

Chapter Two
ADMINISTRATIVE POLICIES AND PROCEDURES

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Chapter Two

ADMINISTRATIVE POLICIES AND PROCEDURES

This Chapter discusses the administrative practices and procedures of the Department's Traffic Engineering Section. It contains information on the preparation of in-house reports, outside correspondence, memoranda, the Department's application of the MUTCD and the Traffic Engineering Section's responsibilities for monitoring consultant projects.

2.1 PROJECT REPORTS

This section provides information on how to prepare a Traffic Engineering Report, Preliminary Field Review Report, Scope of Work Report, Plan-in-Hand Report and Final Plan Review Report. When used as described, this information will provide consistent, accurate and appropriate project reports.

2.1.1 Traffic Engineering Report

This section describes the procedures for preparing a Traffic Engineering Report. Although traffic signal warrant reviews and speed zone studies may be a part of a traffic engineering study, they are typically prepared separately from the Traffic Engineering Report. [Chapters Twelve](#) and [Forty](#) discuss the procedures for preparing these separate reports.

2.1.1.1 General

A traffic engineering study is typically conducted when local officials request the Department to review a perceived traffic problem. The Traffic Engineering (TE) Report provides written documentation of findings found during the traffic engineering study and possible recommendations to correct the situation. The following procedures will apply:

1. Preparation. The Project Engineer, or designee, is responsible for the preparation of the TE Report. Organize the Report using the format discussed in [Section 2.1.1.2](#).
2. Addressee. The cover letter or memo may be addressed to the requesting party (e.g., Road Design Section, local officials) or to the District Administrator. If the

Report is not forwarded to the local officials, the District Administrator will present the findings to them for their approval and/or comments.

3. Signature. Prepare the TE Report for the Traffic Engineer's signature.
4. Distribution. After the Traffic Engineer has signed the Report, copies of the TE Report will typically be distributed to the project file and to the following individuals:
 - a. Preconstruction Engineer;
 - b. District Administrator, unless the memo is addressed to the District Administrator;
 - c. Traffic and Safety Engineer;
 - d. Project Engineer; and
 - e. any other individuals or units deemed appropriate.

2.1.1.2 Format/Content

In general, prepare the Traffic Engineering (TE) Report in the order and format discussed below. This will provide a uniform presentation for all TE Reports and will ensure that all appropriate information will be addressed. Not all of the subject areas listed below will be required for every TE Report, and adjustments may be required as deemed necessary. The level of coverage for each item will also vary from study-to-study. Although in-depth coverage of the individual details is usually not provided in this Report, provide sufficient detail to allow the reader to fully understand the problem and any proposed recommendations. Detailed analyses may be added as appendices to the TE Report.

The sample TE Report in [Figure 2.1A](#) illustrates the preferred heading and approval format that should be used when preparing a TE Report. The following provides the topic areas, in order, that should be addressed in the TE Report:

1. Introduction. The introduction should note the agency who requested the study and why they requested the study. It should summarize any meetings the Department may have had with the local officials and the general results of those meetings. The introduction should also list the studies conducted and the date they were conducted.

2. Study Location and Limits. Provide a brief description of the study location. Some of the descriptions that may be used to describe the location include:
 - a. county name,
 - b. city/town name,
 - c. Indian reservation,
 - d. route number,
 - e. functional classification,
 - f. reference points,
 - g. study length,
 - h. crossing routes and/or local streets,
 - i. distance and direction from nearby towns/cities, and
 - j. direction of the route.

3. Physical Characteristics. Provide a brief description of the study area's physical characteristics, which may include a discussion of the following:
 - a. year when the existing road/bridge was built or reconstructed and when it was last overlaid or rehabilitated;
 - b. number of lanes and widths;
 - c. paved width of roadway;
 - d. general terrain of the area;
 - e. rural or urban location;
 - f. general description of the existing horizontal and vertical alignment, including major features which may contribute to the traffic problem;
 - g. development type (e.g., residential, commercial, industrial);
 - h. location of key features (e.g., schools, shopping centers, residential developments);
 - i. parking conditions;
 - j. other transportation modes (e.g., railroads, buses, airports);
 - k. any other unique physical characteristics related to the study area; and
 - l. special features within the study limits (e.g., National Forest, state parks, etc.).

4. Traffic Data. The traffic data listed in the TE Report should generally include the following:
- a. current Annual Average Daily Traffic (AADT),
 - b. Design Hourly Volume (DHV),
 - c. traffic distribution,
 - d. turning volumes,
 - e. peak-hour volumes,
 - f. percentage of trucks,
 - g. 85th percentile speeds,
 - h. pedestrian volumes, and
 - i. future traffic volumes (year AADT).

See Chapter Thirty for definitions of traffic data terms.

5. Crash History. This section should briefly summarize the following crash history data:
- a. number of crashes, by year (generally for the past 3 years);
 - b. types of crashes;
 - c. a listing of the crash study locations and lengths;
 - d. listing of locations with high number of crashes;
 - e. overall crash and severity rates for the study locations;
 - f. truck crash and severity rates for the study location, if applicable;
 - g. statewide average crash and severity rates for similar routes, if available;
 - h. a description of specific crash trends; and
 - i. a brief description of why a higher than normal number of crashes may be occurring.
6. Studies. The TE Report should list the studies conducted. Include an abstract for each study conducted. This abstract should include a brief description of how the study was conducted, any major environmental factors that may have affected the study (e.g., special events, weather) and an overview of the results. In general, the details on how to conduct the various studies are provided elsewhere in the Montana Traffic Engineering Manual (e.g., [Part VI "Traffic Engineering Investigations"](#)). Not all of the studies listed below will be required

for every traffic engineering study, and adjustments will be needed to the TE Report as deemed necessary. The TE Report may address one or more of the following studies:

- a. speed studies,
 - b. pedestrian studies,
 - c. school crossing studies,
 - d. traffic volume studies,
 - e. existing traffic control devices inventory,
 - f. signal warrant analysis,
 - g. capacity and level of service analysis,
 - h. lighting needs analysis,
 - i. roadway and intersection geometric analysis,
 - j. safety enhancements analysis, and/or
 - k. any other study or analysis deemed necessary.
7. Miscellaneous Features. This section may include a discussion on those features which are not identified in one of the above areas that may have had an effect on the traffic problem. Miscellaneous features may include mailbox turnouts, accessibility requirements, right-of-way restrictions, utilities, railroads, environmental considerations, etc.
8. Conclusions and Recommendations. This section should summarize the issues and concerns identified during the study and present a recommended course of action.

Montana Department of Transportation
Helena, Montana 59620

Memorandum

To: (Name)
District Administrator

From: (Name)
Traffic Engineer

Date: (Dated Signed by Traffic Engineer)

Subject: Big Sky Traffic Study

Introduction

At the request of the Gallatin County Commissioners, the Traffic Engineering Section has completed a speed study and traffic engineering investigation on US 191 as it passes through the community of Big Sky. The original request from the locals suggested a speed zone reduction as a possible solution to making the highway safer. Based on a request from the Gallatin County Commissioners, we reviewed the geometric features of the roadway, pedestrian activity, past crashes, vehicular speeds and the operation of the facility to identify if any corrective measures are necessary. Based on this investigation, we recommend no change in the speed limit, a no passing zone and a Two-Way-Left-Turn (TWLT) lane, and we agree with the installation of a flashing beacon at the junction with FAP 64. The no passing zone is a short-term recommendation until the TWLT lane can be implemented.

Study Location and Limits

Big Sky is a small tourist community located in Gallatin County approximately 40 miles (60 km) south of Bozeman on US 191. The study begins at RP 45 which is just south of Big Sky and extends north (6.4 km) to RP 49 which is north of Big Sky. The road is functionally classified as a principal arterial.

Physical Characteristics

US 191, as it passes through the study area, was built in 1955 and improved in 1987. It divides the community of Big Sky in half. The motorists traveling through Big Sky have the opportunity to use services on both sides of the highway. The development is not concentrated into one specific location. It is scattered along a 2.5-mile (4-km) stretch. It is comprised primarily of businesses that appeal to tourism — service stations, souvenir shop, a bar and cafe and one large motel/restaurant complex. There is a school located on the south end of the study area.

US 191 on either side of the Big Sky area passes through scenic canyons. The road follows the Gallatin River which results in numerous horizontal curves.

SAMPLE TRAFFIC ENGINEERING REPORT

Figure 2.1A

(District Administrator)

Page 2

Date

The highway through Big Sky has two 12-ft (3.6-m) lanes and a 2-ft (0.6-m) shoulder on each side. There is some widening at the intersection with Primary Route 64. There is a slight horizontal and vertical curve, which is located approximately 1700 ft (520 m) south of the intersection to Big Sky.

Traffic Data

The traffic on US 191 is heavily influenced by tourist traffic, both during the summer and winter months. This route serves one of the largest ski areas in Montana.

| | |
|------------|------|
| 1993 AADT | 3000 |
| 2013 AADT | 6000 |
| DHV | 300 |
| All Trucks | 20% |

Vehicular speeds were monitored three times during the past two years. During the months of February 1992, August 1992 and August 1993. Vehicular speeds were collected by hand-held radar units and automated speed counters. Speeds were monitored at eight sites during each study. One hundred to 1500 vehicular speeds were collected at each station.

Crashes

The number of crashes for the past 2.5 years were examined to see if any definable trends indicate a problem location. The crash rate for US 191 as it passes through Big Sky from RP 45 to RP 49 is 0.85 crashes per million vehicle miles (crashes/mvm). This is higher than the State average of 0.62 crashes/mvm for arterial routes in the State. Twenty crashes occurred during this time frame. The majority of these crashes involved cars and pickups with one of the twenty crashes involving a truck. Ten of these crashes occurred between RP 47.4 and RP 48 giving this segment a rate of 2.35 crashes/mvm, which is higher than the State average. This area is the most developed area of Big Sky; the Big Sky turn-off south to the Fly Shop.

From the crash data we have determined that the majority of the crashes in this segment are the result of turning movements. Of the ten crashes, three crashes were angle impacts, four were rear ends, one was a head-on and the remaining two crashes were coded as "other."

Another crash trend was the type where one vehicle is overtaking another vehicle in a queue where the leader of that queue is making a left turn. The result is a side swipe. This was noted twice between Buck's T-Four and the Fly Shop.

SAMPLE TRAFFIC ENGINEERING REPORT

Figure 2.1A
(Continued)

(District Administrator)

Page 3

Date

Speeds

A reduction in the existing 55 mph speed zone would not be justified. For example, a speed limit of 45 mph through Big Sky would place 50% to 100% of the motorists within the violator category. An artificially low speed limit would create a speed trap. Because this highway is heavily influenced by tourism, the tourists would be receiving the majority of the citations created by an artificial speed limit. The speed data also indicates that large trucks are traveling at or below the 85th percentile car speeds.

Pedestrians

As we observed the traffic patterns in the area, we did not see many pedestrians walking along or crossing the roadway. The pedestrians that were in the area had plenty of room to walk off of the roadway and did not play a large role in traffic patterns.

There also is a school within the study segment of US 191. The Ophir School is not directly associated with the highway and, in fact, the school grounds and the building are approximately 200 ft (60 m) from the roadway. School was in session while we were in the area, and there were no school children crossing the highway. There are, however, advance warning school signs as you approach the school from either direction. We would not anticipate any school children walking in this area due to the scarcity of housing in the immediate area of the school.

Conclusions

From this study, we have identified two issues in Big Sky that warrant further attention. First, there is a high crash rate between the junction with FAP 64 and the Fly Shop. This is the area that has the highest concentration of development. Development of this nature creates demand for maneuvers that conflict with through traffic. These maneuvers include vehicles slowing to turn right or left from US 191 and slower vehicles entering US 191 and accelerating to the normal running speed. All this activity must interact smoothly with the through traffic which is traveling at highway speeds. Engineering measures need to be considered to reduce the access conflict that is causing the crashes in this area.

Second, vehicles are entering Big Sky in a platoon because the nature of the canyon road limits sight distances and inhibits passing for the majority of the canyon. The platooning of vehicles has a definite affect on the Big Sky area. The reason for the affects on Big Sky is that these vehicles have been behind slower moving vehicles for up to 10 miles (16 km) when the change in the functional environment takes place. This change occurs in a location where there is a conflict with the increased density of access through Big Sky. Problems can and do arise when vehicles attempting passing maneuvers when they are encountering those vehicles turning on or off the highway. The Department will soon investigate the platooning in the canyon to find a way to minimize this condition.

SAMPLE TRAFFIC ENGINEERING REPORT

Figure 2.1A
(Continued)

(District Administrator)

Page 4

Date

Vehicular speeds of both cars and trucks were thoroughly investigated. The large trucks are traveling at or below the 85th percentile car speeds. The crash records do not indicate a trend toward truck crashes in the area of Big Sky. From this, it does not appear that the large truck traffic is creating a problem through Big Sky.

Reducing the speed through Big Sky would make law breakers out of 50% to 100% of the motorists using this highway, and will not address the high accident location or the desire for the motorists to pass in an attempt to break the platooning.

Recommendations

Based on the crash history and the operations of the facility, we have the following proposals:

1. The speed limit should remain at 55 mph throughout the entire study segment. A reduction is not warranted.
2. As an immediate affirmative step, we recommend that the area from just north of the FAP 64 junction to a point just south of the south entrance of Buck's T-Four be striped as no passing. A portion of this area is already no pass, but we request that the whole length be striped. In addition, we also recommend the standard DO NOT PASS (R4-1) sign to emphasize the restrictions on passing. For the southbound direction, the sign should be placed near station 742+00, which is approximately 300 ft (100 m) south of the junction with FAP 64. For the northbound direction, the sign should be placed near station 800+00, which is approximately 1000 ft (300 m) south of RP 47. A PASS WITH CARE (R4-2) sign should be used at the end of a no pass zone where a DO NOT PASS sign has been erected.
3. In the long term, a 16-ft (4.2-m) Two-Way-Left-Turn (TWLT) lane should be considered from the Big Sky turn-off (FAP 64) to the approximate location of the Fly Shop. This would make the TWLT lane 2900 ft (880 m). The typical section of the roadway should be 60-ft (17.4-m) wide resulting in a two 12-ft (3.6-m) travel lanes, one 16-ft (4.2-m) TWLT lane and two 10-ft (3.0-m) shoulders. To install this TWLT lane, the bridge just north of the junction with FAP 64 will need to be widened to accommodate the taper length of the TWLT lane.
4. We agree with the Safety Management Section recommendation to install a flashing beacon at the intersection of the FAP 64 and US 191. The Safety Management Section has based this decision on the crash history for the intersection.
5. When the Department performs the Gallatin Canyon Traffic Study, an attempt should be made to find appropriate locations for passing lanes to minimize the platooning.

SAMPLE TRAFFIC ENGINEERING REPORT

Figure 2.1A
(Continued)

(District Administrator)

Page 5

Date

These recommendations are important for both the safety and efficiency of the highway. The existing speed limit should keep traffic flowing at smoother rate, therefore reducing the motorist desire to pass. The no-passing zone should remind the driver of the hazard with passing. A TWLT lane would help to reduce the access conflicts with through traffic.

Please present the results to the Gallatin County Commissioners for their written approval and/or comments. Advise them that all comments or concerns are welcome. If any questions or problems arise, feel free to contact my office.

DPD:DEW:TRF;trafbig

cc: Traffic and Safety Engineer
Project Engineer
Others as needed

SAMPLE TRAFFIC ENGINEERING REPORT

Figure 2.1A
(Continued)

2.1.2 Preliminary Field Review Report

2.1.2.1 General

A preliminary field review is conducted after a project is nominated to determine major design features, project-related issues and potential problems. Representatives attending the review are summarized in [Section 2.1.2.2](#). The Preliminary Field Review (PFR) Report provides written documentation of all major determinations made during the preliminary field review meeting. It should list the major project design features, the potential involvement by other Units and provide a general overview of proposed major improvements for the highway. The following procedures will apply:

1. Preparation. The Project Design Manager, or designee, is responsible for the preparation of the PFR Report. Organize the Report using the format discussed in [Section 2.1.2.2](#).
2. Signature. Prepare the PFR Report for the Traffic Engineer's signature.
3. Approval. The Traffic Engineer will forward the PFR Report to the Preconstruction Engineer for approval.
4. Distribution. After the Preconstruction Engineer has approved the Report, copies of the PFR Report will typically be distributed to the preconstruction project file and to the following individuals:
 - a. Traffic Engineer;
 - b. Traffic and Safety Engineer;
 - c. all Engineering Bureau Chiefs;
 - d. District Administrator;
 - e. Rail, Transit and Planning Division Administrator;
 - f. Operations Engineer;
 - g. Motor Carrier Services;
 - h. Fiscal Planning Administrator;
 - i. all parties involved in the field review;
 - j. FHWA, on Federal-aid projects; and
 - k. any other individuals or units deemed appropriate.
5. Comments. All parties receiving a copy of the PFR Report are requested to provide comments on the Report within two weeks of the distribution date. Concurrence of the Report will be assumed if no comments are received by the specified date.

2.1.2.2 Format/Content

In general, prepare the Preliminary Field Review (PFR) Report in the order and format discussed below. This will provide a uniform presentation for all Department PFR Reports and will ensure that all appropriate information will be addressed. Not all of the subject areas listed below will be required for every PFR Report, and adjustments will need to be made to the Report as deemed necessary. The level of coverage for each item will also vary from project-to-project. Although in-depth coverage of the individual design details is usually not provided in this Report, provide sufficient detail to allow the reader to fully understand the proposed project.

Figure 2.1B illustrates the preferred heading and approval format that should be used when preparing the PFR Report. The preparer should note that the heading will need to be fully completed, including the project number, project name, control number and project work type number.

The following provides the topic areas, in order, that should be addressed in the PFR Report:

1. Introduction. The introduction should include the date of the field review and provide a list of individuals who attended the review. The listing should also include the individual's title, organization and office location. Depending on the project, representatives at a field review may include:
 - a. the Project Design Manager;
 - b. designer;
 - c. Traffic Engineer or designee;
 - d. the Roadway Design Section Area Engineer;
 - e. the District Administrator;
 - f. the Division Maintenance Chief;
 - g. the Engineering Services Engineer/Supervisor;
 - h. a representative from the Consultant Design Bureau;
 - i. a representative from the Hydraulics Section;
 - j. a representative from the Environmental Services Bureau;
 - k. a representative from the Right-of-Way Bureau;
 - l. a representative from the District Construction Office;
 - m. a representative from Bridge Bureau;
 - n. a representative from Geotechnical Section;
 - o. a representative from Civil Rights Bureau (ADA Coordinator);
 - p. the Tribal Affairs Coordinator;
 - q. FHWA, if applicable;
 - r. local officials, if deemed appropriate; and
 - s. others as deemed appropriate.

Montana Department of Transportation
Helena, Montana 59620-1001

Memorandum

To: (Name)
Preconstruction Engineer

From: (Name)
Traffic Engineer

Date: (Date signed by Traffic Engineer)

Subject: (Project Number)
(Project Name)
(Control Number)
(Project Work Type Number)

We request that you approve the Preliminary Field Review Report for the subject project.

Approved _____ Date _____
(Name)
Preconstruction Engineer

We are requesting comments from the following individuals, who have also received a copy of the Report. We will assume their concurrence if no comments are received within two weeks of the approved date.

(Distribution List) (Page Two)

Preliminary Field Review Report

The field review for the subject project was held ...

(Body of Report)

PRELIMINARY FIELD REVIEW REPORT MEMORANDUM

Figure 2.1B

In general, the Project Design Manager should limit the number of attendees.

2. Proposed Scope of Work. This section should provide a brief description of the proposed scope of work for the project and/or the project intent. For example, “The proposed project has been nominated to improve the intersection sight distance at the intersection of U.S. Route 12 (Brooks Street) and South Avenue in Missoula.” Also include a brief discussion explaining the reason(s) why the proposed scope of work was selected.

If it is determined that an outside consultant should be considered for the design of the project, provide a division of expected responsibilities between MDT and the consultant.

3. Project Location and Limits. Some of the descriptions that may be used to briefly describe the project location include:
 - a. county name,
 - b. city/town name,
 - c. Indian reservation,
 - d. route number,
 - e. functional classification,
 - f. reference points,
 - g. project length,
 - h. crossing routes and/or local streets,
 - i. distance and direction from nearby towns/cities,
 - j. as-built project numbers,
 - k. adjacent project numbers, and
 - l. direction of the proposed project.

Where the stationing proceeds in the opposite direction from the reference points (e.g., stationing increases from north to south while the reference points increases from south to north), note it in the Report.

4. Physical Characteristics. A brief description of the project’s physical characteristics may include a discussion of the following:
 - a. year when the existing road/bridge was built or reconstructed and when it was last overlaid or rehabilitated;
 - b. number of lanes and widths;
 - c. paved roadway width;
 - d. surface types and thicknesses;

- e. number and thickness of previous overlays;
 - f. the Pavement Management System's pavement condition and treatment recommendations;
 - g. general terrain of the area;
 - h. rural or urban location;
 - i. general description of the existing horizontal and vertical alignment, including all features that do not meet the proposed design criteria;
 - j. number of locations where the existing grade exceeds the proposed design maximum;
 - k. maximum gradient on the project;
 - l. general description of the existing fill and cut slopes, including slope rates, fill heights and cut depths;
 - m. lengths and widths of existing bridges;
 - n. railroad crossings;
 - o. on-street parking;
 - p. any other unique physical characteristics related to the project; and
 - q. special features within the project limits (e.g., National Forest, State Parks, etc.).
5. Traffic Data. The traffic data listed in the PFR Report should include the following:
- a. current AADT;
 - b. letting date AADT;
 - c. design year AADT;
 - d. DHV;
 - e. percent of trucks;
 - f. the expected daily 18,000-lb (8165-kg) Equivalent Single Axle Load (ESAL), where applicable; and

- g. basis of projected traffic growth.

See [Chapter Thirty](#) for definitions of traffic data terms.

- 6. Crash History. This section should briefly summarize the following crash history data:
 - a. number of crashes;
 - b. types of crashes;
 - c. listing of locations with an unexpectedly high number of crashes;
 - d. overall crash and severity rates for the project location;
 - e. statewide average crash and severity rates for similar routes, if available;
 - f. a description of how the project compares to the statewide averages;
 - g. a brief description of why a higher than normal number of crashes may be occurring and proposed countermeasures to be investigated; and
 - h. other remarks furnished by the Safety Management Section regarding the crash history of the project.
- 7. Major Design Features. The PFR Report should provide a general discussion for each of the following design features, if pertinent:
 - a. **Design Speed**. This section should provide the expected design speed for the project. If more than one design speed is selected for the project, then clearly identify the termini for each design speed selected. For existing facilities, also identify the existing posted speed limit.
 - b. **Horizontal Alignment**. Identify all the major horizontal features for the proposed project, including all features that may not meet the proposed design criteria. The discussion should also indicate the roadway alignment that can be reasonably obtained and possible methods for improving the horizontal alignment. The utilization of a new alignment, offset and parallel to the existing alignment, should be discussed for all reconstruction projects.
 - c. **Vertical Alignment**. Provide a description for all major vertical alignment features on the proposed project. This discussion may identify any grades that exceed the design criteria, the vertical alignment that can be

reasonably obtained and possible methods for improving the vertical alignment.

- d. **Typical Sections.** Provide a discussion for the proposed typical section(s) of the project. This includes the overall roadway width, travel lane widths, shoulder widths, two-way left-turn lanes, medians, side slopes, sidewalks, etc. Include separate descriptions where there are significant changes in the typical section (e.g., changes in lane widths).
- e. **Geotechnical Considerations.** This section should provide a brief listing of the major geotechnical considerations and techniques that may be required to construct the project (e.g., slope stability options).
- f. **Hydraulics.** For most traffic projects, a hydraulic report will generally not be required. If the project only involves inlet adjustments, the designer, with help from the District Engineering Services Supervisor, will be responsible for the hydraulic review write-up. The Hydraulics Section will review the write-up. If the project involves a channel, ditch or inlet with known drainage problems, the Hydraulics Section will be responsible for preparing a Hydraulics Report sometime between the Preliminary Field Review and the Scope of Work Report.
- g. **Bridges.** If there are bridges on the project, include a description of the proposed work on the bridge for each bridge. The description should also discuss the need for sidewalks, bicycle paths, utilities or any special features that may be included on the bridge. This section should also address any structural removals.
- h. **Safety Enhancements.** This section should describe the proposed approach for major safety enhancements. These include the flattening of slopes, removing guardrail, replacing existing guardrail, adding new guardrail, flattening a vertical curve, improving intersection sight distance, etc.
- i. **Intersections/Interchanges.** Provide a discussion for each intersection and interchange which has been proposed for major revisions (e.g., adding turning lanes, changing an existing "Y" intersection to a "T," increasing the length of a ramp acceleration lane).
- j. **Traffic Control Devices.** This section should address all the major traffic control devices that are proposed for the project. These could include new traffic signals, adding highway lighting, replacing major signs, special signing, etc.

- k. **Pedestrian/Bicycle/ADA.** Discuss impacts of these issues to existing facilities. Discuss implementation of new ADA features. Where there are no existing pedestrian or bicycle facilities and if there is evident of use, include a proposal for their accommodation.
 - l. **Miscellaneous Features.** This section should provide a discussion for all major design elements that are not identified in one of the above design areas. Miscellaneous features may include mailbox turnouts, on-street parking, retaining walls, fencing, etc.
8. **Design Exceptions.** If known at this stage, list all proposed design exceptions with a brief discussion of why an exception is considered necessary.
 9. **Right-of-Way.** Briefly describe the existing and proposed right-of-way widths. Provide separate descriptions where the existing or proposed right-of-way is significantly different between various typical sections. If known, include a listing of the major right-of-way acquisitions (e.g., taking of commercial property). In addition, identify the proposed access control classification for the highway.
 10. **Utilities/Railroads.** Include a listing of the known utility and/or railroad companies that may be affected by the project. Also, describe any railroad crossings and type of signing/signalization. For utilities, note their location and how they may affect the project.
 11. **Survey.** Address the need for a survey and the recommended survey methodology. Provide recommended target dates for the survey completion. This section should also discuss the need for other survey types (e.g., soil survey, SUE).
 12. **Public Involvement.** This section should discuss the type of public involvement required; see the MDT Public Involvement Handbook. This may include meetings with local officials, an early public involvement meeting and/or a formal public hearing. Also include the proposed approach for distributing project information to the public.
 13. **Environmental Considerations.** Identify any major environmental concerns on the project (e.g., hazardous waste, waterways, wetlands, archaeological/cultural sites). List all proposed measures that should be evaluated to avoid and/or minimize impacts to wetlands. Also address the need for obtaining a consultant to prepare the environmental documents.
 14. **Other Projects.** This section should list all other projects that are currently under construction or will be in the near future that may affect this project. Where

practical, the PFR Report may recommend that this project be incorporated into an adjacent existing or future project.

15. Temporary Traffic Control. Present the proposed traffic control procedure planned for the construction zone (e.g., detours, lane closures, shifting traffic, crossovers).
16. Preliminary Cost Estimate. Include the estimate cost that has been programmed to construct the project. Also, show this using a cost per mile (kilometer) basis. The cost should be adjusted using an inflation factor based on the project's anticipated letting date. Use a 3% inflation factor. The construction engineering (CE) cost should be listed separately. The Report should also note whether or not the CE cost is included in the total cost.
17. Ready/Letting Date. Include the letting date and ready date in the Report. The proposed letting date can be obtained from the Engineering Management Unit. The project ready date is typically three months prior to the letting date.
18. Preliminary Field Review Work Sheet. The Preliminary Field Review Work Sheet should be used as a checklist to identify issues that should be addressed during the Preliminary Field Review. All information noted on the work sheet should be discussed in the PFR Report. It is not necessary to attach the Preliminary Field Review Work Sheet to the PFR Report. A blank Preliminary Field Review Work Sheet form is provided in [Figure 2.1C](#).

Montana Department of Transportation
Preliminary Field Review Work Sheet

Project No. _____ Project Name _____
 Date of Review _____ Design Assignment _____
 Proposed Letting Date _____ Project Work Type Number _____

PROJECT LOCATION
 County _____ Route Name _____

"AS-BUILT" PROJECTS

| FROM | TO |
|-----------------------|---------------------------|
| Identification Number | Station (Reference Point) |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Begin Station _____ End Station _____
 Begin Reference Point _____ End Reference Point _____
 Length: Urban _____, Rural _____, Total _____
 Speed Zones _____

Last Major Work _____ Improved _____

ROADWAY FUNCTIONAL CLASSIFICATION
 Type: _____ (see Chapter Twenty-seven for selection criteria.)

CRASH DATA
 Crash Rate _____ Avg. Crash Rate - Statewide _____
 Severity Rate _____ Avg. Severity Rate - Statewide _____
 Clusters _____

EXISTING GEOMETRIC DESIGN
 Type of Surface _____
 Existing Surface Width _____

Horizontal Curves that do not meet MDT criteria

| "As-Built" | P.I. Station | (Reference Point) | Curve | Direction |
|------------|--------------|-------------------|-------|-----------|
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |

Crest Vertical Curves that do not meet MDT criteria _____

PRELIMINARY FIELD REVIEW WORK SHEET

Figure 2.1C

Montana Department of Transportation
Preliminary Field Review Work Sheet

Sag Vertical Curves that do not meet MDT criteria _____

Grades that do not meet MDT criteria _____

Maximum Grade _____
Existing Fill Slopes
"As-Built" _____
Fill Height _____
Slope _____
Existing Cut Slopes
"As-Built" _____
Cut Depth _____
Slope _____
Proposed Work (Type of Project) _____

Route Segment Plan Pavement Width _____ Standard Width _____

TRAFFIC DATA
Present AADT _____ DHV _____ Future AADT/year _____
Rural Functional Classification _____
Other _____

ATTENDED BY

ROADSIDE HAZARDS (Mailbox, Utilities, Trees, Rocks, Signs, Culvert Ends, etc.)

PRELIMINARY FIELD REVIEW WORK SHEET

Figure 2.1C
(Continued)

Montana Department of Transportation
Preliminary Field Review Work Sheet

FIELD REVIEW RECOMMENDATION

Design Speed _____ Terrain _____

Finished Surface Width _____

Finish Roadway Width _____

Pedestrian Features _____

Curb and Gutter _____

Overlay Thickness _____

Back Slope _____

Inslope _____

Truck Climbing Lane _____

Adjustments (Drains, Valves, etc.) _____

Cold Milling _____

Guardrail (New, Upgrade, Structure, etc.) _____

Special Considerations _____

SURVEY

Aerial Mapping _____ Full Survey _____ Partial Survey _____

Cross Sections _____

Pipes: Condition _____; Soil Tests _____

R-Value _____ Corings _____

Materials _____

Digouts _____

Hydraulics Survey _____

Target Date of Survey Completion _____

Other Items _____

RIGHT-OF-WAY

Existing R/W Width _____

New R/W (Incl. Possible Permits) _____

Limited Access _____

Railroad Requirements _____

Define - "Clear Zone Width" _____

PRELIMINARY FIELD REVIEW WORK SHEET

Figure 2.1C
(Continued)

| Montana Department of Transportation Preliminary Field Review Work Sheet | | | | |
|---|---------------------|--------------------|-------|---------|
| Stockpasses: | | | | |
| "As-Built" | Station | (Reference Point) | Type | Remarks |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| <u>UTILITIES</u> | | | | |
| Telephone _____ | | | | |
| Power Poles _____ | | | | |
| Railroad Conflicts _____ | | | | |
| Sewer & Water Conflicts _____ | | | | |
| Other _____ | | | | |
| M.O.U. with City _____ | | | | |
| <u>ENVIRONMENTAL ISSUES</u> | | | | |
| Environmental Document Type (will be determined by Environment Services Bureau). _____ | | | | |
| 4(f) Lands _____ | | | | |
| 6(f) Lands _____ | | | | |
| Wetlands _____ | | | | |
| Possible Hazardous Waste Sites _____ | | | | |
| Cultural Survey Required _____ | | | | |
| Historic Bridges _____ | | | | |
| Other (Prairie Dogs, Protected Streams, Landmarks, etc.) _____ | | | | |
| _____ | | | | |
| <u>PUBLIC HEARINGS</u> | | | | |
| Formal _____ | Informational _____ | News Release _____ | | |

PRELIMINARY FIELD REVIEW WORK SHEET**Figure 2.1C**
(Continued)

Montana Department of Transportation
Preliminary Field Review Work Sheet

TRAFFIC ITEMS

Electrical:

Street Lighting _____

Power Service Availability _____

Power Agreement _____

Traffic Signals

Actuation _____

Interconnection _____

Preemptions _____

Other _____

Flashing Beacon _____

Other (e.g., variable message sign, weigh station) _____

Signing, Pavement Markings:

Signing (Upgrade to MUTCD criteria) _____

Break-away Devices _____

Sign Structures _____

Pavement Markings: Existing and Proposed _____

Materials for Pavement Markings _____

Legal Speed Zone _____

Other _____

Intersections:

Auxiliary Lanes _____

Median Type _____

Islands _____

Other _____

GEOMETRIC DESIGN EXCEPTION

Grade _____ Fill/Cut Slopes _____

Width _____ Design Speed _____

Vertical Curves _____ Clear Zones _____

Horizontal Alignment _____

Other _____

PRELIMINARY FIELD REVIEW WORK SHEET

Figure 2.1C
(Continued)

Montana Department of Transportation
Preliminary Field Review Work Sheet

PAVEMENT MARKINGS/SIGNING EXCEPTIONS

Pavement Marking Material _____

Sign Sheeting _____

Other _____

HYDRAULIC INFORMATION

Channel Changes (Station) _____

Structures ("As-Built", Station, Reference Point, Type, Replace, Name of Drainage, Detour)

Pipes Over 84 in (2100 mm) _____

Other (Backwater, Debris, etc.) _____

Administer, Floodplain (county and/or incorporated community)

Materials and Geotechnical Considerations _____

: :

PRELIMINARY FIELD REVIEW WORK SHEET

Figure 2.1C
(Continued)

2.1.3 Scope of Work Report

2.1.3.1 General

The Scope of Work (SW) Report identifies the major design features of the subject project and provides an overview of the project improvements. The project design will proceed as described in the Report unless opposition is expressed within the specified comment period. Any disagreement in the scope of the project must be resolved prior to the final approval by the Chief Engineer of the Engineering Division. Consequently, it is essential that the Scope of Work Report be written as soon as the appropriate data is available.

Use the following procedure to prepare the SW Report and to obtain management approval of the Report:

1. The Project Design Manager, who is responsible for the preparation of the SW Report, may designate the designer to prepare the preliminary draft of the Report and all appropriate distribution memoranda. The Report will then be forwarded to the Traffic Engineer.
2. The Traffic Engineer will sign the SW Report Memorandum and forward it to the Traffic and Safety Engineer. After the Traffic and Safety Engineer has reviewed the SW Report Memorandum, it will be forward to the Preconstruction Engineer.
3. The Preconstruction Engineer will initial the distribution memorandum and request concurrence from the Engineering Bureau Chiefs, District Administrator and FHWA, if applicable. The distribution memorandum is a separate memorandum that is also prepared by the Project Design Manager, or designee, and submitted with the SW Report. [Figure 2.1D](#) illustrates the format that should be used for distributing the Report and the individuals who should receive copies of the SW Report.
4. Once concurrence has been received from the Bureau Chiefs and the FHWA, if applicable, the Project Design Manager, or designee, will prepare another memorandum requesting the Chief Engineer's, Engineering Division, approval for the SW Report. Prepare this memorandum for the Preconstruction Engineer's signature. It should include the comments received and their proposed disposition. [Figure 2.1E](#) illustrates a sample memorandum used for requesting approval from the Chief Engineer, Engineering Division. After approval, copies of the SW Report will typically be distributed to the following:

Montana Department of Transportation
Helena, Montana 59620-1001

Memorandum

To: Distribution

From: (Name)
Preconstruction Engineer

Date: (Date initialed by Preconstruction Engineer)

Subject: (Project Number)
(Project Name)
(Control Number)
(Project Work Type Number)

The Scope of Work Report for the subject project has been released on (Date of Release). We request that those on the distribution review this Report and submit your concurrence within two weeks of the above date.

Your comments and recommendations are also requested if you do not concur or concur subject to certain conditions.

When all the personnel on the distribution list have submitted their concurrence, this Report will be submitted to the Chief Engineer, Engineering Division for final approval.

| | | |
|--|----------|----------------------|
| Distribution: | | I Recommend Approval |
| R/W Bureau Chief, | w/attach | |
| Materials Engineer Chief, | " | |
| Bridge Engineer, | " | |
| Maintenance Administrator | " | |
| Project Analysis & Programming | " | _____ |
| Administrator, | " | Date _____ |
| Environmental Services Chief, | " | |
| District Administrator, | " | |
| Construction Administrator, | " | |
| FHWA (NHS Projects), | " | |
| cc:* Chief Engineer, Engineering Div., | w/attach | |
| Operations Engineer, | " | |
| Preconstruction Engineer, | " | |
| Traffic and Safety Engineer, | " | |
| Traffic Engineer, | " | |
| Hydraulics Engineer, | " | |
| Geotechnical Engineer, | " | |
| Road Design Engineer, | " | |
| FHWA (HFO-MT), | " | |
| Preconstruction File, | " | |
| ADA Coordinator, | " | |
| Access Management Coordinator, | " | |
| Safety Management Engineer, | " | |
| Preconstruction Design Engineer, | " | |
| Fiscal Planning Supervisor, | " | |
| Bicycle and Pedestrian Coordinator, | " | |

**In the actual memorandum, use the individual's name and their title.*

**SCOPE OF WORK REPORT DISTRIBUTION MEMORANDUM
(Initial Report)**

Figure 2.1D

Montana Department of Transportation
Helena, Montana 59620

Memorandum

To: (Name)
Preconstruction Engineer

From: (Name)
Traffic Engineer

Date: (Date submitted to Traffic Engineer)

Subject: Project Number)
(Project Name)
(Control Number)
(Project Work Type Number)

The Scope of Work Report for the subject project was released on (Date of Release).

Attached are approvals and concurrence from *R/W Bureau Chief, Materials Bureau Chief, Bridge Engineer, Maintenance Administrator, Program & Policy Analysis Administrator, Traffic & Safety Engineer, Environmental Services Chief, District Administrator, Construction Administrator, FHWA (NHS Projects)*.

Comments were received from *(List those sending comments)*.

(List comments and resulting decisions made due to the comments.)

With your approval, we will take all action requested with the design accordingly.

Approved _____
(Name)
Chief Engineer, Engineering Division

Date _____

cc: (As on Original Report)

SAMPLE OF SCOPE OF WORK REPORT APPROVAL

Figure 2.1E

| | |
|-----------------------------------|--|
| Preconstruction Engineer | Utilities Supervisor |
| Operations Engineer | Right-of-Way Bureau Chief |
| Preconstruction Design Engineer | Program & Policy Analysis Administrator |
| Hydraulics Engineer | Road Design Engineer |
| Safety Management Engineer | Construction Administrator |
| Materials Engineer | Bridge Engineer |
| Geotechnical Engineer | Traffic & Safety Engineer |
| Environ. Services Bureau Chief | Maintenance Administrator |
| Engineering Management Supervisor | Bicycles & Pedestrians Coordinator |
| Traffic Engineer | Project Design Manager |
| Access Management Engineer | District Construction Engineer |
| Fiscal Programming Supervisor | District Engineering Services Supervisor |
| District Maintenance Chief | FHWA (HFO-MT) (NHS) |
| District Administrator | Preconstruction File |
| City/County Officials | |

2.1.3.2 Format/Content

In general, prepare the Scope of Work (SW) Report in the sequence and format discussed below. This will provide a uniform presentation for all Department SW Reports and will ensure that all necessary design elements are addressed. Not all subject areas will be covered in every SW Report, and adjustments will be added as necessary. The level of coverage for each item may also vary from project-to-project. Although an in-depth discussion for each design element is usually not provided in this Report, provide sufficient detail to allow the reader to fully understand the proposed project.

The following provides the topic areas, in order, that should be addressed in the SW Report:

1. Proposed Scope of Work. This section should provide a brief description of the proposed scope of work for the project and/or the project intent. For example, "The proposed scope of work for the subject project is to install roadway lighting at the intersection of MT 35 and State Urban Route 5206." This section should also include a brief discussion of why the proposed scope of work was selected.
2. Project Location and Limits. See [Section 2.1.2.2](#) for list of the descriptions that may be used to describe the project location.
3. Physical Characteristics. See [Section 2.1.2.2](#) for list of the project's physical characteristics that should be discussed in the SW Report.

4. Traffic Data. See [Section 2.1.2.2](#) for the traffic data that should be included in the Report.
5. Crash Analysis. [Section 2.1.2.2](#) provides crash history data that should be addressed in the Report:
6. Major Design Features. The SW Report should provide a general discussion for each of the following design features. This discussion should also include any approved design exceptions for that design element. Prepare each topic area based on the station sequencing. Although each major design element is provided its own section, the designer should address how the element will interact with other design elements. One or more of the topic areas may not be applicable to the project and need not be included in the Report. The SW Report should discuss the following topics:
 - a. Design Speed. This section should present the expected design speed for the project. If more than one design speed is selected for the project, clearly identify the termini for each design speed selected. Also, indicate the posted speed limit. If a speed zone study is recommended, it should also be noted.
 - b. Horizontal Alignment. Provide a listing of all major horizontal features for the proposed project, including all features that will not meet the proposed criteria. The discussion should also include the maximum design criteria that can be reasonably obtained and methods for improving the horizontal alignment.
 - c. Vertical Alignment. Include a brief description for all major vertical alignment features on the proposed project. This discussion should identify the maximum design criteria that can be reasonably obtained and proposed methods for improving the vertical alignment. If truck-climbing lanes are warranted, their location and extent should be described.
 - d. Typical Sections. This section should briefly describe the major cross section elements. These include roadway widths, travel lane widths, shoulder widths, two-way left turn lanes, medians, sidewalks, etc. Provide separate descriptions where there are major changes in the typical section.
 - e. Surface Design. The pavement design discussion may include a summary of the soils report, including the results from the pavement samples taken on existing highways; the proposed pavement design,

including pavement type and thickness; milling depths and widths; recycling considerations; etc.

- f. Grading. This section should discuss the general grading of the project. This may include a discussion on special excavation, the need for large amounts of borrow, special soil considerations, etc.
- g. Slope Design. Describe the proposed slope design for the project in this section. Typical slope discussions may include slope flattening for guardrail, slope flattening for removal of guardrail, use of a barn roof section, steep side slopes, rock cuts, transverse median slopes, non-standard slope rates, etc.
- h. Geotechnical Considerations. This section should identify the major geotechnical features and problems on the project and any planned techniques that will be used to address these concerns.
- i. Hydraulics. This section should provide a brief summary of the proposed treatment for the hydraulic design elements on the project. These may include bridge replacements over water, culvert replacements, closed drainage systems, irrigation facilities, special roadway designs within flood limits, etc.
- j. Bridges. If there are bridges on the project, provide a description of the proposed work on the bridge for each bridge. The description should also discuss the need for sidewalks, bicycle paths, utilities or any special features that may be included on the bridge. This section should also address any removal of existing structures.
- k. Safety Enhancements. This section should describe the proposed approach for major safety enhancements. These include the flattening of slopes, removing guardrail, replacing existing guardrail, adding new guardrail, using special culvert end treatments, etc.
- l. Intersections/Interchanges. Provide a discussion for each intersection and interchange that has proposed major revisions (e.g., adding turning lanes, changing an existing "Y" intersection to a "T," increasing the length of a ramp acceleration lane).
- m. Traffic Control Devices. This section should address the traffic control devices that will be required for the project including traffic signals, highway lighting, signing, special pavement markings, islands, etc.

- n. **Miscellaneous Features.** Include a general discussion for all major design elements which are not identified in one of the above design areas. Miscellaneous features may include mailbox turnouts, on-street parking, accessibility requirements, retaining walls, fencing, unusual seeding and sodding requirements, etc.
7. **Design Exceptions.** This section should identify any approved geometric design exceptions for the project. The design exceptions should also be noted in the individual design areas in Comment #6.
8. **Right-of-Way.** Briefly describe existing and any proposed right-of-way width requirements. Provide separate descriptions where the existing or proposed right-of-way is significantly different between various typical sections. Also document any major right-of-way acquisitions (e.g., taking of commercial property). In addition, identify the proposed access control classification for the highway.
9. **Utilities/Railroads.** The Report should describe any potential problems relative to utilities and/or railroads. The discussion should also describe what has already been accomplished by utility and railroad companies.
10. **Environmental Considerations.** Summarize any environmental concerns identified in preliminary environmental documents. If the environmental document has been approved, include the date and conditions of approval. This section should also include brief descriptions of environmental or cultural mitigation measures and the treatment for any hazardous waste sites.
11. **Other Projects.** Discuss the resolution of any project conflicts identified in the Preliminary Field Review Report and determine if the projects can be combined for bid letting.
12. **Temporary Traffic Control.** Provide a discussion of the proposed traffic control strategy planned for the construction zone. This may include the need for detours, lane closures, traffic shifts, crossovers, etc.
13. **Public Involvement.** This section should summarize any concerns raised during the public involvement and their proposed disposition.
14. **Cost Estimate.** This section should provide the latest cost estimate available for the project. The designer may be required to prepare a detailed estimate for this Report. Adjust the estimate for inflation and indicate the inflation factor used. List the construction engineering cost separately. For urban projects, discuss the city's cost participation for storm drains, manholes, water valves, etc.

15. Ready/Letting Date. Include the proposed letting date and ready date in the Report. The project ready date is typically three months prior to the letting date.

2.1.4 Plan-in-Hand Report

2.1.4.1 General

The plan-in-hand review is an in-depth review of all items contained in the project plans and draft special provisions. For Traffic projects, this may or may not include an office and/or field review meeting. The Project Design Manager is responsible for scheduling the plan-in-hand review. The Plan-in-Hand (PIH) Report provides a written documentation of all comments and decisions made during the plan-in-hand review. The PIH Report addresses the concerns and questions raised by the review team and their proposed disposition.

The designer is responsible for the preparation of the PIH Report. The Project Design Manager will review the Report, make all necessary changes and forward it to the Traffic Engineer. The Traffic Engineer will sign and forward the Report to the Preconstruction Engineer for approval. [Figure 2.1F](#) illustrates the preferred heading and approval memorandum format the designer should use when preparing the PIH Report. After approval by the Preconstruction Engineer, copies of the PIH Report will typically be distributed to the project file and to the following individuals:

1. all applicable Engineering Bureau Chiefs;
2. District Administrator;
3. Preconstruction Design Engineer;
4. Rail, Transit and Planning Division Administrator;
5. all parties involved in the field review;
6. any other individuals or sections deemed appropriate; and
7. FHWA.

All parties receiving a copy of the PIH Report are requested to provide comments on the Report. Concurrence of the Report will be assumed if no comments are received by the specified date.

2.1.4.2 Format/Content

When preparing the PIH Report, the designer should consider the following:

1. Combine all office and field review comments into one Report.

Montana Department of Transportation
Helena, Montana 59620-1001

Memorandum

To: (Name)
Preconstruction Engineer

From: (Name)
Traffic Engineer

Date: (Date initiated by Traffic Engineer)

Subject: (Project Number)
(Project Name)
(Control Number)
(Project Work Type Number)

We request that you approve the Plan-in-Hand Report for the subject project.

Approved _____ Date _____
(Name)
Preconstruction Engineer

We are requesting comments from the following individuals who have also received a copy of the Report. We will assume their concurrence if no comments are received within two weeks of the approval date.

(Distribution List)

Plan-in-Hand Report

The plan-in-hand review for the subject project was held ...

(Body of Report)

PLAN-IN-HAND REPORT MEMORANDUM

Figure 2.1F

2. Combine and present all comments from the office and field reviews in the order in which they appear in the plan sheets. Also present the comments for each plan and profile sheet according to increasing stations down the proposed centerline of the project.
3. The first part of the PIH Report should provide all general comments on the project.
4. Identify all comments by sheet number and station location. If appropriate, provide the distance from the proposed centerline.
5. The resolution should briefly summarize the problem, question or request raised during the review meeting and state how the designer intends to address the comment.
6. Where practical, identify the individual making the comment.
7. Include all revisions to the special provisions in the PIH Report.
8. Include an updated cost estimate for the project. The estimate should incorporate the latest unit prices provided by the District. Forward a copy of the estimate to the Management Information Section and to the Fiscal Officer. If the estimate differs substantially from previous estimates, include the reasons for the change in project costs.

2.1.5 Final Plan Review Report

If deemed necessary, a final plan review may be conducted of the final project plans and special provisions. Generally, it will consist of individual plan reviews by everyone on the distribution. Formal plan reviews or field reviews will be scheduled only for specific circumstances. The reviewers' comments will be submitted to the designer within a specified time period. The Final Plan Review (FPR) Report presents the designer's proposed disposition of the reviewers' comments. At this stage of the project, comments should only be related to the completeness and accuracy of plans.

Responsibilities, approvals, format and distribution of the FPR Report will typically follow the same procedures as described in [Section 2.1.4](#) for the Plan-in-Hand Report.

2.2 CORRESPONDENCE

2.2.1 In-House Memoranda

2.2.1.1 General

Memoranda are used by MDT to provide written, interdepartmental information between the various Bureaus, Sections, Districts, etc. They are used to distribute project reports, process approval requests, request information, submit information, distribute policies and for informational purposes. Each Bureau and Section has established its own policies for circulating incoming mail. In general for the Traffic Engineering Section, the Traffic Engineer will review incoming memoranda to determine who needs additional copies. If appropriate, the Traffic Engineer will provide the Traffic and Safety Engineer's staff with copies to be distributed outside the Traffic Engineering Section.

2.2.1.2 Format

Section 2.1 provides several examples of project memoranda. The designer should review them to determine the appropriate format that should be used. The preparer should note that, for each memorandum, the heading should be fully completed and, where applicable, the project number, project name, control number and project work type number should be included. For non-project reports (e.g., traffic studies) the subject should provide a brief but informative title for the memorandum's purpose.

2.2.1.3 Signatures

For outgoing memoranda, the Preconstruction Program has established the following signature requirements:

1. Memoranda containing substantive materials for distribution outside of the Preconstruction Program and for Program-wide general information will require the Preconstruction Engineer's signature. However, if the initial request was directed to the Traffic Engineer, the memorandum will generally be submitted under the Traffic Engineer's signature.
2. Memoranda containing substantive materials for distribution outside of the Section, but within the Preconstruction Program, and for Section-wide general information will require the Traffic Engineer's signature.
3. General project correspondence, including those to the Districts, project information requests and general day-to-day forms, will be signed by the Traffic Engineer or designee.

2.2.1.4 Distribution

The Preconstruction Program has established the following procedure for distribution of outgoing memoranda:

1. Project/Traffic Information Submitted to Others. Memoranda providing project information to the Districts, other Bureaus or Sections should also include a copy to the following:
 - a. Preconstruction Engineer;
 - b. Preconstruction Design Engineer;
 - c. Traffic and Safety Engineer,
 - d. Traffic Engineer;
 - e. District Administrator, if required;
 - f. author of memorandum;
 - g. the preconstruction project file, if related to P.E. project; and
 - h. others as needed.

2. Information Requests. Memoranda requesting information from the Districts, other Bureaus or Sections should also include a copy to the following:
 - a. Traffic and Safety Engineer;
 - b. Traffic Engineer;
 - c. District Administrator, if required;
 - d. author of memorandum;
 - e. the preconstruction project file, if related to P.E. project; and
 - f. others as needed.

3. District Correspondence. Address all correspondence to the Districts to the District Administrator and include a copy to the following:
 - a. Traffic and Safety Engineer;
 - b. Traffic Engineer;
 - c. author of memorandum;
 - d. the preconstruction project file, if related to P.E. project; and
 - e. others as needed.

4. General Information. Distribution and copies of general information will be determined on a case-by-case basis. In general, always include a copy to the Traffic and Safety Engineer.

The Traffic Engineer has a list of routine correspondence that does not require a copy to be sent to the Preconstruction Engineer and/or Traffic and Safety Engineer. The Traffic

Engineer will determine on a case-by-case basis which of these memoranda will be forwarded to the Preconstruction Engineer and/or Traffic and Safety Engineer.

2.2.2 Outside Correspondence

2.2.2.1 General

In general, prepare all written material for sources outside of the Department on MDT letterhead. Letters for the Governor's signature will be on Governor's letterhead.

The writer must exercise common sense when preparing outside correspondence to match the reader's understanding. Department letters will often be written to individuals without a transportation background; therefore, the letter should use terminology that is understandable to the general public. In contrast, letters and surveys to AASHTO, FHWA, TRB, etc., should use standard highway engineering terminology.

[Figure 2.2A](#) illustrates the typical format for letters sent outside of the Department.

2.2.2.2 Signatures

In general, all letters will be forwarded through the chain of command to the individual signing the correspondence. The following presents the Department's policy for the signing of all out-going letters:

1. Letters to U.S. Congressmen, the Governor and legislators will be signed by the Director.
2. Letters responding to citizen inquiries will be signed by the Traffic Engineer, Traffic and Safety Engineer, Preconstruction Engineer or a higher level, depending on who initially received the letter.
3. Letters that provide substantive information to towns, counties or local officials should be signed by the Traffic Engineer, Traffic and Safety Engineer, Preconstruction Engineer or a higher level. Routine information sent to towns, counties or local officials may be signed by the Traffic Engineer.
4. Information requested by the news media should be signed by the Preconstruction Engineer or a higher level. General news releases may be signed by the Traffic Engineer.

5. Information to Federal and State agencies, AASHTO, TRB, other State DOT's, etc., should be signed by the Traffic Engineer, Traffic and Safety Engineer, Preconstruction Engineer or a higher level.
6. Project information submitted to consultants, contractors, suppliers, etc., should be signed by the Traffic Engineer.

2.2.2.3 Distribution

Distribution of an outside letter will vary according to the information in the letter. A copy of all letters submitted outside the Department should be sent to the Preconstruction Engineer. Copies of all letters signed by the Director of Transportation should be sent to the Montana Transportation Commission.

(date)

Jane Smith
Wildlife Biologist
Helena Resource Area Office
1404 Eighth Avenue
Helena, MT 59620

Subject: Speed Limit and Signing U.S. 12 West

This is in response to your request for a possible modification in the speed limit and signing for US 12 from the State Nursery to the base of MacDonald Pass to reduce the collisions that vehicles are encountering with wildlife.

As you addressed in your letter, a speed limit cannot be arbitrarily changed. The Montana Transportation Commission has the authority to change the speed limit if a modification is justified. In this particular case, our traffic engineer does not think a lower speed limit could be justified because it will not address the problem. A lower speed limit sign does not tell the driver anything about the conflict between vehicles and wildlife. Past experience has proven that lowering the speed limit will not change driver behavior.

However, our Traffic Engineering Section will review the crashes involving wildlife to identify a trend or specific area where the crashes are occurring. From this review, we will attempt to find measures that will address the conflict between vehicles and wildlife on this stretch of highway.

Thank you for sharing your concerns with us. If you have any questions or comments, please feel free to contact our Traffic Engineer, (name) at (telephone number and/or email address).

(name)
Director of Transportation

cc: (name), Transportation Commissioner
(name), Preconstruction Engineer
(name), Traffic Engineer

SAMPLE MDT LETTER

Figure 2.2A

2.3 MUTCD CONTEXT

2.3.1 Manual on Uniform Traffic Control Devices (MUTCD)

The MUTCD information is divided into four categories — standard, guidance, option and support. These categories are used to determine the appropriate application for the various traffic control devices and are further defined as follows:

1. Standard. These are mandatory actions or prohibitive practices that are required without exception or with exceptions so noted under the standard heading. The MUTCD prints this criteria in bold print. Typical phrases include shall, shall mean, shall be satisfied, shall consist, etc. Standards are sometimes modified by Options.
2. Guidance. This category is considered to be advisory usage, recommended but not mandatory. Deviations are allowed where engineering judgment indicates that it is appropriate. The Guidance text in the MUTCD appears as normal text. Typical phrases include should, should be, should be considered, should be given, etc. Guidance statements are sometimes modified by Options.
3. Option. This category includes procedures and devices that are allowed, but carry no recommendations or requirements. The user is free to use or refrain from their use. The MUTCD labels this information as optional and is shown as normal text. Typical phrases include may, may be used, may be considered, etc.
4. Support. An informational statement that does not convey any degree of mandate, recommendation, authorization, prohibition or enforceable condition. Support statements are labeled, and the text appears as normal text. The verbs shall, should and may are not used in Support statements.

2.3.2 MDT Application

In reference to the MUTCD categories, MDT has adopted the following positions:

1. Standard. The designer must meet the conditions of the MUTCD.
2. Guidance. The designer will follow the MUTCD with very few exceptions. For those very few situations where it may be impractical to follow the “guidance” criteria, the designer must obtain approval from the Traffic Engineer.
3. Option. The designer should make every reasonable effort to follow the MUTCD criteria. For those situations where it is impractical to follow the “option” criteria, no approval from the Traffic Engineer will be necessary.

2.4 CONSULTANT MONITORING

2.4.1 Responsibilities

2.4.1.1 Consultant Design Bureau

The Consultant Design Bureau is responsible for all administrative aspects of consultant-designed projects, including those under a term contract. This includes:

1. maintaining consultant prequalification lists,
2. advertising for consultant services,
3. preparing the Request for Proposals,
4. administering the consultant evaluation and selection process,
5. conducting contract negotiations with the selected consultant,
6. processing and executing the consultant contract,
7. processing consultant payments,
8. processing supplemental agreements,
9. monitoring project progress,
10. resolving disputes, and
11. closing out the contract.

For traffic engineering issues, the Consultant Design Bureau is responsible for:

1. organizing and attending project meetings;
2. assisting the consultant, as necessary, to determine existing R/W limits, location of existing utilities, any environmental concerns or other potential problems that could affect the scope of work;
3. reviewing content and format of consultant prepared design exception(s), Scope of Work and Plan-in-Hand Reports;
4. submitting consultant prepared reports to the Traffic Engineering Section for review and comment;
5. preparing all correspondence necessary for distribution and approval of reports, distribution of a news release and the request for preparation of the environmental document;
6. submitting preliminary, plan-in-hand and final plans to the Traffic Engineering Section for review and comment;
7. after review, returning reports or plans to consultant for correction; and

8. after acceptance by the Traffic Engineering Section, transmitting final plans to the Contract Plans Bureau;

2.4.1.2 Traffic Engineering Section

The applicable MDT engineering unit is responsible for coordinating with the Consultant Design Bureau on any technical aspects of consultant-designed projects. The Traffic Engineering Section is responsible for reviewing any traffic engineering items within a consultant contract — either as part of an overall road design project or as a stand-alone traffic engineering project. The following summarizes the Section's responsibilities for consultant projects for traffic engineering activities:

1. determining and justifying the need for consultant services;
2. determining the project scope of work;
3. evaluating and rating the consultants' proposals;
4. working with the consultant on an as-needed basis;
5. attending field meetings as required to provide input to consultant for preparation of design exception(s), Scope of Work and Plan-in-Hand Reports;
6. requesting electrical service from power company and obtaining energy/maintenance agreements as required;
7. reviewing all work performed by the consultant to ensure that it meets the applicable traffic engineering criteria;
8. helping the Consultant Design Bureau with consultant performance and evaluation; and
9. in general, providing any needed technical support to the Consultant Design Bureau in the implementation of its administrative responsibilities.

2.4.2 Project Implementation

The following discusses the typical activities which occur during the implementation of a consultant-designed project.

2.4.2.1 Scoping of Consultant Services

A meeting will typically be held to identify a preliminary project scope of work for the consultant. This meeting will allow the Consultant Design Bureau to develop an appropriate Request for Proposals or to clarify the consultant's scope of work. A field review may or may not be required to determine the appropriate scope of work.

2.4.2.2 Scoping Meeting

The official Notice to Proceed provides the consultant with the authority to begin work on the project. However, before initiating the project work, it is desirable to hold an Scoping Meeting with the consultant, especially if the consultant is not familiar with Department procedures. This Meeting will be facilitated by the Consultant Design Bureau's Project Coordinator. The Meeting should be attended by the Traffic Engineering Section's Project Coordinator, a representative from the Consultant Design Bureau, other Department staff with an interest in the project, and the consultant's Project Manager and key staff members.

The objectives of the Scoping Meeting are to:

1. describe the scope of the project and services required of the consultant;
2. introduce the Department and consultant project team members to one another;
3. determine the lines of communication (e.g., clearly establish the principal contacts for both the Department and the consultant on technical and administrative issues);
4. review project objectives, critical traffic engineering issues, and any Federal, State or local requirements that will impact the project;
5. review the Department's requirements for technical reviews, quality control, progress reporting and invoicing;
6. discuss the procedures for conflict resolution; and
7. review the consultant's detailed work plan and schedule.

2.4.2.3 Project Schedule

To effectively monitor project progress, there must initially have been a clear definition of the project scope of work. Based on the scope, the consultant should have

developed a realistic and detailed work plan and schedule to guide the project development process for both the Department and the consultant. With this initial schedule as a baseline, monthly progress can be monitored and compared with the baseline. Unforeseen circumstances will cause the progress to move ahead or fall behind the original plan, but routine delays that are often encountered should be anticipated with some slack built into the schedule to accommodate them.

The consultant should prepare a detailed schedule for the project, using the agreed upon contract dates for key events as the control points for the schedule. The schedule should clearly define activities and events to be performed by the Department and the consultant. If reviews by other MDT units or outside agencies are required, these should also be anticipated and scheduled. This schedule will then be used to monitor project progress throughout project implementation.

If the MDT Consultant Project Engineer and/or consultant determine that the project is behind schedule, the reason for the slippage should be determined. If the slippage is within the consultant's control, the Department should request in writing a plan from the consultant to return the project to the schedule. If the delay is the Department's responsibility or for circumstances beyond the consultant's control, the Consultant Project Engineer should determine what, if anything, can be done to expedite the project. If the schedule slippage is of sufficient magnitude that the contract completion date is not likely to be met, the consultant should request a time extension with an explanation of the circumstances necessitating the extension.

2.4.2.4 Monthly Progress Reports

The consultant will submit a written progress report at intervals as specified in the contract. Normally, progress reports are required for each month of the contract period, whether or not any progress has occurred. The progress report should be clearly identified as such and should contain:

1. Project Identification. Include the Project Name, Project Number and Contract Number.
2. Reporting Period. Identify the month or period covered by the report.
3. Narrative Discussion of Project Status. Include the following:
 - a. discussion of work accomplished since the last progress report,
 - b. discussion of work planned to be accomplished before the next progress report, and

- c. description of any major outstanding issues or concerns.
4. Percent Complete. Show percent complete by activity as labor expended and/or dollar value earned, depending on type of contract:
 - a. Lump-sum contracts — percent of dollar value earned by activity, and
 - b. Cost-plus contracts — percent of labor-hours expended by activity.
 5. Project Schedule. State the status of the project progress relative to the approved Project Schedule.

Note that monthly progress reports must remain separate from other project reports (i.e., they should be submitted in a separate package to the Department).

2.4.2.5 Department Reviews

In general, the consultant is responsible for the accuracy and quality control of its work products. The Traffic Engineering Section will conduct formal technical reviews of the consultant's work as requested by the Consultant Design Bureau.

The Montana Traffic Engineering Manual presents the Department's administrative and technical criteria for the development of traffic engineering projects. The Manual has been prepared from the perspective of a MDT-designed project. However, all information in the Manual applies equally to consultant-designed projects, and consultants are expected to implement the project according to the Department's criteria.

The consultant will submit all work products to the Consultant Design Bureau, who will distribute it for review, evaluation and comment. In addition, the Consultant Project Engineer will schedule, on an as-needed basis, periodic review meetings with the consultant. The objectives of the meetings may include answering Department questions, resolving Department comments, assessing project progress, etc. After the meeting, the consultant will be responsible for preparing minutes to document the key decisions made during the meeting.

2.4.2.6 Scope-of-Work Changes

When significant changes occur in the scope, character or complexity of the project work, a Supplemental Agreement may be negotiated if it is mutually agreed that such changes are necessary. The consultant will document the revised scope of work and prepare a cost estimate for review and approval by the Department. If the change in

scope is approved, a Supplemental Agreement will be processed by the Consultant Design Bureau.

No claim for extra work is acceptable before receipt of a duly executed Supplemental Agreement and notice to proceed.

2.4.2.7 Final Acceptance of Work

After the consultant has completed all work required by the contract, the consultant will submit a letter to the Department stating that the project work has been completed and requesting final acceptance of the work from the Department.