Montana Weigh-in-Motion (WIM) and Automatic Traffic Recorder (ATR) Strategy

Report for Task 4

Survey of MDT Traffic Data Users

Prepared by

Natalie Villwock-Witte,
Assistant Research Professor/Research Engineer
Western Transportation Institute at Montana State University

Jerry Stephens,
Professor/Research Director
Montana State University

Western Transportation Institute
Montana State University

Prepared for

Montana Department of Transportation
2701 Prospect Avenue
P.O. Box 201001
Helena, MT 59620-1001

December 2015

ABSTRACT

As part of a major research project being conducted by the Montana Department of Transportation (MDT) on assessing the efficacy of its traffic data collection program, a survey was conducted of current and potential users of traffic data external to the Traffic Data Collection and Analysis (TDCA) Section within the MDT. Thirty-three surveys were collected from current and potential users of traffic data from a) various units of MDT, b) Metropolitan Planning Organizations/cities within the State of Montana, and c) Tribes, between December of 2014 and July of 2015. The survey asked questions to better understand 1) how traffic data is being used, 2) what type of data users need, 3) the value of good data, 4) the ease of accessing data, 5) the use of the TDCA website, and 6) experiences with the new Traffic Count Database System. The majority of respondents provided only current data uses; few potential data uses were identified. The survey results suggest that data provided by the TDCA Section is primarily used for planning, design and safety analyses, and the majority of respondents were satisfied with the form and availability of the data they currently use. Several of the respondents, typically outside of the MDT, provided input regarding other data types that they desire.

TABLE OF CONTENTS

ACRONYMS

The following list defines acronyms that will be used throughout the report:

- AADT: Average Annual Daily Traffic
- ADT: Average Daily Traffic
- ATR: Automatic Traffic Recorder
- ATV: All-terrain Vehicle
- BIA: Bureau of Indian Affairs
- C&P: Conditions & Performance
- DHV: Design Hourly Volume
- ESAL: Equivalent Single Axle Load
- FARS: Fatality Analysis Reporting System
- HPMS: Highway Performance Monitoring System
- LRTP: Long Range Transportation Plan
- MCS: Motor Carrier Services
- MDT: Montana Department of Transportation
- MEPA: Montana Environmental Policy Act
- MPO: Metropolitan Planning Organization
- NEPA: National Environmental Policy Act
- RSA: Road Safety Audit
- SIMS: Safety Information Management System
- SFC: State Funded Construction
- TCDS: Traffic Count Database System
- TDCA: Traffic Data Collection and Analysis
- VMT: Vehicle-Miles Traveled
- WIM: Weigh-in-Motion

INTRODUCTION

As best said by Andrew Finch, Transportation Planner for the City of Great Falls, "Traffic counts are 'the basic data for all transportation decisions. If you ask someone what's the most important statistic, they're going to say traffic counts'" (Rowell, 2015).

The Traffic Data Collection and Analysis (TDCA) Section of the Montana Department of Transportation (MDT) has initiated a project through the Western Transportation Institute (WTI) at Montana State University (MSU) to review their Weigh-in-Motion (WIM) and Automatic Traffic Recorder (ATR) data collection programs to ensure that they are providing the best possible traffic information in the most cost effective manner to meet current and future data user needs. As a part of this review, current and potential traffic data users were contacted relative to their use (or potential use) of existing data available from the TDCA Section, as well as what new data and/or data products (i.e. aggregation/presentation schemes) they desired to better support their activities.

Thirty-three surveys were collected from various divisions, programs, bureau, and districts within MDT; local cities and metropolitan planning organizations (MPOs); and tribes, from December of 2014 through July of 2015. The survey asked questions to better understand 1) how traffic data is being used, 2) what type of data users need, 3) the value of good data, 4) the ease of accessing data, 5) the use of the TDCA website, and 6) experiences with the new Traffic Count Database System. The survey was distributed as a Word document, by phone interviews, and via SurveyMonkey. Providing potential respondents with a multitude of venues through which the survey information could be provided assisted in obtaining more user responses.

This report presents the survey results and summarizes its overall findings.

SURVEY DESIGN

The specific instrument used for this survey was designed in conjunction with the TDCA Section of MDT. The full instrument is reproduced in the Appendix. The survey began with a brief description of the overall project being conducted by MSU for MDT on the general efficacy of the traffic data collection program, followed by a brief statement on the importance of data user input as part of this review. Survey participants were then asked to provide some background information on their institutional affiliation (e.g., MDT affiliation, metropolitan planning organization, tribe, etc.). As previously mentioned, questions were then asked to better understand 1) how traffic data is being used, 2) what type of data users need, 3) the value of good data, 4) the ease of accessing data, 5) the use of the TDCA website, and 6) experiences with the new Traffic Count Database System.

Following the suggestions of the TDCA Section, survey responses were solicited from 22 entities within MDT (consisting of 19 contacts at various levels within MDT's pertinent central divisions, and 5 contacts across the district offices - one in each district), the Montana Highway Patrol, Montana's 3 MPOs, and 8 Montana tribal entities. Some input was received by cities within the State of Montana as a result of the MPO associated with that city being contacted. Specific contacts are indicated in Table 1, as are the source of the 33 survey responses that subsequently were completed. Referring to Table 1, the survey respondents included a wide and relatively complete cross-section of traffic data users within and outside MDT. Within MDT, the specific entities contacted for the survey are indicated in Figure 1. Two MDT divisions were relatively heavily sampled, the Highways and Engineering Division, and the Rail, Transit and Planning Division. The specific MDT Bureaus within these Divisions that were contacted and that responded during the survey are further identified in Table 2.

Table 1. Summary of Survey Invitations/Respondents

	Entity Contacted	Current Significant Data User	
		Yes	No
MDT	**General Services**		
	Legal Services		1
	Districts		
	Missoula District	No Response	
	Butte District	No Response	
	Great Falls District	1	-
	Glendive District	No Response	
	Billings District	1	-
	Central Divisions		
	Highways and Engineering Division	9	4
	Maintenance Division	1	-
	Motor Carrier Services Division	1	-
	Rail, Transit & Planning Division	4	-
MHP	Montana Highway Patrol	-	1
MPOs	Billings	2	-
	Great Falls	2	-
	Missoula	1	-
Tribal	Blackfeet Nation	-	1
	Chippewa Cree Tribe	1	-
	Crow Nation	No Response	
	Confederated Salish & Kootenai Tribes	1	-
	Fort Belknap Assiniboine & Gros Ventre Tribes	No Response	
	Fort Peck Assiniboine & Sioux Tribes	No Response	
	Little Shell Chippewa Tribe	-	1
	Northern Cheyenne Tribe	-	1
SUB TOTAL		**24**	**9**
TOTAL		**33**	

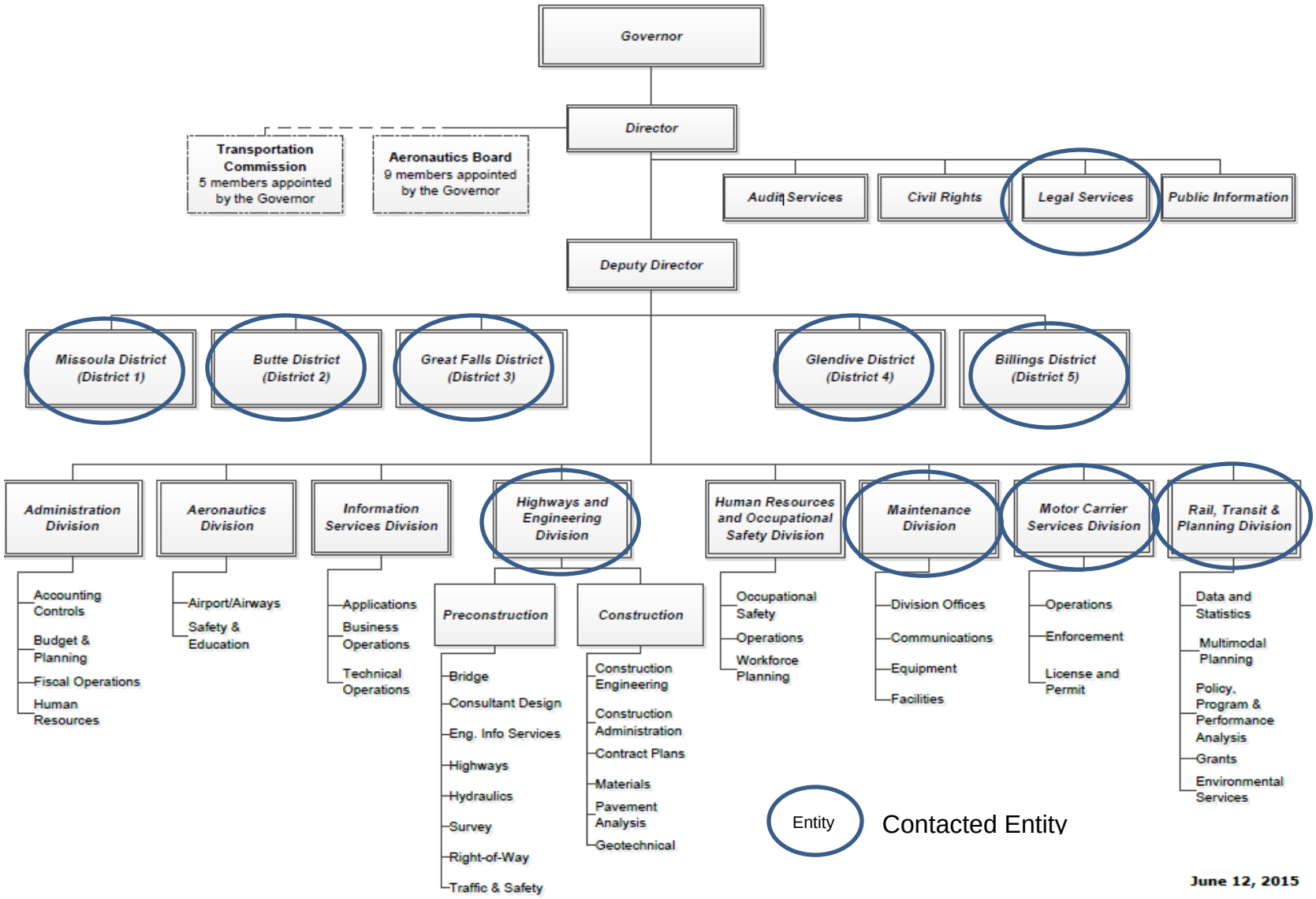
Governor
Director
Transportation Commission
5 members appointed by the Governor
Aeronautics Board
9 members appointed by the Governor
Audit Services
Civil Rights
Legal Services
Public Information
Deputy Director
Missoula District (District 1)
Butte District (District 2)
Great Falls District (District 3)
Glendive District (District 4)
Billings District (District 5)
Administration Division
Accounting Controls
Budget & Planning
Fiscal Operations
Human Resources
Aeronautics Division
Airport/Airways
Safety & Education
Information Services Division
Applications
Business Operations
Technical Operations
Highways and Engineering Division
Preconstruction
Bridge
Consultant Design
Eng. Info Services
Highways
Hydraulics
Survey
Right-of-Way
Traffic & Safety
Construction
Construction Engineering
Construction Administration
Contract Plans
Materials
Pavement Analysis
Geotechnical
Human Resources and Occupational Safety Division
Occupational Safety
Operations
Workforce Planning
Maintenance Division
Division Offices
Communications
Equipment
Facilities
Motor Carrier Services Division
Operations
Enforcement
License and Permit
Rail, Transit & Planning Division
Data and Statistics
Multimodal Planning
Policy, Program & Performance Analysis
Grants
Environmental Services
Entity
Contacted Entity
June 12, 2015

Table 2. Summary of MDT Respondents, Highways and Engineering Division and Rail, Transit and Planning Division.

Entity Contacted		Current Significant Data User	
		Yes	No
Hwys and Eng	**Preconstruction**		
	Bridge	1	1
	Consultant Design	1	
	Right-of-Way	1	
	HIghways	1	1
	Traffic and Safety	3	
	Construction		
	Construction Engineering		1
	Construction Administration		1
	Materials	2	
Rail, Trst, Plan	**Rail,Transit and Planning**		
	Multimodal Planning	1	
	Policy, Program and Performance Analysis	1	
	Grants	1	
	Environmental Services	1	
SUB TOTAL		**13**	**4**
TOTAL		**17**	

SURVEY RESULTS

The responses received to each survey question are summarized below. Of the 33 responses collected, 9 were from entities that when contacted, indicated that they were not significant users of traffic data or were only potential users, and did not further complete the survey. These respondents are indicated by organization in Table 1. For many respondents, their work is dependent upon the quality and extent of information provided by the TDCA Section; therefore, their responses provided a lot of information and insight. The majority of respondents indicated the traffic data they needed was available, with several commending TDCA on its quality and accessibility.

Description of Tasks Requiring Traffic Data

This section discusses responses to the question, "Description of basic task that requires traffic data." Across all of the surveys collected, respondents identified a total of thirty-four data uses, almost all of which were current data uses. The majority of respondents only provided one data use; however, one respondent identified four separate data uses.

Several respondents indicated that some of the current data uses were also potential data uses. There were only three respondents who identified solely potential data uses. All three of these respondents were from tribal entities. One of the tribal respondents indicated that a potential data use was related to the construction of new roads and bridges; however, the respondent did not specify what pieces of information they were specifically looking for. Another tribal respondent indicated that while in the past the tribal entities primarily relied upon consultants or possibly the state to provide data related to transportation projects, they are now working to collect this information on their own. Some of the data that they need is information related to transit ridership, particularly from the perspective of age and disability. It seems that their needs and interests expand beyond the typical roadway traffic data that is collected. A third tribal respondent identified a potential data use related to all-terrain vehicles (ATVs). The respondent indicated that the tribal entities know that crashes with ATVs occur; however, because there is limited information on the level of use of ATVs at the state level, they are challenged with developing policies regarding ATV use. While the survey responses clearly identified a few potential data uses, from the researchers' experience in conducting surveys, it seems that many respondents may not have considered how existing data could be used for other purposes. Therefore, it is recommended that the TDCA Section review existing data uses and make an effort to disseminate information on other potential uses of the data. This would bring additional value to the data already collected.

The majority of current data uses identified by respondents fall into three categories: planning, design and safety. Respondents also identified two additional uses: right-of-way

acquisition and weight enforcement monitoring. The following three sections discuss the aforementioned categories.

Planning

Survey respondents identified several uses of traffic data for planning purposes. One respondent indicated that the data was used in part to develop the statewide bicycle map. Bicyclists, using the information provided within this map, plan their routes to avoid roadways with high traffic volumes. In addition, the data is used in National Environmental Policy Act (NEPA) and Montana Environmental Policy Act (MEPA) analyses. The data is also used when identifying potential wildlife crossing facilities. The data was identified as being utilized for calibrating travel demand models. Finally, respondents indicated that the data was used in developing Long Range Transportation Plans (LRTPs).

Design

As identified by numerous survey respondents, traffic data is imperative for transportation design. Traffic data was identified as being used in the design of pavements and pavement treatments, particularly with respect to what material type is chosen (e.g., chip seal aggregate size, asphalt cement grade). A respondent also identified traffic data as being used to design the horizontal and vertical alignment of roadways. A respondent indicated that traffic data was used to design clear zones. Signal timing, intersection geometry, traffic control (stop sign vs. a signal light), lighting, and striping were all identified as activities that relied on traffic data as design inputs. Finally, one respondent highlighted the need for traffic data when performing traffic engineering analyses.

Safety

Several respondents cited uses of traffic data for safety analyses. Respondents indicated that the traffic data was used in 1) normalizing crash data for federal reporting, 2) evaluating railroad crossings, and 3) conducting Road Safety Audits (RSAs).

Summary

Typically, traffic data is being used for planning, design and safety purposes. There were only two uses identified by survey respondents which extended beyond these categories: weight enforcement and right-of-way acquisition. Only a few respondents provided examples of potential data uses, the majority of which were tribal entities. Therefore, if the TDCA Section can see the potential for additional uses, the researchers recommend that they reach out and inform potential users. In fact, in one of the subsequent sections, a Bureau within MDT indicated that they were interested in learning more about how they could make additional use of

the currently available data. At least two of these needs are tied to federal requirements (crash data and Highway Performance Monitoring System (HPMS)).

Data Types

Survey respondents were asked to identify "Specific traffic data and related parameters used/needed" for the task that they had previously identified. Almost all users identified average annual daily traffic (AADT) as one type of data used in their work (55 percent of respondents that indicated they used this data). The second and third most commonly used data types, both mentioned by 24 percent of respondents, were equivalent single axle load (ESAL) and percentage of trucks. Vehicle miles traveled (VMT), design hourly vehicle (DHV), growth rate, and vehicle speed were identified by approximately 12, 9, 9 and 6 percent of respondents, respectively. All of the other data types identified (turning movements, axle weights by vehicle type, commercial vehicle miles traveled, bridge formula violations, commercial AADT, "motorcycle," letting date ADT, traffic counts at railroad crossings, K factor, directional factor, bike counts and pedestrian counts) were identified by only one respondent. While it makes sense that AADT (and many of its permutations) is the most commonly utilized type of traffic data, the high representation of other parameters may be a reflection of who responded to the survey instead of which ones are the most frequently used.

Importance of Traffic Data to Transportation Program

For each task that requires traffic data identified by survey respondents, users were asked to provide information on the importance or benefits of high quality traffic data to this work. The data provided by the TDCA Section was often characterized by respondents as "essential," with many respondents commenting on the significant impact the data has on the cost of MDT projects.

The following list highlights activities for which the traffic data provided by the TDCA Section is essential:

- Imperative to safety analysis
- Defines bicyclist travel routes
- Ensures cost-effective design (pavement, traffic signal installation, etc.)
- Project development
- Accurate estimate of real estate value (whose transactions are in the millions of dollars)
- Weight enforcement
- Accident prevention
- Railroad crossing

- Comparisons for data collected by local and tribal entities
- Defensible data for NEPA and MEPA litigation
- Evaluation of need for wildlife crossings
- Model calibration for future year estimates
- Risk analyses

Quotes that best capture the importance of the data follow:

"Our SFC [State Funded Construction] budget is about [$]10 million/year with approximately [$]9 million going to pavement preservation type projects. Traffic data is an important aspect in determining disbursement of the funds."

"…the importance of traffic data is imperative to the surface designer. Good data early on is the foundation of a good project. I have over 20 years of experience with MDT in preconstruction and we rely heavily on good data. I have seen plans need to be changed because the data was valid when collected and had changed enough with time that plans needed to be changed to accommodate the increase in traffic."

"FHWA uses the annual data submitted through the HPMS for many important functions including:

- Providing data for apportionment of federal-aid funds to states.
- Serving as a data source and primary analytical support for The Status of the Nation's Highways, Bridges and Transit in the Conditions and Performance Report (C&P Report).
- Serving as the data source for the annual congressionally mandated Highway Safety Performance Report.
- To provide justification for increases in the federal motor fuel tax to support expanded federal-aid programs that address a deteriorating highway infrastructure.
- To provide basis for policy analysis and development.
- Serving as data source for publications such as Highway Statistics, Our Nation's Highways and Selected Highway Statistics and Charts."

Summary

Survey respondents identified many benefits of high quality data. It is important to note that whenever respondents identified a data use, they also identified its value. This clearly conveys the importance of this data. Many of the benefits are tied to federal reporting, which is in turn tied to federal funding, which is of great importance to operating and maintaining a state transportation system.

Availability of Data

For each data use identified, the users were asked whether or not the traffic data that was needed was available. Overwhelmingly, the majority of these respondents (76%) indicated that the data they needed was available. Twelve percent of the respondents indicated that they did not have the traffic data needed; nine percent of respondents indicated that they did not know whether or not the data they needed was available. Almost all of the individuals who indicated that they did not know whether or not the data that was needed was available were from outside MDT; the one respondent who was an MDT employee was not a transportation engineer or the like. For those respondents who indicated that they do not have all of the data that is needed, the following list summarizes data that they would be interested in obtaining:

- Corridor/route-specific data
- Intersection data
- Percent peak values for single and combination trucks
- Data in an alternative time frame
- Data on tribal lands

Regarding the intersection data, one district indicated that they were making use of Miovision to obtain intersection data. In addition, while another respondent expressed a current need for percent peak values for single and combination trucks, the respondent also highlighted that the new system, MS2, may possibly address this need. Another respondent explained that the current timing during which the data is provided, in May, does not provide staff members with enough time to prepare the data for submission to the HPMS by the June deadline. Finally, several tribal entities indicated that they current hire consultants to collect traffic data, and they were curious whether it was possible for MDT to collect some of this data.

Summary

The results regarding availability of data indicate that the TDCA Section is generally providing the data that survey respondents need and want. Again, it should be noted that these conclusions can only be drawn based on the input from the survey responses. However, MDT may want to reassess the timing of when data is provided to its districts and divisions, in order to facilitate submissions to HPMS. In addition, MDT should investigate whether or not MS2 can address identified data needs, such as truck data. Finally, MDT should reach out to tribal entities to discuss their data needs and identify how MDT may be able to assist them.

Accessing Data

The next two questions for the survey asked "What is your current/desired method of accessing this traffic data" (with some sub-questions) and "If traffic data is already being used for this task, how could this data or its presentation be improved to better support your work?" These questions are related and are addressed collectively below.

The majority of users indicated that they made direct requests for traffic data. However, almost as frequently, respondents indicated that they used the TDCA website, via maps, to obtain the information that they desired. Three other identified methods of accessing the traffic data are: Safety Information Management System (SIMS), MS2, and Oracle Tables (Traffic Yearly Counts).

The majority of respondents provided high ratings (answered "Yes" or gave ratings of 5) for currently available methods of accessing data. However, feedback received regarding potential improvements includes:

- Providing data on the maps portion of the web page so consultants could more efficiently gather needed data,
- "Pushing" truck activity reports directly to Motor Carrier Services (MCS) management for each weigh-in-motion (WIM)/classifier site,
- Collecting district data with Miovision, provide regional estimates (there are high fluctuations on the Reservation during the summer months due to a large influx of summer vacation traffic),
- Providing traffic data from a few years prior to the most current provided data,
- Providing data at an earlier date to assist with timely submission of data to HPMS,
- Providing classification counts,
- Providing speed collection, and
- Providing time stamped traffic counts.

It should be noted that while respondents identified the above recommendations for improvements, several respondents specifically commended the TDCA Section for the quality of data currently provided.

Summary

As a whole, respondents were pleased with the existing methods available to access the traffic data. However, as detailed in this section, respondents provided several recommendations regarding improvements that could be made.

Use of Traffic Data Collection and Analysis Website

Three of the closing survey questions asked specifically about the TDCA website.

First, respondents were asked if they had visited the website. Only about three-quarters of the thirty-three respondents (24) provided an answer. Of those responding, 61% indicated that they had visited the website, 33% indicated that they had not, and one respondent indicated that they had not recently.

For the respondents who verified that they had visited the website, the majority indicated that they were looking for AADT. Some specifically identified AADT on a particular segment as the data in which they were interested. One respondent indicated an interest in seeing what SIMS data was available to the public. Only one respondent identified a goal of looking for information related to WIM/automatic traffic recorder (ATR) sites. Two respondents explained that they were looking for data that they planned on using for comparison purposes (i.e. trends in northwestern Montana, compare with Fatality Analysis Reporting System (FARS) from state and county). Finally, two respondents indicated that they were using the data tied to ESALs.

Respondents were asked to rate the usefulness of the TDCA website. Responses ranged from average (a numerical rating of 3, in a 1 to 5 scale between Not Useful and Useful) to Useful. One critique of the data on the website was that it was "2-3 years old." Another respondent specifically identified the "interactive" feature of the traffic map as valuable, but this respondent wanted to know how to expand it to the full screen. Another respondent specifically requested more collection locations. One respondent asked that the date of collection be revised to include the month and day, rather than just the year. Another respondent indicated their preference that percent trucks, ESALs, and growth factors be provided on the map in addition to AADT. Another respondent requested more information on tribal areas; they indicated that they currently have to access this data via Bureau of Indian Affairs (BIA). One respondent recommended that the website be made more user-friendly. As an example, this respondent mentioned that the website currently uses acronyms that may not be commonly understood outside of the transportation industry. This respondent indicated that in order for some personnel to use it, she had to provide a sheet outlining what each acronym meant. Finally, one respondent requested that TCDA provide metropolitan organization (MPO) specific data for Missoula, Billings, and Great Falls.

Second, respondents were asked is if they had used any of the Traffic Maps. Only 58% of respondents (i.e. 19) provided a yes or no answer. Of the survey respondents who provided input, 58% indicated that they had not used the maps and 42% indicated that they had. For those who used maps, they indicated the use of the following types: city/county, statewide, interactive traffic map, traffic count map, ATR/WIM map, and "all of them." The respondents were also asked what information they were trying to find. Respondents indicated: AADT, DHV estimates

for design and nominations, ATR/WIM sites to avoid conflicts during construction, information to use for grants, information near railroad crossings, functional classifications, traffic counts, WIM, and Miovision sites. Finally, one respondent just wanted to see what information was available. All respondents indicated that the maps were "Useful" or circled a rating of a 5. (Note: It is believed that some may have thought that a 5 was the "highest" possible rating for the survey, even though "Useful" was in fact the highest.) Another sub-question asked what features of the maps the respondent may recommend adding or deleting. DHV and small and large truck volume and percentage were requested to be added to the maps. Three other maps were recommended: bicycle and pedestrian maps, MPO-specific maps, and hourly variation in traffic at sites.

The final question asked whether the respondent used any of the monthly or annual traffic reports from the website. Only one indicated the affirmative. They used the "Traffic By Urban Areas" map to obtain VMT and said that it was useful. Therefore, the TCDA may want to consider the future of the monthly and annual traffic reports.

Summary

Respondents that have used the TCDA website found it to be very helpful. However, based on their feedback, certain portions of the website may have more value than others, and there is the potential that some time currently spent generating monthly and annual maps, which were rarely accessed, could be redirected to providing other information that was requested.

Use of Traffic Count Database System

Several of the preceding sections provide indications that some of the survey respondents made use of the new online Traffic Count Database System (TCDS) on the MS2 website. When asked specifically if they had, 64% of the respondents provided an answer. Of those providing an answer, the majority (81%) said no, they had not used TCDS. Only four of those responding to this question indicated that they had used TCDS. Three of these four respondents indicated that they were trying to upload data; the fourth respondent indicated that he/she was testing out the capabilities of TCDS. Three of the four respondents indicated that the system was useful; the fourth respondent indicated finding TCDS less user-friendly than the previous system. However, this respondent anticipated growing accustomed to the new system over time.

Comments

The final question for survey respondents solicited general comments. Only a few were received, and as such, are provided below:

- "MCS needs to work closely with TDCA Section to determine placement of future WIM locations. In addition, MCS may request wireless connectivity capability to the WIM system installation. The wireless connectivity will allow MCS enforcement to use the WIM information when conducting special operations with portable Virtual Weigh Station trailers."
- "Please keep it simple, if it isn't broke, don't fix it, thank you."
- "I have also used traffic data available in our Pavement Management System "Agile Assets." Network level traffic data can be viewed, which paints a traffic picture for a route segment over a period of time. I have used this when in a hurry, or when I just need a rough guess on traffic demand."
- "We may benefit from some training on all the Traffic Data tools available. Thank you for this opportunity to provide input."
- "The state will come and do a traffic study if we need it, but sometimes we need it in 3 days instead of 2 weeks."
- "Marie and Peder are awesome."
- "Have not really started using it yet."
- "Appreciate the availability."

SUMMARY

The feedback provided by the thirty-three respondents to the traffic data users survey was overwhelmingly positive, and some very useful recommendations were received.

Most of the respondents identified current data uses. Respondents indicated that data was primarily used for planning, design and safety analysis purposes. The most frequently used traffic data by survey respondents, in descending order, was AADT, ESAL, and percentage of trucks. The data was described as vitally important, supporting for example, numerous federal reporting requirements, which are directly tied to the funding that a state department of transportation receives. However, in one important piece of feedback, a respondent said that data is not currently provided at an optimal time for submitting some federal reports. Therefore, the TDCA Section should consider if the data collection and distribution can be modified to better accommodate these requirements.

There seems to be little understanding of how the data can potentially be used for other purposes. However, one MDT unit and several Tribal entities indicated a willingness to better understand additional opportunities for use of the data. Therefore, it is recommended that the TDCA Section reach out internally, as appropriate, and externally, notably to tribal entities to see if they can provide information on additional data uses.

Some types of data were identified as needed but not currently collected, including ATV, pedestrian and transit data. In addition, respondents requested more recent data. Finally, when considering existing data that may be underutilized, a large portion of respondents indicated that they did not use monthly and annual traffic reports. MDT personnel primarily reported having the data that they needed; it was typically responses received from individuals outside of MDT that identified additional data needs. The TDCA Section needs to consider whether the additional data needs are feasible.

Approximately sixty percent of respondents currently made use of the website. Those that used it found it valuable, but they had a few recommendations for improvements. Two examples are more up-to-date information and improving the existing full screen feature.

The data collected by respondents for this study show that few have tried out the new Traffic Count Database System. It is unclear whether there are actually few users, or whether those surveyed has not made use of the new system. Therefore, MDT may want to consider trying to promote this new tool to potential and current data users.

.

Works Cited

Montana Department of Transportation (MDT, 2015), http://www.mdt.mt.gov/mdt/contacts.shtml
Last accessed December 2015.

Rowell, J. (2015, July 30). City traffic data shapes future planning. *Great Falls Tribune*. Retrieved August 5, 2015, from http://www.greatfallstribune.com/story/news/local/2015/07/30/city-traffic-data-shapes-future-planning/30913675/

APPENDIX

The following survey instrument was developed and employed for the study.

Information to be Collected on Use of MDT Traffic Data -

Current and Potential Data Users – Current and Potential Data Products

Aptly named, the Traffic Data Collection and Analysis (TDCA) Section of MDT collects and makes available a wealth of information on the traffic carried by the state's highways by route, vehicle type (including in many cases configuration and weight), and time of day (often aggregated and reported by day, week, month and year). The TDCA Section has initiated a project through the Western Transportation Institute at Montana State University to review their Weigh-in-Motion (WIM) and Automatic Traffic Recorder (ATR) data collection programs to ensure that they are providing the best possible traffic information in the most cost effective manner to meet current and future data user needs. As part of this review, current and potential traffic data users are being contacted relative to their use (or potential use) of existing data available from the TDCA Section, as well as what new data and/or data products (i.e., aggregation/presentation schemes) are desired to better support their activities.

Your input is critical to this review, and will help the TDCA Section to better support your activities in the future. Thank you for taking the time to provide the following information (anticipated completion time is up to 20 minutes, depending on your use/need for traffic data). The survey has three sections Background, Data Use and Closing Questions. If you have any questions, please contact Jerry Stephens at WTI/MSU (406-994-6113, jerrys@ce.montana.edu).

Information on Use/Potential Use of MDT Traffic Data -

Background:

Division/Program/Bureau or District: Date:

Name:

Position:

Direct data user and/or administrator of personnel that use traffic data:

-nm

Data Use - 1 (this section repeated as necessary for each individual data use)

1) Is this a current or potential data use – Circle One – Current Potential

2) Description of basic task that requires traffic data:
(e.g., pavement design)

3) Specific traffic data and related parameters used/needed for this work:
(e.g., current annual ESALs. AADT, VMT)

4) Importance/benefits of high quality traffic data to this work:
(e.g., Traffic data is essential to cost effective pavement design. Both under- and over-designing the state's highways results in less than optimum use of limited resources. A ½ inch thickness of asphalt pavement costs $XYZ/lane mile, Montana paves approximately KK lane miles/yr at a cost of WVU million dollars.)

5) Is the traffic data you need currently available to accomplish this task?

a) Circle one: Yes No Don't know

b) If No, how are you currently completing this work without TDCA providing the necessary traffic data?
(e.g. utilizing statewide or regional estimates, task is not being done)

6) What is your current/desired method of accessing this traffic data:

(e.g., A direct request (traffic request form, email, telephone) is made to TDCA for project location specific information, consisting of current ESALs per year. These values are multiplied by appropriate growth factors from the planning division and the results modified as appropriate based on expert judgment to determine design pavement demands.)

a) Does this current method of accessing/requesting traffic data meet your needs?

Circle: Yes 5 4 3 2 1 No

b) If No, or a response of 1through 5, what would be the desired/most efficient method to access, request and receive this type of traffic data?

(e.g. using statewide or regional estimates)

7) If traffic data is already being used for this task, how could this data or its presentation be improved to better support your work?

(e.g., Basic data is available and adequate. If transition to the MEPDG pavement design method, load spectra will be required.)

Data Use - 2 (this section repeated as necessary for each individual data use)

1) Is this a current or potential data use – Circle One – Current Potential

2) Description of basic task that requires traffic data:
(e.g., highway capacity assessment/design)

3) Specific traffic data and related parameters used/needed for this work:
(e.g., peak hourly volume, split of passenger cars vs. commercial vehicles)

4) Importance/benefits of high quality traffic data to this work:
(e.g., Determining the correct number of lanes and traffic control strategies is essential to optimize the operating capacity of a roadway. Both over- and under-capacity roadways result in less than optimum use of limited resources. The estimated cost of one lane of urban arterial is $xxx/mile.)

5) Is the traffic data you need currently available to accomplish this task?

a) Circle one: Yes No Don't know

b) If No, how are you currently completing this work without TDCA providing the necessary traffic data?
(e.g. utilizing statewide or regional estimates, task is not being done)

6) What is your current/desired method of accessing this traffic data:
(e.g., The required traffic data is available in the yearly ATR Profiles.)

a) Does this current method of accessing/requesting traffic data meet your needs?
Circle: Yes 5 4 3 2 1 No

b) If No, or a response of 1through 5, what would be the desired/most efficient method to access, request and receive this type of traffic data?
(e.g. using estimates)

7) If traffic data is already being used for this task, how could this data or its presentation be improved to better support your work?
(e.g., Basic data is available and adequate)

Closing Questions

8) Have you visited the Traffic Data Collection and Analysis website?

http://www.mdt.mt.gov/publications/datastats/traffic.shtml

Circle: Yes No

If you have visited the website:

a) What were you trying to do?

b) How useful did you find the website? Circle: Useful 5 4 3 2 1 Not Useful
(if response is anything other than Useful, provide examples, i.e. not user friendly, slow response time, etc.)

c) What specific features of the website would you change/add/delete?

9) More specifically, have you used any of the Traffic Maps? (If already covered in Questions 1-8, skip this question.)

Circle: Yes No

a) If you have used the maps, which maps did you use?

b) What were you trying to do/what information were you looking for?

c) How useful did you find the maps Circle: Useful 5 4 3 2 1 Not Useful
(if response is anything other than Useful, provide examples, i.e. not user friendly, slow response time, etc.)

d) What specific features of the map(s) would you change/add/delete?

e) What other traffic related maps would you like to see on the site?

10) Have you used any of the monthly or annual traffic reports available on the site? (If already covered in Questions 1-7, skip this question.)

Circle: Yes No

a) If you have used the reports, which report did you use?

b) What were you trying to do/what information were you looking for?

c) How useful did you find the report? Circle: Useful 5 4 3 2 1 Not Useful
(if response is anything other than Useful, provide examples, i.e. not user friendly, slow response time, etc.)

d) What specific features of the reports(s) would you change/add/delete?

e) What other traffic reports/data would you like to have available on the site?

11) If you have been involved in trials of TDCA's new online Traffic Count Database System – TCDS - on the MS2 website, please answer the questions below, otherwise proceed to Question 12.

Have you used the TCDS?

Circle: Yes No

If you have used the TCDS,

a) What were you trying to do?

b) How useful did you find this system? Circle: Useful 5 4 3 2 1 Not Useful
(if response is anything other than Useful, provide examples, i.e. not user friendly, slow response time, etc.)

c) What specific features of the system would you change/add/delete?

12) Other comments:

Summary of selected data currently available from TDCA Section:

Traffic by Sections Report:

Annual Average Daily Traffic (AADT), and the daily vehicle miles travelled (DVMT) for all vehicles, with sub-breakdowns by various vehicle groupings (e.g., commercial vehicles (Class 5 -13), small trucks (Class 5-7) and large trucks (Class 8-13), etc.). The road sections used are based on a) major intersections that cause changes in traffic, b) political boundaries such as county lines, and c) for interstates, every interchange. http://mdt.mt.gov/other/traffcount/external/TRAFFIC_REPORTS/TBS-ON-SYSTEM_FINAL_6-12-13.PDF

Annual and Monthly ATR/WIM Reports

Data collected by the permanent automatic traffic recorder (ATR) and weigh-in-motion (WIM) sites throughout Montana on daily and peak hourly traffic volumes. Four types of reports are available with monthly ATR/WIM data. Three of the reports are similar in presentation and provide traffic data on different vehicle groupings: commercial vehicles, large truck, and all vehicles. These three reports provide monthly ADT and the change in traffic volume from year to year sorted by ATR/WIM site ID. The fourth report type is the Monthly Calendar Report which presents the traffic volume in calendar format by day, direction, and month for each ATR/WIM site.
http://mdt.mt.gov/publications/datastats/traffic_atr.shtml

Traffic Adjustment Factors

Two types of Traffic Adjustment Factors are published each year. Combined Axle and Seasonal factors are used to expand short-term volume counts to AADTs, while the Seasonal Day of Week for Axle Count factor does the same for short-term vehicle classification counts. Each adjustment factor report, regardless of whether it is for volume or classification counts, gives a factor for weekdays (Monday – Thursday), Friday, Saturday, and Sunday for each traffic factor grouping for each month of the year (total of 384 individual factors).
http://mdt.mt.gov/publications/datastats/traffic_factors.shtml

Traffic Maps (GIS)

The online interactive map-based GIS tool made available by MDT allows users to select a highway section and retrieve selected traffic data for it. The map allows a user to select a route segment using a mouse, or to search by address, signed route name, or place. Available traffic information on the selected segment includes, as available, historical AADT and percent commercial vehicles.
http://mdt.mt.gov/publications/datastats/traffic_maps.shtml

Traffic Count Database System (TCDS)

The Traffic Count Database System (TCDS) is a subscription based software and database service offered by Midwestern Software Solutions (MS2, Ann Arbor, MI). In June of 2014 MDT selected MS2 as its new traffic software vendor. The web-based site will allow for timely access to traffic data (TCDS is made available internally and to other data customers (i.e. MPO's, local governments, consultants, etc.), but is not currently available to the public. TCDS produces a variety of traffic statistics, from daily volume to individual vehicle records. A large selection of report types are also made available or can be developed based on user needs/requests.
http://mdt.ms2soft.com

Equivalent Single Axle Load (ESALs)

The ESAL value represents a mixture of different axle configurations and loads converted into an equivalent number of 18,000 lb. single axle loads that are expected to traverse a segment of roadway. ESAL values are available upon request for project specific pavement design, and more broadly at the network level for planning analyses.

For additional information on available traffic data, contact Becky Duke, Supervisor of the Traffic Data Collection and Analysis Section, MDT, 444-6122.