



# Traffic Safety Section Findings & Recommendations

October 26, 2021

Prepared by:



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*Confidential*

October 26, 2021

Montana Department of Transportation  
Traffic Safety Section  
2701 Prospect Avenue  
Helena, MT 59601

Thank you for taking the time to complete the U.S. CAD Discovery Process. During this journey your team has helped us gain a deeper understanding about the Traffic Safety Section. By taking the information you provided in the Discovery Workbook and through our Discovery Workshop, we've compiled the information and summarized the findings within this document.

Our goal through this process is to help the Traffic Safety Section achieve more. We understand the challenges that exist within the industry and your significant investments to make your Department of Transportation great. Through this process we trust that you will have also gained more insight into your organization.

Herein you will find our findings and recommendations. We trust that you will find this information useful in your pursuit to achieve more as an organization.

We look forward to strengthening our partnership with MDT and the Traffic Safety Section.

Best Regards,

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## EXECUTIVE SUMMARY

Montana Department of Transportation (MDT) enlisted U.S. CAD to gather information about your section and provide recommendations based on our experience and knowledge. Through our Discovery Process U.S. CAD was able to uncover insights about how the Traffic Safety Section performs business, technologies currently used, required deliverables, existing pain points, objectives, and goals. The information gathered from the completed Discovery Workbook(s) and Discovery Workshop was used to help us better understand these areas of your organization and to prepare this document.

During our review of your Discovery Workbook(s), and while performing the Discovery Workshop we identified/noted the following items:

- Lack of quality and availability of crash site data from agencies, cities, and towns
- The need to leverage GIS platforms for site specific data and As-Built plans
- Localized internal GIS platform for ease of access and the sharing of accurate data is needed
- MDT bureaus are using outdated GIS data when creating project documentation

This report highlights our understanding of the items listed above and our proposed recommendations as a part of the MDT CADD Implementation process.

U.S. CAD did not observe any immediate opportunities that would allow the Traffic Safety Section to utilize the AEC Collection. However, in the future, once other bureaus have completed their migration to the Autodesk AEC Collections, there could be potential opportunities for increased cross collaboration.

This report is broken out into the following sections:

<b>Discovery Findings</b>	This section highlights key elements uncovered during the Discovery Process.
<b>Department Profile</b>	The organizational structure of the division and interactions with internal and external teams.
<b>Current State</b>	Current processes and solutions used, including pain points, receivables, and deliverables.
<b>Desired State</b>	This section captures our understanding of the team's desire state, wish list items, goals, and objectives.
<b>Recommendations</b>	In this section we provide our specific recommendations on process and solutions based on our findings during the Discovery Process.

## DISCOVERY FINDINGS

The following section highlights specific areas that were included in the Discovery process. Within each of the subsections below, U.S. CAD made specific notes regarding current challenges the Traffic Safety Section faces, data used for analysis, and the collaboration of data between MDT bureaus. These highlighted items are expanded upon in the Recommendations section further in the document.

The Discovery Findings have been summarized and included in the following sections:

- Department Profile,
- Current State, and
- Desired State.

The information documented in these sections provides the background for U.S. CAD's recommendations.

## DEPARTMENT PROFILE

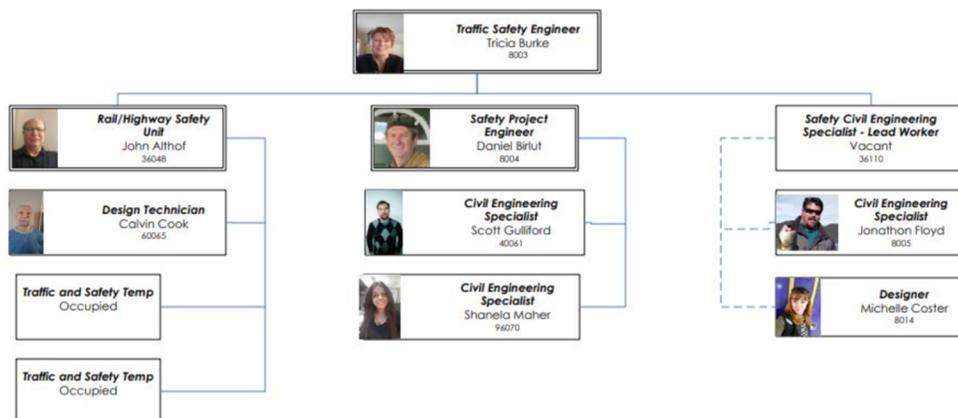
The Department Profile section provides our understanding of the organizational structure, key staff within the organization, departmental relationships, and how the Traffic Safety Section interacts with other internal MDT Sections/Bureaus, external agencies, and consultants.

The Traffic Safety Section's primary focuses are highway safety investigations, road safety audits, program safety projects, and annual reports for safety. The section obtains and provides accurate crash site data for problematic corridors, roadways, and intersections to procure funding for safety improvements. In addition to safety improvements, the section performs Cost/Benefit Analysis for multiple MDT bureau's/departments. They most commonly utilize data provided from law enforcement agencies, cities, towns, and internal MDT data sources. Other data sources utilized may include GIS, PathWeb, as-built plans, Google Earth, and PPMS.

During the Discovery process, U.S. CAD was introduced to three (3) key staff members who are integral components of the MDT Traffic Safety Section; Tricia Burke, Daniel Birlut, and Michelle Coster. These employees have immense knowledge and skills working within the Traffic and Safety ecosystem. Their knowledge of the inner workings of MDT's Traffic Safety Section, and outside entities, provided us with the needed details for a thorough understanding of day-to-day operations.

The key staff members along, with the additional Traffic Safety Section staff create, consume, and share Traffic related data with internal departments and external consultants, agencies, and the public. Some of the tools used by the Traffic Safety Section include SIMS, Oracle, Excel, and Google Imagery. As-Built plans are also heavily leveraged for data as well.

Below is the Organizational Chart of the MDT Traffic Safety Section.



## CURRENT STATE

The Current State section captures our understanding of the existing workflow, processes, and solutions used within the organization:

### **Traffic Safety Section – Current Process Map**

Currently, the Traffic Safety Section begins the process of Safety Reviews and/or Crash Analysis when:

- They are notified by MDT design staff that a new project has been initiated.
- Project sites are being analyzed for safety improvements.

The Traffic Safety Section has several different sources that are used for collecting crash site and project site data to be analyzed.

- Montana Highway Patrol (MHP)
- Internal MDT data bases
- GIS – external and internal
- As-Built plans
- Web based aerial platforms (Google Earth)
- ArcMap Online – MDT Statistics only

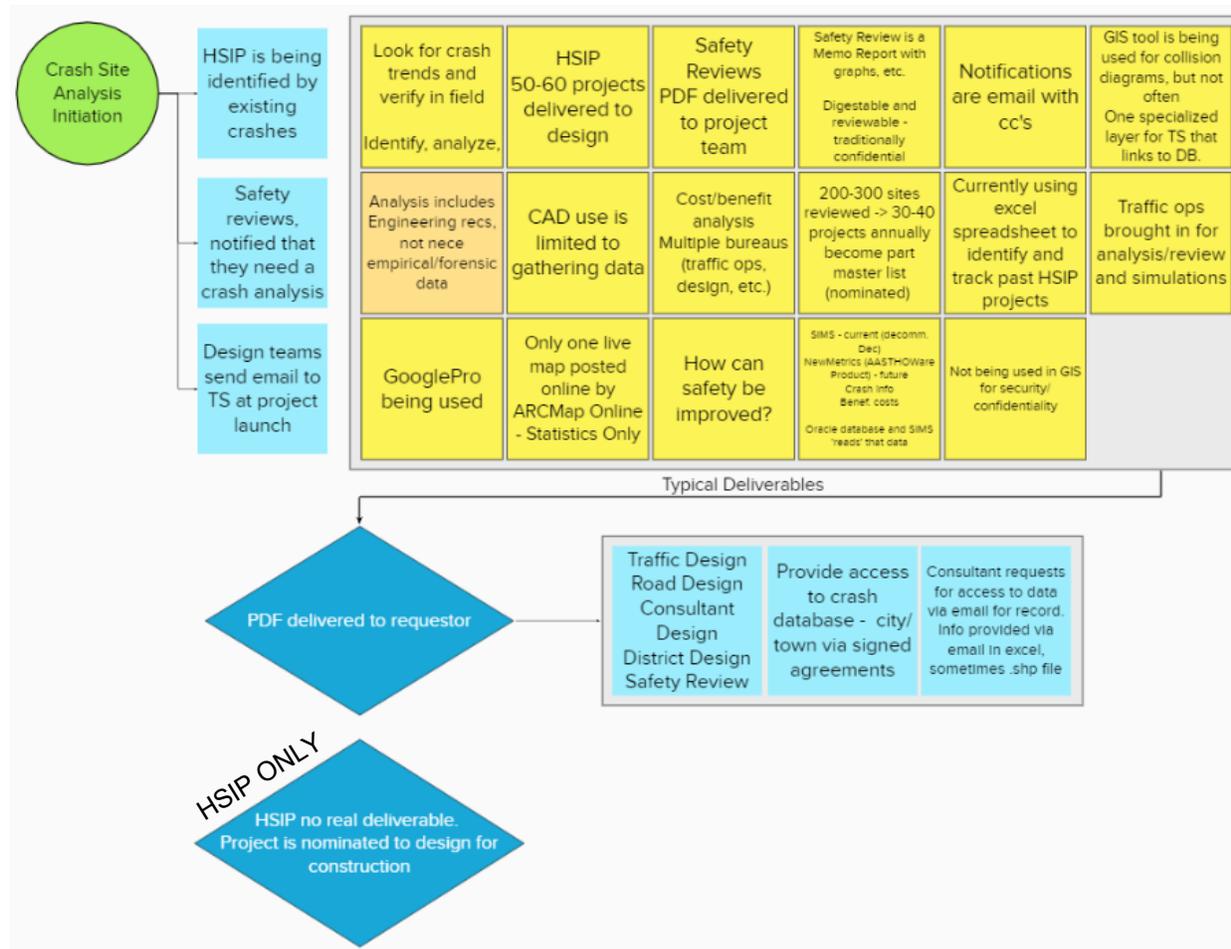
Once the Traffic Safety Section has collected all relevant crash site data for a specific site, the data is analyzed and processed into the specific deliverable format. Deliverable formats could include, but are not limited to, formal reports, excel spreadsheets, .shp files, and/or access to a crash site database. The deliverable is emailed to the recipients requesting the analysis.

Activities involving the Highway Safety Improvement Program (HSIP) funding do not result in a physical deliverable. Instead, a project is identified or is held for internal purposes within the section.

## Traffic Safety Section – Current In House Workflow

The graphic shown below represents our understanding of the current workflow. The graphic was created using an on-line whiteboard during the Discovery Workshop with key section staff.

Project Identified - Data Collection and Analysis Stages:



## DESIRED STATE

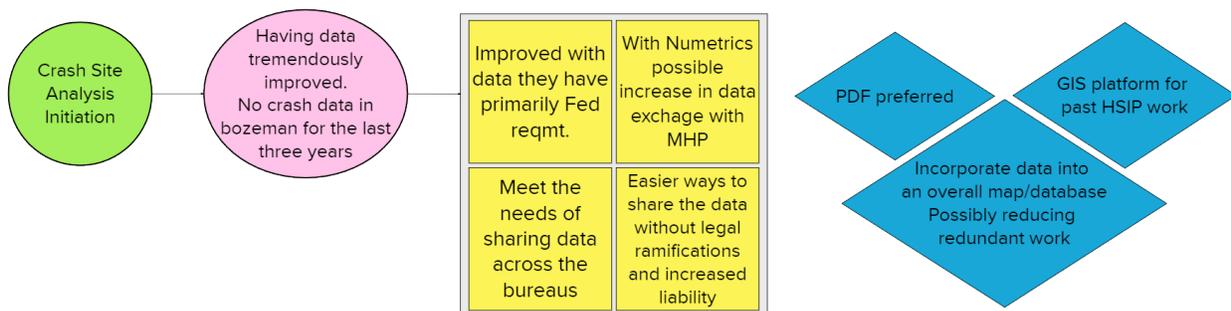
The Desired State section documents information shared by the Traffic Safety Section regarding the future desired workflows, processes, and solutions. While it is understood that not all items shared by the team members during the Discovery Process are addressed within this section, U.S. CAD has identified potential solutions and recommendations to help the Traffic Safety Section move closer to achieving their goals. The potential solutions and recommendations are outlined and located under Recommendations section of this document.

- Collaborative workflow for obtaining and disseminating crash site data
- Ability to easily access digital design plans and as-builts
- Easy access to accurate and up to date crash site data
- Having available and up to date data for cities and towns

### Traffic Safety Section – Desired In House Workflow

Workflow Map created using on-line whiteboard during Discovery Workshop

Project Identified - Data Collection and Analysis Stages:



Several items were outlined and identified during the Discovery Workshop as “Wish List” items:

### Wish List Items

- One Centralized Active Project Map to include current projects, past projects, linked as-builts.
  - Also, to include previously reviewed sites
  - Easy access to identify overlapping project sites
  - Past HSIP projects
- Improved relations with external agencies where data is shared
  - Enhanced collaboration for sharing data in a centralized way (MHP, cities/counties, MDT)

## RECOMMENDATIONS

Based on the information shared by the Traffic Safety Section through the Discovery Workbook and Discovery Workshop, U.S. CAD has prepared a summary of our recommendations. This information is prepared for you to consider as you make investments in moving forward toward your goals and objectives. We look forward to the discussions around these recommendations and next steps.

U.S. CAD believes that by integrating the use of GIS in all relevant bureaus and having one localized source for all MDT data would provide easy access to all MDT bureaus and external entities if shared. The true intent of the GIS database would be to provide accurate and real time data/plans for users to access. The capabilities of the GIS database would provide access to maps, specific project site data, current/past projects, as-built plans, etc. By incorporating this additional information into the existing GIS foundation already in place and being used, the MDT GIS database would become an invaluable resource for all MDT departments. Inherently improving the workflow for the Traffic Safety Section.

Currently, the Traffic Safety Section does not utilize CAD software platforms for analyzing and preparing crash site data. The Section could, however, benefit from being made aware of the GIS tools available within the Autodesk AEC software collection. Having knowledge of the available tools and how they are being leveraged within other MDT bureaus will help bridge the data gap and improve efficiencies between functional areas.

### Future Considerations

U.S. CAD recommends performing a high-level demonstration of the tools within the Autodesk products to the Traffic Safety Section to give them further insight on what file types can be imported and exported. With this knowledge U.S. CAD feels the Traffic Safety Section will have a better understanding of what the design departments' capabilities are. Topics may include consuming, leveraging, and delivering GIS data. Topics may also include what types of data will be published to BIM 360 for the Traffic Safety Section's use. We also recommend a comprehensive training program be provided outlining BIM 360.

By exposing the GIS tools included in the Autodesk products, to all MDT bureaus, staff will have the knowledge needed for making informed decisions on what data is available and how to access it. Providing the Traffic Safety Section with tools to import GIS data and utilize GIS data in their current workflows is key to removing existing inefficiencies and frustrations within the Section. It is equally important for the Section to export data capable of being consumed by the GIS Bureau.

### Next Steps

Product demonstrations will be scheduled accordingly with the Traffic Safety Section.

