliness, accuracy, completeness, uniformity, integration, and accessibility of safety data on all public roads.

Starting with Roadsoft version 2022.3, local agencies now have access to MIRE FDE data on roadways within their geographical boundary as well as MIRE FDE tools in Roadsoft. The Roadsoft MIRE FDE tools will allow local agencies to compare, accept, edit, and submit six MIRE FDE road segment data items: facility type, median type, access control, through lanes, traffic control, and surface type. In addition, the Roadsoft MIRE FDE tools also provide two MIRE FDE intersection data items: traffic control and geometry.

The annual data cycle is aimed to be a collaborative effort between MDOT and local agencies to review supplied data and send updates via the Roadsoft tools. MDOT is asking local agencies to compare, edit, and submit data so MDOT can share a complete collective of the MIRE FDE.

The MIRE FDE Roadsoft tools allow agencies to compare and edit the data and export any changes for submittal to MDOT. It is important to note that some agencies may not find any MIRE FDE data, as the MIRE FDE collection process is not expected to be complete until September of 2026.

MDOT is asking for assistance from local agencies to complete their federal requirements and provide a full and complete dataset of MIRE FDE to aid in safety analysis and to build a smarter, safer transportation infrastructure for years to come. The data exchange between RH and Roadsoft is one piece of a larger puzzle that allows data to be shared across levels of government, and in a world where information is power and data is information, sharing data should be the ultimate goal.

The MIRE FDE enhancements to Roadsoft, as well as the data collection vendor pilot studies, were funded with grant money from the National Highway Traffic Safety Administration (NHTSA). MDOT applied for the grant through the Michigan's Traffic Records Coordinating Committee (TRCC) and the grant process was administered through the Michigan Office of Highway Safety Planning (OHSP). Additional funds for support activities for MDOT and the Michigan Center for

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Shared Solutions (CSS) staff are supported by Federal Highway Administration (FHWA) State Planning and Research (SPR) program.

SURFACE TYPE - MDOT PILOT PROJECTS

MDOT initially focused on the data items that were an extensive effort to collect, with surface type being the most extensive collection process. MDOT assessed two projects for the collection of surface type. Based on that assessment, the MIRE FDE surface type data available in the Roadsoft version 2022.3 was derived from those two pilot projects and TAMC surface type.

Michigan Tech

MDOT selected Michigan Technological University (Michigan Tech) to derive surface type data. Six counties were selected for this pilot project: Monroe, Oakland, Kalamazoo, Wexford, Ontonagon, and Gogebic. Michigan Tech's staff researched and developed artificial intelligence (AI) and remote sensing techniques to detect unpaved roads using high quality four-band aerial imagery from the Michigan Statewide Authoritative Imagery and LiDaR (MiSAIL) program. This surface type data is being supplied in Roadsoft version 2022.3 and later. The Michigan Tech pilot project was determined to be capable of collecting all surface type data in the state by the deadline. Michigan Tech will continue with the process to collect unpaved, asphalt, and concrete roads for all counties with expected completion in August of 2024.

Center for Shared Solutions

CSS was asked to contact local agencies to ask a series of MIRE FDE related questions. One of the questions asked local agencies if they could provide surface type data. CSS staff contacted 82 counties and 39 cities. Of those contacted agencies, 26 counties and 11 cities responded. Seven county agencies supplied CSS with website links where they were able to add surface type data on the county's roads into the RH database. The counties that supplied links included; Eaton, Genesee, Huron, Isabella, Lapeer, Newaygo, and Oakland. That data was then entered into RH by CSS Staff. CSS staff have since been assisting in the collection of median type data across the state by utilizing the Event Editor application in the RH system.

TAMC

A third source outside of MDOT for MIRE FDE surface type data is included in Roadsoft as part of the data collected for TAMC during the Pavement Surface Evaluation Rating (PASER) and Inventory Based Rating (IBR) collection cycle. The data that local agencies and planning agencies submit to TAMC is shared with MDOT and is utilized in the MIRE FDE surface type field.

ANNUAL AVERAGE DAILY TRAFFIC

The first complete statewide "Needs File" was created in 1978 when state legislation required MDOT to work with Act 51 recipients to collect data on all public roads. The Needs File included a collection of data on Michigan's roads, including Annual Average Daily Traffic (AADT), and was used in the process of assessing the needs of Michigan's roads. It was created with the intent that it would be updated every 10 years. In 2002, the Transportation Asset Management Council (TAMC) was created to aid in the process. The council was able to successfully collect data on all federal-aid roads. The Needs File became outdated, and it was decided to discontinue its use; however, some data, including AADTs for non-federal aid roads, was still needed for Highway Performance Monitoring System (HPMS) reporting. The Needs File was used to create a summary table for all non-federal aid roads. HPMS does not require exact values on non-federal aid roads, so estimates worked for the time being. It is because of this process that some AADT values repeat on non-federal aid roads.

The management of AADT values has been a responsibility of the HPMS Team since the retirement of the Needs File. An effort to update the AADT estimates on all non-federal aid roads is underway, and responsibility for updating and maintaining the estimates is being transferred to the Travel Information Unit (TIU). MDOT's goal is to go back to the original intent of working with local agencies to ensure that

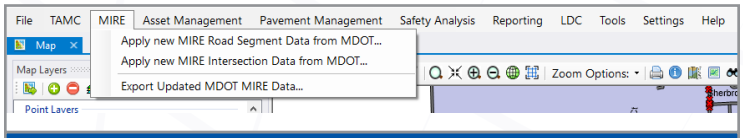
updated estimates are reported on all roadways.

AADTs for federal aid roads are generally all based on actual traffic counts and are updated on an annual basis either through completion of a new traffic count or through the use of growth factors (values derived from permanent count locations to adjust AADTs from year to year). Many of the AADTs are based on traffic counts completed by local agencies, and MDOT appreciates the willingness of local agencies to share their traffic counts each year.

For information or questions regarding AADTs or MDOT's traffic monitoring, please contact Kyle Kirchmeier, NTFA and Local Roads Program Coordinator, KirchmeierK@michigan.gov, 517-331-6929.

USING ROADSOFT MIRE FDE TOOLS

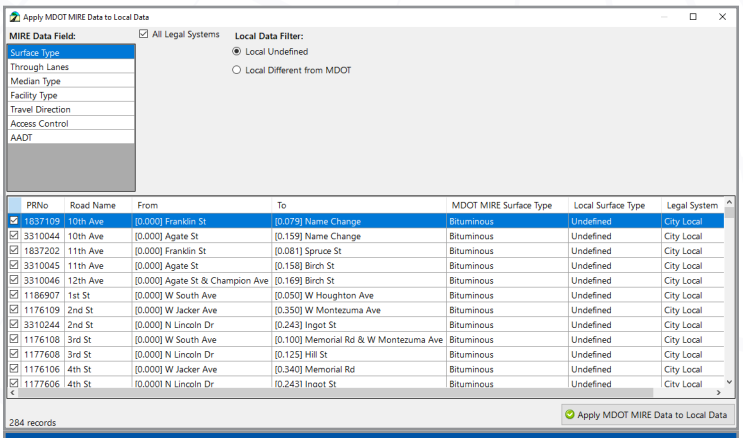
Agencies now have access to tools and limited MIRE FDE data in Roadsoft. Local agencies are being asked to compare the MDOT data in Roadsoft with their data and update information as needed. Roadsoft provides agencies with the ability to import MDOT MIRE FDE data that they do not have. Though local agencies will also be able to find AADT



The MIRE drop-down menu provides options for Roads, Intersections, and the ability to export updated MIRE data to a zipped Geodatabase file for submitting to MDOT.

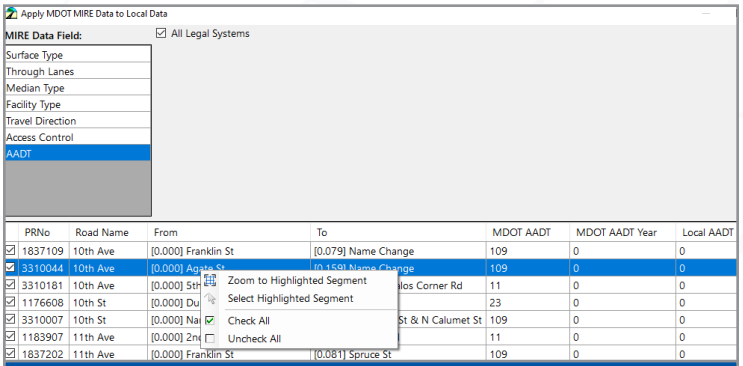
values in the MIRE FDE list, they are being asked to work with TIU to update those values.

In Roadsoft, under the **MIRE** drop down menu, there are three options. The first option, **Apply new MIRE Road Segment Data from MDOT**, allows agencies to apply MDOT road data to their own database. The second option, **Apply new MIRE Intersection Data from MDOT**, allows agencies to apply MDOT intersection data to their database (when available). Upon selecting the first and second options to Apply MDOT

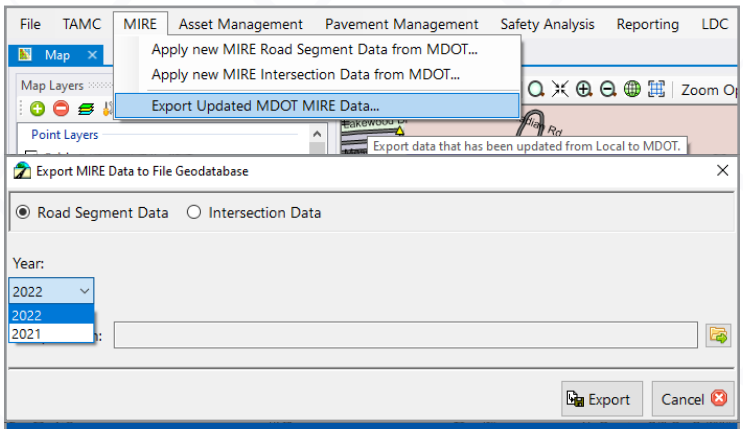


Agencies can apply MDOT MIRE FDE data to their local data if there currently isn't data, or if it differs.

MIRE data, another window will appear that allows agencies to review and apply the MDOT MIRE data. The fields on the left list the MIRE FDEs that agencies can compare. To the right of the MIRE FDE fields there are two options; filter the data by either **Local Undefined**, or **Local Different from MDOT**. Each listed item within each of the different MIRE FDEs can be selected or unselected. Right-clicking on the table will bring up a menu that allows agencies to either **Zoom to the Highlighted Segment** on the map, **Select the Highlighted Segment** on the map, **Check All Items** in the list, or **Uncheck All Items** in the list. Local agencies will then be able to apply the data by selecting the **Apply MDOT MIRE Data to Local Data** button. It is important to emphasize that the process of integrating the MDOT MIRE FDE data is not currently automated and requires the agency to go through the steps to apply the data.



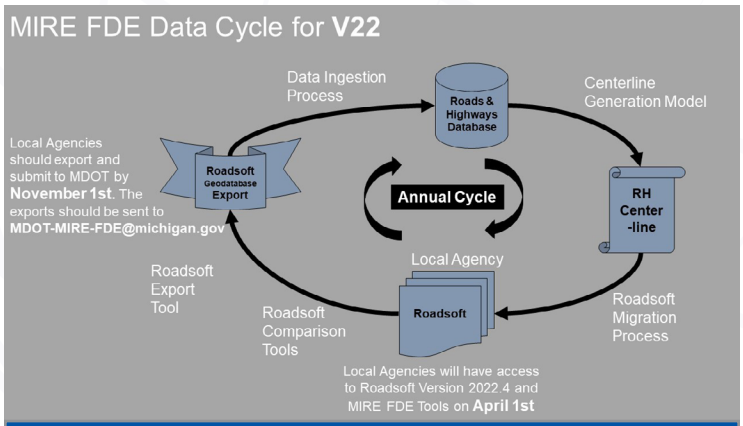
Right-click menu on the table provides four options.



Once the data review and application process is completed, agencies can export updated MIRE FDE data to a zipped Geodatabase file for submitting to MDOT.

The third option under the **MIRE** menu, **Export Updated MDOT MIRE Data**, allows agencies to submit their data updates to MDOT. A window will appear that allows the user to select either **Road Segment Data** or **Intersection Data**, the year, and the location of the export file. Clicking the **Export** button will create a zipped ESRI Geodatabase file that can be sent to MDOT. The exports should be submitted to MDOT-MIRE-FDE@michigan.gov by **November 1st, 2022**.

CTT staff is looking to eventually create an "easy button" that would allow the user to review the data then click the button to send data seamlessly to MDOT and CSS.



The annual MIRE FDE data cycle is aimed to be a collaborative effort between MDOT and local agencies to review supplied data and send updates.

FUTURE EFFORTS

The MDOT MIRE FDE team will continue working with Michigan Tech to finish the Surface Type project. It is expected to be completed in FY 2024. Along with the Michigan Tech project, CSS and MDOT will be working to enter more data into RH. Aside from the linear MIRE FDE data items noted, the development of point data and how to efficiently share traffic control, intersection geometry, and intersection approach data, among other intersection point MIRE FDE, is ongoing. The annual release of available MIRE FDE data will correspond with the Roadsoft spring "migration" release that is typically made available in late March. All data collection will be completed by September of 2026.

For any questions about the MIRE FDE Data Cycle or MIRE FDE in general, please email MDOT-MIRE-FDE@michigan.gov. The MIRE 2.0 document published by FHWA can be found at https://safety.fhwa.dot.gov/rsdp/downloads/fhwa-sa17048.pdf.

Upcoming Training

2022 Introduction to Roadsoft Hands-On Training
September 20, 2022
http://ctt.nonprofitsoapbox.com/2022rsintro-fall

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