

Chapter Thirty-three
PROJECT DEVELOPMENT PROCESS

Table of Contents

| <u>Section</u> | <u>Page</u> |
|---|--------------------|
| 33.1 GENERAL | 33.1(1) |
| 33.2 ACTIVITIES..... | 33.2(1) |
| 33.2.1 Activity 900 — Define Project..... | 33.2(1) |
| 33.2.1.1 Purpose | 33.2(1) |
| 33.2.1.2 Tasks | 33.2(1) |
| 33.2.1.3 Preceding/Succeeding Activities..... | 33.2(2) |
| 33.2.2 Activity 902 — Request News Release and Environmental Input | 33.2(2) |
| 33.2.2.1 Purpose | 33.2(2) |
| 33.2.2.2 Tasks | 33.2(2) |
| 33.2.2.3 Preceding/Succeeding Activities..... | 33.2(2) |
| 33.2.3 Activity 910 — Request Field Survey | 33.2(4) |
| 33.2.3.1 Purpose | 33.2(4) |
| 33.2.3.2 Tasks | 33.2(4) |
| 33.2.3.3 Preceding/Succeeding Activities..... | 33.2(4) |
| 33.2.4 Activity 914 — Prepare Scope of Work Report..... | 33.2(5) |
| 33.2.4.1 Purpose | 33.2(5) |
| 33.2.4.2 Tasks | 33.2(5) |
| 33.2.4.3 Preceding/Succeeding Activities..... | 33.2(6) |
| 33.2.5 Activity 916 — Prepare for Public Hearing | 33.2(6) |
| 33.2.5.1 Purpose | 33.2(6) |
| 33.2.5.2 Tasks | 33.2(7) |
| 33.2.5.3 Preceding/Succeeding Activities..... | 33.2(7) |

Table of Contents

(Continued)

| <u>Section</u> | <u>Page</u> |
|-----------------------|---|
| 33.2.6 | Activity 924 — Final Construction Limits to Right-of-Way Bureau 33.2(7) |
| 33.2.6.1 | Purpose33.2(7) |
| 33.2.6.2 | Tasks33.2(8) |
| 33.2.6.3 | Preceding/Succeeding Activities.....33.2(8) |
| 33.2.7 | Activity 928 — Distribute Survey and Request Design Input33.2(9) |
| 33.2.7.1 | Purpose33.2(9) |
| 33.2.7.2 | Tasks33.2(9) |
| 33.2.7.3 | Preceding/Succeeding Activities.....33.2(9) |
| 33.2.8 | Activity 940 — Prepare Plan and Profile Sheets33.2(10) |
| 33.2.8.1 | Purpose33.2(10) |
| 33.2.8.2 | Tasks33.2(10) |
| 33.2.8.3 | Preceding/Succeeding Activities.....33.2(10) |
| 33.2.9 | Activity 960 — Design Preliminary Plans.....33.2(11) |
| 33.2.9.1 | Purpose33.2(11) |
| 33.2.9.2 | Tasks33.2(11) |
| 33.2.9.3 | Preceding/Succeeding Activities.....33.2(12) |
| 33.2.10 | Activity 968 — Approve Scope of Work Report33.2(12) |
| 33.2.10.1 | Purpose33.2(12) |
| 33.2.10.2 | Tasks33.2(13) |
| 33.2.10.3 | Preceding/Succeeding Activities.....33.2(14) |
| 33.2.11 | Activity 988 —Final Plan-In-Hand Inspection33.2(14) |
| 33.2.11.1 | Purpose33.2(14) |
| 33.2.11.2 | Tasks33.2(14) |
| 33.2.11.3 | Preceding/Succeeding Activities.....33.2(16) |
| 33.2.12 | Activity 994 — Complete Final Design33.2(16) |
| 33.2.12.1 | Purpose33.2(16) |
| 33.2.12.2 | Tasks33.2(16) |
| 33.2.12.3 | Preceding/Succeeding Activities.....33.2(17) |

Table of Contents

(Continued)

| <u>Section</u> | | <u>Page</u> |
|-----------------------|---|--------------------|
| 33.2.13 | Activity 995 — Transmit to Contract Plans Bureau..... | 33.2(17) |
| 33.2.13.1 | Purpose | 33.2(17) |
| 33.2.13.2 | Tasks | 33.2(18) |
| 33.2.13.3 | Preceding/Succeeding Activities..... | 33.2(18) |
| 33.2.14 | Activity 996 — Check Plans | 33.2(19) |
| 33.2.14.1 | Purpose | 33.2(19) |
| 33.2.14.2 | Tasks | 33.2(19) |
| 33.2.15 | Activity 998 — Final Plan Review | 33.2(19) |
| 33.2.15.1 | Purpose | 33.2(19) |
| 33.2.15.2 | Tasks | 33.2(19) |
| 33.2.15.3 | Preceding/Succeeding Activities..... | 33.2(20) |

Chapter Thirty-three

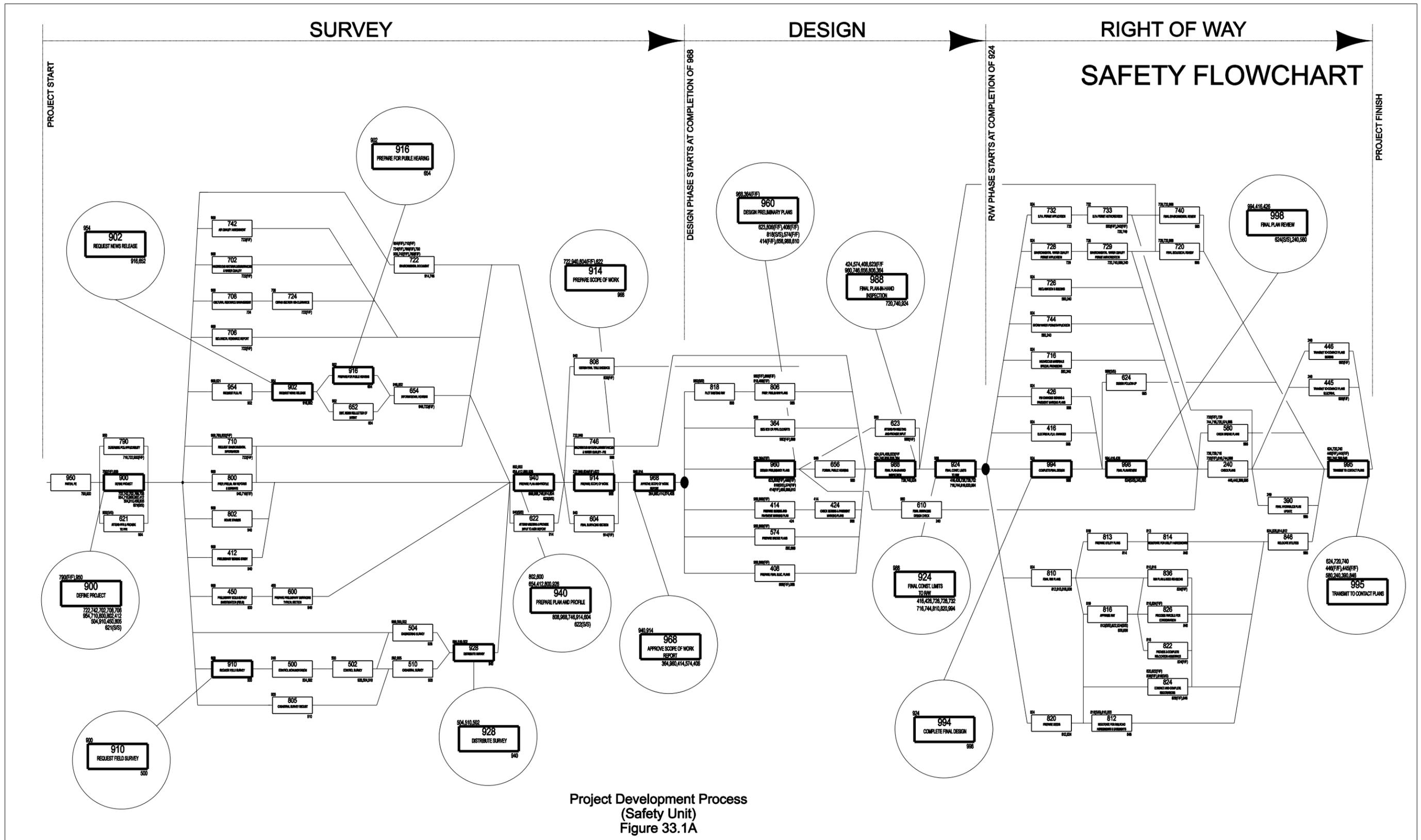
PROJECT DEVELOPMENT PROCESS (Management Unit 7100 — Safety Design)

33.1 GENERAL

Figure 33.1A illustrates the basic project development approach used by MDT for a typical safety project. Chapter Thirty-three discusses the activities of the Traffic Engineering Section's Safety Design Unit within this project development process. For a complete description of the activities for all the Units and Sections, the user should review Activity numbers and Titles located on the Engineering Information Management Services Section page, which is on the Department's intranet. In using Chapter Thirty-three, the user should consider the following:

1. Precedence Activity Network. The network or flowchart in Figure 33.1A is a precedence activity network. An "activity" occurs when a significant, discrete event occurs and/or when the responsibility for the project (activity) is transferred from one unit to another. The "precedence" nature of the network implies that an activity cannot occur until all activities preceding that one have been completed. However, the user must be aware that some flexibility is necessary to apply this network to project development.
2. Project Application. The network represents the typical process where the Safety Design Unit would be the lead-design unit for the project. Not every activity will be applicable to every project; i.e., some activities will represent "zero" time on relatively minor projects. Also, not all activities that may be required on a project are shown. However, the user should find that projects which are developed according to this process will have fewer management problems.
3. Lines of Communication. The rigid application of the network would lead to predetermined, precise points at which communication occurs between units. This is neither realistic nor desirable. Communication between units must be continuous. This will result in fewer problems and fewer "surprises" in project development.
4. Safety Design Unit. The objective of the network is to illustrate the significant activities for the road design elements of a safety project. Other project development elements (e.g., electrical, environmental) are illustrated to show how they interact with the Safety Design Unit.

5. Other Manual Chapters. The Montana Traffic Engineering Manual contains several other chapters which provide complementary information to Chapter Thirty-three. The designer should review these chapters for more information on the project development process. In particular, Chapter Thirty-three should be used in combination with [Chapter Thirty-four "Project Coordination \(Safety Projects\)."](#)
6. Position Definitions. For the use of this network, the following definitions for personnel positions or project roles will apply:
 - a. Project Design Manger. The Project Design Manager is the individual from the Lead Design Group assigned to oversee the project scoping and manage the project development.
 - b. Designer. The designer is the individual responsible for direct preparation of the specific plan package.



Project Development Process
(Safety Unit)
Figure 33.1A

33.2 ACTIVITIES

33.2.1 Activity 900 — Define Project

33.2.1.1 Purpose

The purpose of Activity 900 is to request, gather and develop information to define the project type, scope of work, project limits, major design features, right-of-way and utility issues and the process to be used for the project's development.

The Scope of Work Report documents the results of this Activity, which requests FHWA and/or in-house approval. [Section 2.1.3](#) documents the format, required content and distribution of the Scope of Work Report.

33.2.1.2 Tasks

The Project Design Manager and/or designer are responsible for the following tasks:

1. conducting the field review with the District Construction Engineering Services, Construction Engineering Services Bureau and others deemed necessary;
2. determining the project limits and design features;
3. determining the appropriate project criteria;
4. determining the potential environmental impacts of all alternatives and a formulating a determination that the project is a non-major action;
5. with the district personnel, deciding if a minor survey is required;
6. reviewing the extent and mitigation of constructability issues;
7. requesting data from the Rail, Transit and Planning Division's Project Analysis Bureau;
8. requesting information from any other source that will aid in the development of the project;
9. preparing the preliminary cost estimate for the project;
10. developing a Scope of Work Report to document the decisions made at the field review and request project approval; and

11. preparing and sending auto screens or as-built plans of the preliminary project scope to the Right-of-Way Bureau and the Utilities Section.

33.2.1.3 Preceding/Succeeding Activities

[Figure 33.2A](#) illustrates the preceding activities that should occur prior to Activity 900 and the succeeding activities that rely on the results of this activity. For additional guidance, see [Figure 33.1A](#).

33.2.2 Activity 902 — Request News Release and Environmental Input

33.2.2.1 Purpose

The News Release outlines the general project scope, alerts various entities a project is being initiated and starts the information gathering process from the public to determine what concerns and impacts must be considered. On projects where significant outside input is anticipated, a Letter of Intent may be more appropriate than a News Release.

33.2.2.2 Tasks

The Project Design Manager requests the Environmental Services Bureau to prepare the required environmental documents for the project. The Project Design Manager or designer will also draft the News Release or Letter of Intent and send the draft to the Public Information Program. The Public Information Program finalizes and distributes the Letter of Intent or distributes the News Release.

33.2.2.3 Preceding/Succeeding Activities

[Figure 33.2B](#) illustrates the preceding activities that should occur prior to Activity 902 and the succeeding activities that rely on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|----------------|-----------------------|-------------------------------|------------------------|---|
| Safety Project | 950 | Receipt of Partial PE Program | 954 | Request Full PE Program |
| | | | 706 | Biological Resource Report |
| | | | 742 | Air Quality Assessment |
| | | | 702 | Hazardous Mat./Subst. and Water Quality |
| | | | 800 | Prepare Preliminary R/W Reports and Estimates |
| | | | 802 | Route Studies |
| | | | 412 | Preliminary Signing Study |
| | | | 910 | Request Field Survey |
| | 790 | PCE Applicability | 708 | Cultural Resource Management |
| | | | 710 | Request Environmental Information |
| | | | 504 | Engineering Survey |
| | | | 722 | Environmental Document |
| | | | 450 | Preliminary Soil Survey Investigation – Field |
| | | | 805 | Cadastral Survey Request |
| | | | 621 | Attend Meeting and Provide Input to PFR |
| | | | Safety Signing Project | 950 |
| 914 | Prepare Scope of Work | 968 | | Secure Design Approval |
| | | 902 | | Request News Release |

**PRECEDING/SUCCEEDING ACTIVITIES
(ACTIVITY 900)**

Figure 33.2A

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|------------------------|----------------------|-------------------------|-----------------------|--|
| Safety Project | 954 | Request Full PE Program | 652 | District News Release/ Letter of Intent |
| | | | 916 | Prepare for Public Hearing |
| | | | | |
| Safety Signing Project | 722 | Environmental Document | 652 | District News Release/ Letter of Intent |
| | 900 | Define Project | | |
| | 914 | Prepare Scope of Work | | |

**PRECEDING/SUCCEEDING ACTIVITIES
(ACTIVITY 902)**

Figure 33.2B

33.2.3 Activity 910 — Request Field Survey

33.2.3.1 Purpose

The purpose of Activity 910 is to authorize the District to perform any necessary surveys for the project. This information will be incorporated into the preliminary plan development.

33.2.3.2 Tasks

The Project Design Manager and/or designer will request the District Administrator to proceed with the field survey and/or request contour mapping from the Photogrammetry and Survey Section in the Highways Bureau.

33.2.3.3 Preceding/Succeeding Activities

[Figure 33.2C](#) illustrates the preceding activity that should occur prior to Activity 910 and the succeeding activity that relies on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|----------------|----------------------|----------------------|-----------------------|-----------------------|
| Safety Project | 900 | Define Project | 500 | Control Monumentation |

**PRECEDING/SUCCEEDING ACTIVITIES
(ACTIVITY 910)**

Figure 33.2C

33.2.4 Activity 914 — Prepare Scope of Work Report

33.2.4.1 Purpose

The purpose of the Scope of Work Report is to document all major design features for the proposed project. Unless opposition is received, the Report will form the basis for all detailed design work required for the project. After concurrence from all applicable MDT Bureau Chiefs, the Scope of Work Report is distributed as discussed in [Section 2.1.3](#). Section 2.1.3 also discusses the format and required content of the Report.

33.2.4.2 Tasks

The Project Design Manager or designer will typically conduct the following for the Scope of Work Report:

1. gather information from all applicable units, including:
 - a. utilities evaluation,
 - b. geometrics scoping,
 - c. identification of any highway/railroad grade crossing impacts,
 - d. preliminary results of any coordination with outside agencies,
 - e. preliminary traffic study,
 - f. geotechnical considerations,
 - g. right-of-way acquisition needs,
 - h. survey data,
 - i. soils survey,
 - j. environmental documentation,
 - k. location hydraulics study,
 - l. proposed temporary traffic control,
 - m. input from the public, and
 - n. processing of any proposed design exceptions;

2. determine the cost estimate, see [Section 4.3](#); and
3. prepare the Scope of Work Report.

33.2.4.3 Preceding/Succeeding Activities

[Figure 33.2D](#) illustrates the preceding activities that should occur prior to Activity 914 and the succeeding activities that rely on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|------------------------|----------------------|---|-----------------------|-------------------------|
| Safety Project | 722 | Environmental Document | 968 | Secure Design Approval |
| | 940 | Prepare Plan and Profile | | |
| | 604 | Final Surfacing Section | | |
| | 622 | Attend Meeting and Provide Input to Align./Grade Review | | |
| Safety Signing Project | 950 | Receipt of Partial PE Program | 968 | Secure Design Approval |
| | | | 722 | Environmental Document |
| | | | 900 | Define Project |
| | | | 954 | Request Full PE Program |
| | | | 902 | Request News Release |

PRECEDING/SUCCEEDING ACTIVITIES (ACTIVITY 914)

Figure 33.2D

33.2.5 Activity 916 — Prepare for Public Hearing

33.2.5.1 Purpose

The purpose of Activity 916 is to develop and assemble displays and other information required to present the project at a Public Hearing. The information for the Public Hearing is developed after receiving the following information:

1. aerial photography and/or field survey,
2. approved draft or final environmental document, and
3. completion of alternative studies.

33.2.5.2 Tasks

The Project Design Manager and/or designer are responsible for the following tasks:

1. preparing the displays for the public hearing,
2. developing cost estimates for the alternative being considered, and
3. requesting the Public Information Program to schedule the Public Hearing.

33.2.5.3 Preceding/Succeeding Activities

Figure 33.2E illustrates the preceding activity that should occur prior to Activity 916 and the succeeding activity that relies on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|----------------|----------------------|----------------------|-----------------------|-----------------------|
| Safety Project | 902 | Request News Release | 654 | Informational Hearing |

PRECEDING/SUCCEEDING ACTIVITIES (ACTIVITY 916)

Figure 33.2E

33.2.6 Activity 924 — Final Construction Limits to Right-of-Way Bureau

33.2.6.1 Purpose

The purpose of Activity 924 is to provide the Right-of-Way Bureau with plans indicating the final construction limits. Based on these plans, the Right-of-Way Bureau will implement the right-of-way process. If necessary, the Right-of-Way Bureau will prepare a separate set of right-of-way plans. From these the Bureau, will implement the right-of-way functions of appraisal, negotiation, acquisition, relocation and, if necessary, condemnation. The Right-of-Way Bureau will also negotiate the terms of any

construction permits, permanent right-of-way easements, temporary right-of-way easements and identify access control limits.

33.2.6.2 Tasks

The designer finalizes the design and provides the final construction limits to the Right-of-Way Bureau.

33.2.6.3 Preceding/Succeeding Activities

Figure 33.2F illustrates the preceding activity that should occur prior to Activity 924 and the succeeding activities that rely on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|----------------|----------------------|-------------------------------|-----------------------|---|
| Safety Project | 988 | Final Plan-In-Hand Inspection | 810 | Prepare Final R/W Plans |
| | | | 732 | S.P.A. Permit Application |
| | | | 728 | Environmental Water Quality Permits Application |
| | | | 820 | Prepare Deeds |
| | | | 726 | Reclamation and Seeding |
| | | | 994 | Complete Final Design |
| | | | 416 | Electrical Plan-In-Hand Changes |
| | | | 744 | Storm Water Permit/Application |
| | | | 716 | Hazardous Materials Special Provision |
| | | | 426 | PIH and Change Signing and Pavement Marking Plans |

PRECEDING/SUCCEEDING ACTIVITIES (ACTIVITY 924)

Figure 33.2F

33.2.7 Activity 928 — Distribute Survey and Request Design Input

33.2.7.1 Purpose

The purpose of Activity 928 is to assemble the basic design data required to initiate the preliminary plan development.

33.2.7.2 Tasks

The tasks involved in Activity 928 typically include the following:

1. The designer transmits the field drainage recommendations and Form HYD 1 for major drainage installations to the Hydraulics Section and request drainage recommendations by a specific date.
2. The designer transmits prints of the Form HYD 1, survey notes and other data pertinent to bridge design to the Bridge Bureau.
3. The designer transmits existing data on special soils or materials and requests recommendations by a specific date from the Materials Bureau.
4. The designer transmits pertinent data and requests cost estimates on special problems by a specific date from the Right-of-Way Bureau.
5. The designer requests that the Electrical and Signing Units provide planning report data on lighting, signals, school crossings, etc., by a certain date.
6. The designer requests bridge guardrail recommendations and detail drawings from Bridge Bureau.
7. The designer requests hydraulic recommendations from Hydraulics Section.
8. The designer requests traffic data, intersection traffic data and specific crash data from Data and Statistics Bureau.

33.2.7.3 Preceding/Succeeding Activities

[Figure 33.2G](#) illustrates the preceding activities that should occur prior to Activity 928 and the succeeding activity that relies on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|----------------|----------------------|----------------------|-----------------------|--------------------------|
| Safety Project | 504 | Engineering Survey | 940 | Prepare Plan and Profile |
| | 502 | Control Survey | | |
| | 510 | Cadastral Survey | | |

**PRECEDING/SUCCEEDING ACTIVITIES
(ACTIVITY 928)**

Figure 33.2G

33.2.8 Activity 940 — Prepare Plan and Profile Sheets

33.2.8.1 Purpose

The purpose of Activity 940 is to prepare the Title Sheet and the Plan and Profile Sheets. See Chapter Four of the MDT Road Design Manual for guidance on the preparation of these sheets.

33.2.8.2 Tasks

The designer typically conducts the following tasks for Activity 940:

1. assigns a crew to check survey notes and to develop the Title Sheet master,
2. requests a crew to draft the data onto linen,
3. checks the linens against the survey notes, and
4. requests approved structural surfacing typical sections from the Materials Services Section.

33.2.8.3 Preceding/Succeeding Activities

[Figure 33.2H](#) illustrates the preceding activities that should occur prior to Activity 940 and the succeeding activities that rely on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|-----------------|----------------------|---|-----------------------|---|
| Safety Projects | 654 | Informational Hearing | 914 | Prepare Scope of Work Report |
| | 928 | Distribute Survey and Request Design Input | 968 | Secure Design Approval |
| | 412 | Preliminary Signing Study | 746 | Hazardous Material/Substances and Water Quality PSI |
| | 800 | Prepare Preliminary R/W Reports and Estimates | 604 | Final Surfacing Section |
| | 802 | Route Studies | 808 | Obtain Final Title Evidence |
| | 600 | Prepare Preliminary Surfacing Typical Section | 622 | Attend Meeting and Provide Input to Align./Grade Review |

**PRECEDING/SUCCEEDING ACTIVITIES
(ACTIVITY 940)**

Figure 33.2H

33.2.9 Activity 960 — Design Preliminary Plans

33.2.9.1 Purpose

The purpose of Activity 960 is to prepare the preliminary plans for the Plan-in-Hand Inspection and to develop an updated cost estimate.

33.2.9.2 Tasks

For the design of the preliminary plans, the following tasks will occur:

1. The designer will initiate and assign personnel to perform the following:
 - a. establish the major control points,
 - b. prepare the plan and profile for any special features,
 - c. establish the grade and alignment of the mainline,
 - d. conduct earthwork runs on the project to achieve near optimum grade and alignment, and

- e. develop the typical sections based on approved structural surfacing sections.
2. The designer requests aid from the Geometrics Unit on special traffic considerations for any special roadway design features.
3. The designer determines the construction limits for the Right-of-Way Plans.
4. The Project Design Manager transmits the proposed grade line and typical section to the Bridge Bureau and requests the receipt of bridge ends by a specific date.
5. The Project Design Manager requests the Right-of-Way Bureau to develop Control of Access Resolution for the Transportation Commission action if the project includes access control.
6. The designer initiates the development of road design plans. For guidance on the content of these plans, see Chapter Four of the MDT Road Design Manual.
7. The designer will request the Electrical Unit to develop traffic signal and/or highway lighting plans.
8. The designer will request the Signing and Pavement Markings Unit to develop signing and pavement marking plans.

33.2.9.3 Preceding/Succeeding Activities

Figure 33.2I illustrates the preceding activities that should occur prior to Activity 960 and the succeeding activities that rely on the results of this activity. For additional guidance, see Figure 33.1A.

33.2.10 Activity 968 — Approve Scope of Work Report

33.2.10.1 Purpose

The Scope of Work Report defines the project scope, design criteria and special features. For information on the content of the Scope of Work Report, see [Section 2.1.3](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|-----------------|----------------------|---------------------------|-----------------------|--|
| Safety Projects | 968 | Secure Design Approval | 656 | Formal Public Hearing |
| | | | 818 | Plot Existing Right-of-Way |
| | | | 408 | Prepare Final Electrical Plans |
| | | | 574 | Prepare Bridge Plans |
| | | | 806 | Prepare Preliminary R/W Plans |
| | 364 | Size Box or Pipe Culverts | 988 | Final Plan-In-Hand Inspection |
| | | | 414 | Prepare Signing and Pavement Marking Plans |
| | | | 610 | Final Surfacing Design Check |
| | | | 623 | Attend PIH Meeting and Provide Input |
| | | | | |

**PRECEDING/SUCCEEDING ACTIVITIES
(ACTIVITY 960)**

Figure 33.2I

33.2.10.2 Tasks

Once the Project Design Manager or the designer has prepared the Scope of Work Report, they will conduct following tasks:

1. submit the Scope of Work Report to the Traffic and Safety Engineer,
2. distribute the Report for approval and comment,
3. incorporate and/or address any comments received on the Report,
4. submit the final Scope of Work Report to the Chief Engineer, Engineering Division for approval, and
5. distribute the approved Report to all applicable individuals involved in the projects. See [Section 2.1.3](#) for the distribution list of the Scope of Work Report.

33.2.10.3 Preceding/Succeeding Activities

Figure 33.2J illustrates the preceding activities that should occur prior to Activity 968 and the succeeding activities that rely on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|----------------|----------------------|--|-----------------------|--|
| Safety Signing | 364 | Size Box or Pipe Culverts | 424 | Check Signing and Pavement Marking Plans |
| | 914 | Prepare Scope of Work Report | | |
| | 722 | Environmental Document | | |
| | 414 | Prepare Signing and Pavement Marking Plans | 988 | Final Plan-In-Hand Inspection |
| | 900 | Define Project | | |
| | 954 | Request Full PE Program | | |
| | 652 | District News Release/ Letter of Intent | | |

PRECEDING/SUCCEEDING ACTIVITIES (ACTIVITY 968)

Figure 33.2J

33.2.11 Activity 988 —Final Plan-In-Hand Inspection

33.2.11.1 Purpose

The purpose of the Final Plan-in-Hand Inspection is to conduct a field inspection to review the completed plans. Activity 988 is conducted to ensure the completed plans comply with the recommendations from past inspections and to receive recommendations on any unresolved issues.

33.2.11.2 Tasks

Activity 988 will consists of the following tasks:

1. The designer prepares the plans and related information for the Final Plan-in-Hand Inspection.

2. The Project Design Manager develops the cover letter setting the proposed date for the Final Plan-in-Hand Inspection and distributes prints of the plans and related information.
3. The Project Design Manager conducts the office and field reviews of the Final Plan-in-Hand Plans and obtains decisions on the final design.
4. The designer prepares the Final Plan-in-Hand Report documenting decisions made and further studies agreed to during the Final Plan-in-Hand Inspection.
5. The Project Design Manager distributes the Final Plan-in-Hand Report and requests approval from the Preconstruction Engineer and, FHWA for Interstate projects.
6. The Project Design Manager receives approval of the Final Plan-in-Hand Report, amends the Report, if required, and redistributes the Report.
7. The designer requests, in writing, special studies agreed to at the Final Plan-in-Hand Inspection to be conducted by a specific date from any combination of the following:
 - a. Right-of-Way Bureau,
 - b. Materials Bureau,
 - c. Bridge Bureau,
 - d. Traffic Engineering Section,
 - e. Construction Engineering Services Bureau,
 - f. Hydraulics Section,
 - g. Materials Services Section,
 - h. Environmental Services Bureau,
 - i. Utility Section, and/or
 - j. other public agencies.
8. The Project Design Manager obtains Department decisions on minor problems from the Supervisor.
9. The Project Design Manager receives the pertinent data, determines the potential solution for major problems and obtains approval from the Preconstruction Engineer.
10. The designer receives the unit price recommendations from the District and prepares an updated cost estimate.
11. The designer transmits the updated cost estimate to the Engineering Information Management Section.

33.2.11.3 Preceding/Succeeding Activities

Figure 33.2K illustrates the preceding activities that should occur prior to Activity 988 and the succeeding activities that rely on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|------------------------|----------------------|---|-----------------------|--|
| Safety Project | 574 | Prepare Bridge Plans | 924 | Final Construction Limits to R/W |
| | 408 | Prepare Final Electrical Plans | | |
| | 746 | Hazardous Mat'l/Substance and Water Quality PSI | | |
| | 656 | Formal Public Hearing | 740 | Final Environmental Review |
| | 806 | Prepare Preliminary R/W Plans | | |
| | 960 | Design Preliminary Plans | | |
| | 364 | Size Box or Pipe Culverts | 720 | Final Biological Review |
| | 424 | Check Signing and Pavement Marking Plans | | |
| | 623 | Attend PIH Meeting and Provide Input | | |
| Safety Signing Project | 424 | Check Signing and Pavement Marking Plans | 426 | Signing and Pavement Marking PIH Changes |
| | 968 | Secure Design Approval | | |

PRECEDING/SUCCEEDING ACTIVITIES (ACTIVITY 988)

Figure 33.2K

33.2.12 Activity 994 — Complete Final Design

33.2.12.1 Purpose

The purpose of Activity 994 is to incorporate the agreed-to changes from the Final Plan-in-Hand Inspection, incorporate the results of any special studies and obtain decisions on unresolved issues. These are plans are then used in the final design package.

33.2.12.2 Tasks

The tasks involved in Activity 994 typically include:

1. Project Design Manager sends reclamation plans for those borrow pits that are optioned to the Environmental Services Bureau and requests that they obtain necessary approval from State Lands.
2. The designer updates and revises the special provisions and miscellaneous designs as required by acquisition arrangements and requests from the Right-of-Way Bureau. The designer adds the right-of-way limits to the construction plans.
3. The designer drafts the proposed Traffic Control Plan.
4. The designer checks the plans for adequacy and accuracy.
5. The designer furnishes the construction plans, cross-sections, special provisions, traffic control plans, utility plans and project file to the checker.
6. The Project Design Manager furnishes two sets of the final plans and special provisions to the United States Forest Service, if involved.

33.2.12.3 Preceding/Succeeding Activities

Figure 33.2L illustrates the preceding activity that should occur prior to Activity 994 and the succeeding activity that relies on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|----------------|----------------------|----------------------------------|-----------------------|----------------------|
| Safety Project | 924 | Final Construction Limits to R/W | 998 | Final Plan Review |

PRECEDING/SUCCEEDING ACTIVITIES (ACTIVITY 994)

Figure 33.2L

33.2.13 Activity 995 — Transmit to Contract Plans Bureau

33.2.13.1 Purpose

Upon completion of the construction plans, quantities, special provisions and cost estimate, these contract documents are submitted to the Contract Plans Bureau for processing for letting. For guidance on the preparation of contract plans, see Chapter Four of the MDT Road Design Manual. For guidance on the preparation of quantities,

see Chapter Five of the MDT Road Design Manual. For guidance on the development of special provisions and cost estimates, see [Chapter Four](#) of the MDT Traffic Engineering Manual.

33.2.13.2 Tasks

The tasks involved in Activity 995 typically include the following:

1. The designer verifies that the CADD CPB file for printing of the construction plans is complete and correct.
2. The designer transmits a cover memorandum, quantities, special provisions and cost estimate by email to the Contract Plans Bureau.

33.2.13.3 Preceding/Succeeding Activities

Figure 33.2M illustrates the preceding activities that should occur prior to Activity 995. There are no succeeding activities that rely on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|----------------|----------------------|---|-----------------------|----------------------|
| Safety Project | 846 | Relocate Utilities | None | N/A |
| | 240 | Check Plans | | |
| | 580 | Check Bridge Plans | | |
| | 390 | Final Hydraulics Plans Update | | |
| | 446 | Transmit to Contract Plans – Signing | | |
| | 445 | Transmit to Contract Plans – Electrical | | |
| | 624 | Design Follow-Up | | |
| | 720 | Final Biological Review | | |
| | 740 | Final Environmental Review | | |

PRECEDING/SUCCEEDING ACTIVITIES (ACTIVITY 995)

Figure 33.2M

33.2.14 Activity 996 — Check Plans

33.2.14.1 Purpose

The purpose of Activity 996 is to conduct a final design check of the completed plans and quantities. This Activity is performed by the checker to ensure conformance to past project inspections, recommendations, Departmental policy and design guidelines.

33.2.14.2 Tasks

The tasks involved in Activity 996 typically include:

1. The checker reviews and checks the project design, construction plans and associated data. The checker also adds borrow pit reclamation plans to the contract package.
2. The designer modifies and changes the construction plans, cross-sections and special provisions, as required.
3. The designer transmits the construction plans and associated data to the Contract Plans Bureau and sends one set of prints of the plans to the District.
4. The designer transmits the final plans to the Right-of-Way Bureau and to the Utilities Section.

33.2.15 Activity 998 — Final Plan Review

33.2.15.1 Purpose

The purpose of Activity 998 is to ensure the agreed to changes from the Plan-in-Hand Inspection have been incorporated into the final plans and to receive recommendations on any unresolved issues. After the review, the designer will prepare the Final Plan Review Report. For guidance on the preparation and distribution of the Final Plan Review Report, see [Section 2.1.5](#).

33.2.15.2 Tasks

The tasks involved in Activity 998 typically include:

1. The designer prepares the plans and related information for the Final Plan Review.

2. The Project Design Manager and/or designer develops the cover letter setting the proposed due date for comments and distributes prints of the plans and related information.
3. The Project Design Manager offers anyone on the distribution list the opportunity to have a meeting to consider suggestions and comments relative to the project.

33.2.15.3 Preceding/Succeeding Activities

Figure 33.2N illustrates the preceding activities that should occur prior to Activity 998 and the succeeding activities that rely on the results of this activity. For additional guidance, see [Figure 33.1A](#).

| Project Type | Preceding Activities | Activity Description | Succeeding Activities | Activity Description |
|-----------------|----------------------|---|-----------------------|----------------------|
| Safety Projects | 994 | Complete Final Design | 240 | Check Plans |
| | 416 | Electrical Plan-In-Hand Changes | 580 | Check Bridge Plans |
| | 426 | PIH Changes in Signing and Pavement Marking Plans | 624 | Design Follow-Up |

PRECEDING/SUCCEEDING ACTIVITIES (ACTIVITY 998)

Figure 33.2N