Chapter I - Project Development and Design Guidelines
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I-01.01 Purpose

This manual has been prepared to provide Design Division and Bridge Division personnel, as well as other parties performing design work for the department, with a convenient guide for the policies, procedures, and design values that are presently recommended for the development of plans for federal or state-funded highway construction in the State of North Dakota.

This Design Manual is designed to provide guidance on all design activities for the various levels of federal aid streets and highways in North Dakota, from the Interstate system to local streets and highways. The manual also provides guidance on certain state-funded activities, such as maintenance type projects.

Design guidance in this manual consists primarily of information on minimum standards to be followed in design work for the department. General guidance from federal or national organizations, such as the FHWA or AASHTO, is included in the manual by reference.

It does not contain data or design methods that are adequately covered in college textbooks or engineering handbooks, nor does it presume to answer or anticipate all situations which may arise. It does provide a means of conveying the department's experience in the various aspects of highway design, with the expectation that this information used together with good judgment will enable employees, consultants, or other parties doing design work to develop detail plans with a minimum of effort and indecision.

Each user should follow the instructions contained in this manual and thereby achieve a more consistent and uniform application of the department's policies and procedures. Should conflicts exist between this manual and the Standard Specifications or FHWA or AASHTO, the Standard Specifications will prevail.

I-01.02 Instructions to User

The information in this manual contains minimum acceptable design values for various roadway features. Some of the information pertains to new and reconstructed highways, while other information covers work on existing highways. The values given in these chapter are acceptable minimums. Higher values (for features like the clear zone, stopping sight distance, radius, etc.) should be used within reasonable economic limits.

These guides are not meant to be applied rigidly to every situation. There will be situations when special site conditions (such as environmental, aesthetic, or economic considerations) warrant deviation from the values stated in this manual. It may be acceptable to use values below these minimums with the approval of the Design Engineer (or Bridge Engineer for structural designs). In these cases, the reasons and justification for the deviation from the minimum standards should be clearly documented and a design exception processed through appropriate channels. See Section I-06.06 for information on the design exception process.

I-01.03 Effective Dates

The effective date for the material published in this manual is the date shown on the title page. Also, since it is expected that additions and/or revisions to this manual will be necessary in the future, the date that revisions or additions are effective will be indicated at each of the revised or added paragraphs. For additional information on revisions, see Section I-03.02.

If a project is started after new material is published in this manual, project design should follow the new policies or guidelines given in this manual. However, projects already under development when new material is published will have to be reviewed on a case-by-case basis. If possible, the new guidance should be followed, but it will depend on how much of the design has already been completed and other considerations. The Design Engineer (or Bridge Engineer for structural work) should be consulted whenever there is doubt on which policies or guidelines are applicable.

In some cases, there will be a fixed date when a new design feature must be implemented (for example, there may be a specific deadline set by FHWA for using improved safety appurtenances like guardrail terminals). The Design Engineer will notify designers of any such deadlines, but they generally will not be published in this manual.

I-02.01 General

The Milestone Program provides a means for scheduling and monitoring the multiple number of prescribed activities required to advance a project to the actual bid opening for a construction contract. The Milestone Program indicates the inter-relationship of activities and establishes a time schedule that will permit the accomplishment of projected completion dates. The Design Division is responsible for managing the Milestone Program. Local entity developed projects and smaller District projects are not normally tracked in the Milestone Program.

Projected end dates for the various activities are established by the Milestone Committee, made up of representatives from Design, Environmental & Transportation Services, Bridge, Materials and Research, Local Government, Planning/Asset Management, and Programming Divisions. A meeting is held when one of the divisions involved wishes to adjust the time frame for an activity, typically bi-monthly. Projected end dates for the various activities are set after considering workloads, available personnel, and the already-established bid opening date.

The Milestone Program may be accessed by NDDOT employees using the mainframe "RIMS#HP" computer system.

I-02.02 Summary of Milestone Activities/Tasks

The following is a brief description of the Milestone Activities along with their abbreviations in parentheses. It is the intent of this section to identify the general preliminary engineering activities and responsible divisions beginning with project inception and ending with the project bid opening. It is not meant to imply each activity is necessary on each project, nor will the projected completion dates follow the order as presented here. Activities are major work items, while tasks are work items necessary to complete an activity. Appendix I-02 A provides flow charts for certain milestone items.

Unless otherwise stated in the activity descriptions, the milestone actual end date represents the completion and submittal of the milestone activity.

1. 6(f) Process (6FPRO). Section 6(f) refers to a portion of the 1965 Land and Water Conservation Fund Act (L&WCF). This act provides grants to communities to be used for acquiring or improving lands for recreation uses. Transportation projects which acquire land that has received a Section 6(f) grant are considered to be converting the use of the land. When this occurs, replacement lands must be acquired.

   Whenever a project involves such properties, a Section 6(f) document must be prepared for each location before the land use is approved. The 6(f) document shows that the provisions of the law are met. The environmental document author should coordinate the need and preparation of Section 6(f) documentation with Environmental Services.

   The milestone actual end date represents the date that the Section 6(f) process is complete.

2. Abstracts/Title Information (RWABS). This work is identified in the Right of Way Manual. ETS Division – Right of Way Services or the Consultant will order and obtain title preliminaries from the title insurance company upon receipt of the permanent and temporary right of way limits from the designer. Pencil abstracts will be obtained on temporary parcels where permanent right of way is not needed.

   The milestone actual end date represents the date that the last Abstract/Title is received by the Right of Way Section or Consultant.

3. Acquisition (RWACQ). ETS Division – Right of Way Services, or its consultant, will commence with the negotiation and acquisition of the right of way after authorization to proceed from FHWA.

   Negotiations shall be conducted, complete with documentation (negotiation worksheet, reports, offers, etc.) Any increases or deviations from approved appraisal value shall be justified and submitted to Right of Way Services for final acceptance. Any deviations from the approved appraisals will require advance approval of the Right of Way Section. If required, include cost estimates for hazardous material clean-up and disposal. The negotiated parcel files should be submitted to Right of Way Services as soon as the paperwork has been completed.

Right of Way Services shall be notified if any condemnation action will be necessary. Those parcel files to be condemned shall be submitted to Right of Way Services ten weeks prior to the bid opening.

ETS Division – Right of Way Services will certify to FHWA, six weeks prior to bid opening that the permanent and temporary right of way has been acquired and is free of encroachments. They must also certify that all individuals and families have been relocated to decent, safe and sanitary housing, or have been offered adequate replacement housing in accordance with current FHWA directives covering the administration of the Highway Relocation Assistance Program. Right of Way Services will submit one original copy of the certification to the Programming Section of the Programming Division for inclusion with the original plan sheets. Consultants shall certify to the NDDOT for consultant projects.

The milestone actual end date represents the date that the last property owner signs the right of way acquisition documents for property being acquired or condemned.

4. Additional Survey (ADSVY). If a survey is completed and the project is not designed and/or let to contract for a number of years, additional survey information may be needed to update the existing survey. A survey would be done to pick up the additional data and this information is transmitted by the Survey Section of Design to the Records Management Section of the Information Technology Division.

   The milestone actual end date represents the date that the additional survey information has been transmitted to the Records Management Section of the Information Technology Division.

5. Aerial Survey (ARIAL) and Ground Survey (GRND). This work is identified in the Design Division - Survey Manual. The ground and aerial survey consists of identifying or reestablishing public land survey corners, horizontal and vertical control, topography, utilities, signing, and hydraulic data. These surveys are normally completed by the Survey or Photogrammetry Section of Design or consultants. The districts may be requested to set aerial targets and perform small ground surveys. 90-1 surveys are identified in chapter 18 of the Survey Manual. The survey is used to complete the safety review and the results are incorporated in the environmental document and project plan sheets. These surveys are normally completed by the districts. After completing the survey, the district submits the survey data to the Survey Section.

   The milestone actual end date represents the date that the Ground/Aerial Survey information has been transmitted.

6. Airport Clearance (AIRCL). The Design Division – Technical Support Section, Utilities Engineer will coordinate the survey and prepare an FAA airport clearance permit (Notice of Proposed Construction or Alteration). The designer should begin coordinating with the Utilities Engineer after the environmental document approval, and on an on-going basis as the preliminary roadway design becomes available.

   The milestone actual end date represents the date that the Airport Clearance Permit has

been obtained.

7. Appraisal (RWAPP). ETS Division – Right of Way Services will provide preliminary cost estimates for all permanent and temporary right of way parcels. The right of way plats and preliminary parcel cost estimates are submitted to the FHWA as part of the request for right of way authorization to appraise and negotiate. Right of Way Services, or its consultant, will then commence with the appraisals of the right of way parcels. All consultant prepared appraisals shall be completed by a qualified fee appraiser and need to be reviewed by Right of Way Services, Review Appraiser.

   No appraisals are required if: 1) The property owner agrees to donate and waives their right to an appraisal; or 2) the property owner accepts the State's minimum payment of $150 for all temporary easement parcels and $300 for all permanent right of way parcels and waives their right to an appraisal; or 3) The appraisal problem is determined to be uncomplicated and complies with the NDDOT's criteria for acquisition via Waiver Valuation.

   The milestone actual end date represents the date that the last appraisal has been completed.

8. Assign Project Designer (PDSGR). This activity is a tracking device for who is responsible for the roadway or bridge design, traffic control design, and technical support.

   This milestone actual end date represents the date that the activities have been assigned.

9. AV Presentation (AVPRE). The Communication Division will provide an audiovisual presentation for the public hearing, and will prepare the script for the presentation. The environmental document author will provide the necessary project information and coordinate this work activity to ensure completion of the presentation for the public hearing.

   The milestone actual end date represents the date that the Communication Division completes and delivers the AV presentation to the environmental document author.

10. Endangered Species Act Consultation (ESACO). The Department must comply with Section 7 of the Endangered Species Act (ESA) for all federally involved projects. Compliance with Section 7 results in one of three affect determinations for a listed species or critical habitat: "no effect"; "may affect, but not likely to adversely affect"; or "may affect, and is likely to adversely affect". These affect determinations are covered under various documents. Projects with a "may affect, and likely to adversely affect" determination must be covered under a project specific Biological Assessment, which is a separate milestone task. See Section 7 ESA Guidance on the Design Manual References and Forms Page for further information.
    http://www.dot.nd.gov/manuals/design/designmanual/reference-forms.htm

    Depending on which documents are used to fulfill Section 7 ESA requirements for a project, the milestone actual end date represents:

- The date that the NDDOT ESA Affect Determination table has been filled out.
    - Note – If NDDOT Biologist review is not required for any species or critical habitat, the environmental document author or technical services representative shall notify the ETS Biologist when the table has been completed.
- The date that the Section 7 Affect Determination Package has been signed by the ETS Biologist.
- The date the ETS biologist signs the project submittal package to be covered under the FHWA/NDDOT Programmatic Biological Assessment (PBA).
- If the USFWS 4(d) Rule Streamlined Consultation form for the northern long-eared bat is used in conjunction with any of the above, the end date will be the date that the 30 day USFWS review period is over.
- If the FHWA/USFWS PBA Project Submittal Form for the northern long-eared bat is used in conjunction with any of the above, the end date will be the date that the 14 day USFWS review period is over, unless the form is specifically used for a no effect determination (no review period required).

The ETS Biologist will enter the actual end date in RIMS.

11. Biological Assessment (BIOAS) (USFWS). Biological Assessment (BIOAS) (USFWS). The Department must prepare a project-specific Biological Assessment (BA) when a project has potential for adverse effects to listed resources protected under the Endangered Species Act (formal consultation). The ETS Biologist or consultants will prepare the BA, which will include an effects analysis for all listed species or critical habitat that may be exposed to project activities. After the BA has been written and any required fieldwork completed; the BA will be sent to FHWA after internal review. When the document is approved by FHWA, it will be submitted to USFWS. The USFWS may take up to 135 days to complete formal consultation and issue a Biological Opinion.

    The milestone actual end date represents the date that USFWS issues a Biological Opinion agreeing with the determination made in the BA. The ETS Biologist will enter the actual end date in RIMS.

12. Biological Evaluation (BIOEV) (USFS). The Department must prepare a Biological Evaluation (BE) when a project occurs on U.S. Forest Service (USFS) land. Environmental staff or consultants will prepare the BE, which will include an effects analysis for all USFS species of concern (including both plant and animal species). After the BE has been written and any required fieldwork completed; the BE will be sent to FHWA after internal review. When the document is approved by FHWA, it will be formally submitted to USFS for concurrence. Concurrence from the USFS may take up to 6-8 months, dependent upon the project.

    The milestone actual end date represents the date that the USFS issues a concurrence letter agreeing with the determinations made in the BE. ETS will enter the actual end date in RIMS.

13. Borrow (RWBOR). ETS Division – Right of Way Services or the consultant will acquire borrow options for additional borrow material needed for the project, utilizing the

NDDOT borrow option agreement form.

Borrow Site Naming Convention: The first optioned site within a project will be designated, "B-1". Subsequent sites will be similarly designated in sequential order, i.e. B-2, B-3, B-4, B-5, etc. Sites will not to be designated with the same number, even if the number is preceded by a name. For example, do not designate sites as "Smith B-1" and "Jones B-1".

Sites will not be optioned for multiple projects.

For each optioned site, the NDDOT negotiator, or the consultant negotiator through the technical support person, will:

a. E-mail the estimate of the NDDOT's borrow cost share to the designer or technical support person.

b. Submit Material Source Request form to Environmental & Transportation Services.

c. Submit option agreement to ETS Right of Way Program Manager through the Technical Support contact for approval and processing of option fee.

The right of way agent or consultant will assemble a balance spreadsheet that tracks the quantity of borrow needed, the amount optioned, the amount provided with a clue, and the remained as contractor furnished. Once the balance sheet is complete, the right of way agent or consultant through the Technical Support contact will notify the Right of Way Program Manager via e-mail when the balance sheet is complete. This notification will list all borrow sites that have been optioned for the project, any clues, and any remaining need as contractor furnished borrow. The optioned sites will include the borrow site number, date optioned, name of optionee, site acreage, section-township-range, county, and option quantity (cubic yards). The final balance spreadsheet will also be distributed to the designer or Technical Support contact, and Materials and Research Division.

The milestone actual end date represents the date that the balance spreadsheet for borrow and COA is complete.

14. Borrow Investigation (BORIN). This work is identified as follows: Once the ETS Division issues a Material Source Certificate of Approval (COA) for the Optioned area(s), the geotechnical investigation will include conducting soil borings in order to obtain and analyze samples. A Borrow Area Report detailing what was found and if it is suitable for the intended use will be generated from the data obtained. The Borrow Area Report will be included in the proposal of the plans.

    The milestone actual end date represents the date that the Borrow Area Report has been approved and distributed.

15. Borrow Quantities To R/W (BOR). For internal projects, the designer will email the estimated borrow quantity to the Right of Way Program Manager in Environmental and

Transportation Services (ETS). For external projects, the consultant will email the estimated borrow quantity to technical support person for review.

The milestone actual end date represents the date that the Borrow quantities have been submitted to the Right of Way Program Manager in ETS for internal projects or the date the borrow quantities have been delivered to the technical support person for consultant projects. The designer or technical support person will enter the actual completion date in RIMS.

16. Bridge Design (BRDES). This work is identified in Section IV of the Design Manual. The Bridge Division or consultant will provide bridge and box culvert design.

    The milestone actual end date represents the date that the bridge designer has completed the calculations and turned them over to the drafter for detailing.

17. Bridge Plan Preparation (BRGPP). This work is identified in Section IV of the Design Manual. The Bridge Division or consultant will provide bridge and box culvert plan preparation.

    The milestone actual end date represents the date that the Bridge Plans are ready for PS&E.

18. Bridge Preliminary Concept (BRGPC). The Bridge Division will prepare bridge preliminary concepts documenting the bridge number, description, condition, supporting data, and proposed improvements or recommendations for the bridges and box culverts within the proposed project limits. The Bridge Preliminary Concept Report is usually completed after the field review and appended by reference to the environmental document.

    The milestone actual end date represents the date that the Bridge Preliminary Concept has been completed and distributed.

19. Bridge Soil Borings (BSB). The Materials and Research Division or consultant will provide bridge soil borings and analysis and design recommendations for bridge piling and foundation design, embankment consolidation, and slope stability problems which may affect bridge design and construction.

    The milestone actual end date represents the date that the Bridge Soil Borings have been submitted to the bridge designer.

20. Categorical Exclusion (CATEX). These are projects that do not individually or cumulatively have a significant environmental effect and do not require an EA or EIS. A listing of projects that normally fall into this category is contained in 23 CFR 771.117, paragraphs (c) and (d).

    The milestone actual end date represents the date that the CATEX has been approved by FHWA.

21. Citizen Advisory Committee Meeting (ACACM). Citizen advisory groups are established on complex projects to obtain early public involvement and input on the project. The citizen advisory groups may be comprised of adjacent property owners, business people, the general public, or special interests, as appropriate for the project. Normally, the first meetings with the group are held before the completion of the detailed engineering studies and continue throughout the project development process. The environmental document author will conduct citizen advisory meetings to provide review and comment of project development activities; prepare informational handouts and exhibits, as necessary; prepare and distribute written summary of comments received; and prepare and distribute project newsletter to participants, as necessary.
The milestone actual end date represents the date of the first Citizen Advisory Committee Meeting.

22. Coast Guard Permit (CGP). Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge act of 1946 preserve the public right of navigation and prevent interference with interstate and foreign commerce. These acts place navigable water of the US under control of the US Coast Guard. A Section 9 Coast Guard Permit is needed for any plans to construct or modify a bridge or causeway across a navigable waterway of the United States. This includes temporary bridges used for construction access or traffic detour.

    The milestone projected end date is **2 weeks** prior to the plan complete date. The average turnaround time to obtain a Cast Guard Permit is a minimum 6 months. The milestone actual end date represents the date that the Coast Guard Permit is signed and is entered in by the Environmental Section.

    See the Design Manual Chapter II - Section 4 for more information and the US Coast Guard website for additional information.

23. Coast Guard Permit Application (CGPA).
    For a consultant project
    This activity requires that non-NDDOT entities working on NDDOT projects submit a complete Section 9 Coast Guard Permit application. Information is to be submitted to ETS Division – Environmental Services Section through the NDDOT Technical Support representative by the projected end date.

    For NDDOT Design Project
    This activity requires that the NDDOT Lead Project Designer to submit Section 9 Coast Guard Permit Information to ETS Division – Environmental Services Section by the projected end date.

    The milestone projected end date should be **7 months** prior to plan complete date. The projected end date ensures that the information can be reviewed, processed by Environmental Services Section, and submit and obtain a Section 9 Coast Guard Permit by the plan completion date.

    The milestone actual end date represents the date that a *complete* Section 9 Coast Guard Permit Application has been submitted to Environmental Services Section and is entered in by the project designer or consultant technical support. It is the lead designer's

responsibility to ensure the milestone date is met.
See the Design Manual Chapter II - Section 4 for more information.

24. Conditional Categorical Exclusion (CCATX). This activity will be added by the environmental document author when a categorical exclusion (CATEX) is received which has conditions included in the CATEX authorization. The condition should be included in the remarks area of the milestone activity.

    The milestone actual end date represents the date upon which the condition in the CATEX is satisfied.

25. Concept of Operations (COA). Concept of Operations, also referred to as the ConOps, describes the operation of the ITS system being developed or deployed from the various stakeholder's viewpoints. The ConOps is defined as:

    - • WHO – stakeholders roles and responsibilities (refer to Regional Architecture(s))
    - • WHAT – system elements and high-level capabilities
    - • WHERE – geographic and physical extent of system (e.g. if you are installing a single signal, this must describe the geographic/extent of the entire signal system that this signal is part of)
    - • WHEN – describes the sequence of events that will deploy the entire system
    - • HOW – describes the development, operation and maintenance of the system

    The ConOps will show agreement among stakeholders on:

    - Goals, objectives and expectations
    - Project scope
    - Stakeholder responsibilities
    - Operational needs
    - How the system will operate
    - Operational and support environment

    Benefits of the ConOps is stakeholder agreement on system capabilities, roles and responsibilities, key performance measures and basic plan for system validation.

    The Concept of Operations will typically be complete before the draft environmental document goes out for comment. The milestone actual end date represents the date the Concept of Operations has been approved.

26. Construction Permit (CONSP). Century Code 61-03, 61-04, and 61-16.1 authorizes the Office of the State Engineer to regulate the construction and modification of dams, dikes, and other devices. The solicitation of views response from the ND State Water Commission will identify if there is the proposed activity will require a Construction Permit.

The projected end date is **2 weeks** prior to the plan complete of a Construction Permit. The typical turnaround time to receive a Construction Permit is 2 months. The milestone actual end date represents the date that the Construction Permit is signed by the State Engineer and is entered in by the ETS Division - Environmental Services Section. It is the Environmental Services Section's responsibility to ensure the milestone date is met. See the Design Manual Chapter II - Section 4 for more information. Additional information can be founded on the ND State Water Commission & Office of the State Engineers website.

27. Construction Permit Application (CONSPA).

For a consultant project
This activity requires that non-NDDOT entities working on NDDOT projects submit a complete Construction Permit application. Information is to be submitted to ETS Division – Environmental Services Section through the NDDOT Technical Support representative by the projected end date. The solicitation of views response from the ND State Water Commission should identify the need for a Construction Permit.

For NDDOT Design Project
This activity requires that the NDDOT Lead Project Designer submit Construction Permit Information to ETS Division – Environmental Services Section by the projected end date.

The milestone projected end date should be **5 months** prior to plan complete date. The projected end date ensures that the information can be reviewed, processed by Environmental Services Section, and submit and obtain a Construction Permit 2 weeks prior to the plan completion date. The milestone actual end date represents the date that Environmental Services receives the Construction Permit information with any revisions completed. The information and forms required can be found in the Reference and Forms area of the Design Manual, Environmental Information.

The milestone actual end date represents the date that a *complete* Construction Permit Application has been submitted to Environmental Services and is entered in by the project designer or consultant technical support. It is the lead designer's responsibility to ensure the milestone date is met.

See the Design Manual Chapter II - Section 4 for more information.

28. Cost Maintenance Agreement (CMAGR). The Programming Division or Local Government Division will provide a Cost Maintenance Agreement with the Municipalities. The Bridge Division will provide a Cost Maintenance Agreement with the Railroad on railroad bridges. This agreement states the maintenance responsibilities and cost participation responsibilities of the municipality.

The milestone actual end date represents the date that the Agreement has been signed by all parties involved.

29. Decision Document (DECD). The Decision Document is used to make decisions on the project during the project development phase, but is not included in the environmental document. A Decision Document may also be needed when questions/concerns that have arose during the design phase that need decisions. The environmental document author or designer prepares the Decision Document and distributes it to the Offices, Engineering Divisions, Districts, FHWA, and other interested parties for review and comment. The author or designer then revises the document and submits it for approval and decisions.

    The Decision Document consists of a cover sheet, certification page, table of contents, introduction (background), proposed improvements, comments, decisions, and an appendix if needed.

    The milestone actual end date represents the date of the completion and approval.

30. Design Right Of Way Limits (ROWL). The designer or consultant will provide the permanent and temporary right of way limits and construction easements for the purpose of obtaining of title preliminaries and pencil abstracts, and preparation of right of way plats. NDDOT designers will submit to their assigned liaison from Right of Way Services in ETS Division, and also submit to the Right of Way Plats Section Team Leader in Design Division. Consultants will submit to the Technical Support Person.

    The following information shall be submitted for Design Right of Way Limits:

    - Map showing temporary construction easements and permanent right of way needs with approximate dimensions, and color or hatching to distinguish which needs are permanent and which are temporary.
    - Legal Description to the quarter-quarter section (e.g. NW4-NW4 of Sec.2) and shall include the County, Section, Township, and Range.
    - If the property is located in a platted subdivision include the: Lot, Block, Subdivision, and City and/or County (e.g. Lot 1, Block 2, Sundown Acres, Mandan)
    - The subject of the email or request shall include the Project Number, PCN, and text "Request for Title Information"

    The milestone actual end date represents the date that the Design Right of Way Limits are transmitted to Right of Way Services or to the Technical Support Person.

31. District Plans Complete And Sent To P&P (PLANA). When districts have completed a set of plans, they submit the plans to the technical support contact. The technical support contact person then submits the plans to the Programming Division.

    The milestone actual end date represents the date that the completed plans are submitted to the Programming Division.

32. District To Get Core Sample (CORE). The appropriate district or consultant obtains existing pavement core samples for the milestone core analysis.

    The milestone actual end date represents the date that Core Samples have been taken and sent into the central lab.

33. Documented CatEx (DCE). These are projects that based on past experience with similar actions, do not involve significant impact. The document contains an executive summary and an environmental impact checklist.

    The milestone actual end date represents the date the document is sent to FHWA for review.

34. Draft EIS (DEIS). Draft Environmental Impact Statement. These are projects which may significantly effect the environment and require an EIS. The DEIS is prepared in accordance with FHWA Technical Advisory Guidance Material. The DEIS normally consists of a cover sheet, summary, table of contents, purpose and need for action, alternates, affected environment, environmental consequences or impacts, list of preparers, list of DEIS distribution, comments and coordination, index, appendices, and Section 4(f) and 6(f) evaluations.

    The milestone actual end date represents the date that the Draft EIS is sent to FHWA for review.

35. Environmental Assessment (EA). These are projects in which the significance of the environmental impacts are not clearly established and require an EA to determine the necessary environmental documentation. The EA is prepared in accordance with FHWA Technical Advisory Guidance Material. The EA normally consist of a cover sheet, table of contents, purpose and need for action, alternatives, impacts, comments and coordination, appendices and Section 4(f) and 6(f) evaluations. The EA shall be revised as required following agency and public involvement and department review.

    The milestone actual end date represents the date that the EA is sent to FHWA for review.

36. Falling Weight Deflectometer (FWD). The Materials and Research Division provides falling weight deflectometer data and analysis. This information is used to develop surface thickness recommendations and for the identification of subcut areas.

    The milestone actual end date represents the date that the Falling Weight Deflectometer data has been collected and the analysis is complete.

37. Field Review (FDRVW). Generally, a field review will be conducted for all major highway construction projects. The field review is conducted prior to or in conjunction with the beginning of the environmental document. The field review is used to verify office information and to determine if any additional materials testing or traffic analysis is necessary. The field review also provides participants a chance to get an on-site look at the proposed project to discuss project alternatives and possible problem areas.

    The designer and/or environmental document author will conduct a project field review with representatives as required on the distribution list shown on the Reference and Forms page of the Design Manual. Other representatives may be invited as deemed appropriate by the District or Local Entity. The distribution list can be found at: http://www.dot.nd.gov/manuals/design/designmanual/designmanual.htm . The designer and/or environmental document author will prepare preliminary project information and

conduct a field review to determine the range of possible alternatives and proposed improvements; and prepare and distribute written summary to meeting participants and districts/divisions after the meeting.

Developing a field review agenda and field review packet (preliminary project information and data available before field review) for attendees is very instrumental in achieving effective results when conducting the field review discussion. The information needed includes engineering data on existing pavement condition, geometry, structures, traffic operations and milestone schedule.

A field review outline and discussion should generally include the following:

- Visual evaluation of roadway conditions, structures, drainage, railroad crossings, traffic control devices, etc.
- Verification of beginning and ending points of the project and compatibility of the proposed project with adjacent segments of the roadway.
- Cursory review of presently compiled project information.
  - Existing typical section
  - Project history
- Purpose and need for project.
- Scope of project, possible alternatives, and compatibility of the proposed alternatives with adjacent segments of the roadway.
- Identify possible problem areas:
  - Scope of additional surveys and material testing
  - Review existing and potential right of way needs
  - Review structures and conditions
  - Review potential environmental and social issues - How will the number and severity of environmental issues affect how the project is advanced? Note any potential 4(f) issues (parks, grasslands, easement wetlands, historic sites, etc).
- Railroad Crossing Review.
  - Recommendations should be discussed and included in the environmental document, if applicable.
- Review Milestone - activities and schedule.
  - Scope of additional surveys, if needed
  - Scope of additional material testing, if needed
  - Scope of additional traffic analysis, if needed
  - Extent of public involvement
- Review Utilities
  - Note existing utilities that might be impacted by the project
  - Ask District Utility Coordinator about recent and proposed utility permits within the project limits
- Extent of possible city/county involvement and participation. The District should have made contact with the respective city/county at the time the project was planned so the city/county becomes part of the scoping of the project.

- Identify the class of action (CE, EA, EIS)

After the field review is completed, a summary of the field review discussion should be documented and sent to the people who attended the meeting and the project file.

The milestone actual end date represents the date that the Field Review is held. If it is agreed that no Field Review is needed, then that date should be entered and a note made in mainframe.

38. Final EIS (FEIS). Final Environmental Impact Statement. The FEIS is prepared following the circulation of the DEIS for public and agency comments, and public hearing. The FEIS normally consists of reference or revision of DEIS, selection of preferred alternates and basis of decisions, selection of mitigation and enhancement measures, environmental findings, results of coordination, summary of agency and public comments received on DEIS and department responses, final Section 4(f) and 6(f) findings. The environmental document author in conjunction with Environmental Services will prepare a FEIS in accordance with FHWA Technical Advisory Guidance Material.

    The milestone actual end date represents the date that the FEIS is completed.

39. Finding of No Significant Impact (FONSI). The FONSI summarizes the selected project alternative and mitigation measures and is completed for projects that require an EA. The FONSI normally consists of a cover sheet, summary of selected alternates, summary of environmental commitments, summary of agency and public comments received on EA and department responses, and a request that a finding of no significant impact be made. Environmental Services will prepare a FONSI in accordance with FHWA Technical Advisory Guidance Material.

    The milestone actual end date represents the date that the FONSI has been approved by FHWA.

40. Floodplain Permit Application (FPAPP).
    For a consultant project:
    This activity requires that non-NDDOT entities working on NDDOT projects submit a completed Floodplain Permit application to ETS Division – Environmental Services Section through their NDDOT Technical Support representative by the projected end date. This ensures that the Floodplain Permit can be obtained prior to the project bid opening.

    For a NDDOT Design Project:
    This activity requires that the Lead Designer submit the project floodplain impact information to ETS Division –Environmental Services Section by the projected end date.

    The projected end date ensures that the information is submitted to ETS Division – Environmental Services Section so that the Floodplain Permit can be obtained prior to the plan complete date. Upon receipt of the information, Environmental Services will proceed with the Floodplain Permit application.

See the Design Manual Chapter II - Section 4 for more information

The milestone projected end date is **3 months** prior to plan complete date. The milestone actual end date represents the date that *complete* Floodplain Permit information has been submitted to ETS Division – Environmental Services. It is the lead designer's responsibility to ensure the milestone date is met.

41. Flood Plain Permit (FPPRM). Per Century Code 61-16.2 and Title 44 Code of Federal Regulations Part 59, work within a regulatory floodplain may require a Floodplain Permit to be obtained from the local City, County, Township, or Reservation floodplain administrator. The solicitation of views response from the ND State Water Commission – Office of the State Engineer will identify if there is a floodplain within the project area, the floodplain administrator contact information, and the Flood Insurance Rate Map (FIRM) or panel number which identifies the floodplain location. Additional Floodplain information can be found on the ND State Water Commission & Office of the State Engineers website and also on the Federal Emergency Management Agency's website.

    The average turnaround time to obtain a Floodplain Permit is typically one month after the application submittal.

    The milestone projected end date is **2 weeks** prior to plan complete date. The milestone actual end date represents the date that the Floodplain Permit is signed and is entered in by the Environmental Section. It is the Environmental Services Section's responsibility to ensure the milestone date is met.

42. Floodplain Permit Application(s) to Environmental (PERA2). This activity requires that non-NDDOT entities working on NDDOT projects submit a completed Floodplain Permit application to ETS Division – Environmental Services. This ensures that the completed permit application can be obtained prior to the project bid opening. Upon review and acceptance of the Floodplain Permit application, it will be sent to the appropriate Floodplain Administrator. The requirements and forms necessary to properly submit a Floodplain Permit application can be obtained from the

    North Dakota State Water Commission at:
    North Dakota State Water Commission
    900 East Boulevard Avenue, Dept. 770
    Bismarck, ND 58505
    (701) 328-2750

    The information can also be obtained by accessing the internet at:
    http://www.swc.state.nd.us/4dlink9/4dcgi/redirect/index.html

    The milestone actual end date represents the date that a completed Floodplain Permit application has been submitted to ETS Division – Environmental Services.

43. Floodway Authorization Request (FWAR).

For a consultant project:
This activity requires that non-NDDOT entities working on NDDOT projects submit a completed Floodway Authorization Request to ETS Division – Environmental Services Section through their NDDOT Liaison representative by the projected end date. This ensures that the Permit Floodway Authorization along with a Floodplain Permit can be obtained prior to the project bid opening.

For a NDDOT Design Project:
This activity requires that the Lead Designer submit the project floodplain impact information to ETS Division –Environmental Services Section by the projected end date.

The projected end date ensures that the information is submitted to ETS Division – Environmental Services Section so that the Floodway Authorization can be obtained and included in the Floodplain Permit Application to receive a Floodplain Permit two weeks prior to the plan complete date. Upon receipt of the information, Environmental Services will proceed with the Floodplain Permit application. The information required for a Floodway Authorization Request can be found in the Reference and Forms area of the Design Manual, Environmental Information.

The milestone projected end date is **5 months** prior to plan complete date. The milestone actual end date represents the date that *complete* Floodway Permit information has been submitted to ETS Division – Environmental Services. It is the lead designer's responsibility to ensure the milestone date is met.

See the Design Manual Chapter II - Section 4 for more information

44. Floodway Authorization (FWAUT). Per Century Code 61-16.2 and Title 44 Code of Federal Regulations Part 59, work within a regulatory floodway may require authorization from the State Engineer prior to applying for a Floodplain Permit. The solicitation of views response from the ND State Water Commission will identify if there is a floodway within the project area.

The milestone projected end date is **3 months** prior to the plan complete date to ensure enough time to review and obtain the Floodway Authorization and obtain a Floodplain Permit. The average turnaround time to obtain a Floodway Authorization is typically 2 months after the Authorization Request submittal is determined complete. It is the Environmental Services Section's responsibility to ensure the milestone date is met.

45. Gravel Prospecting (GRAVL). The Materials and Research Division provides gravel and prospecting information for aggregate materials and provides pit plats and boring logs for inclusion into the plan sheets when it is available.

The milestone actual end date represents the date that the pit plats and boring logs have been completed and distributed to the project designer or technical support person.

46. Ground Survey (GRND). Under Aerial Survey.

47. HBP Mix Recommendations (HBPR). The Materials and Research Division will provide recommendations for HBP aggregate classification, compaction requirements and specifications, asphalt cement classification, and asphalt cement percentage.

    The milestone actual end date represents the date that the HBP Mix Recommendation has been distributed to the environmental document author or technical support person.

48. Interagency Negotiated Timeframe (IANTF). This activity is added on high level environmental documents; Environmental Assessments (EA) and Environmental Impact Statements (EIS). Immediately upon notification to FHWA that an EA or EIS will be necessary for the project, the environmental document author will add the activity and set up timeframes which place estimated times for completion on primary steps in the environmental review process. The list of activities and dates will then be sent to outside agencies who have been determined to be primary reviewers on the document. The agencies to which the activities and dates will be sent will be selected based on the nature of the project, and in conjunction with FHWA. The agencies will be asked for their review and concurrence on the dates.

    The milestone actual end date represents the date that the concurrence of the activity dates is reached with the agencies solicited.

49. Interstate System Access Change Request (ISACR). A request made to FHWA by NDDOT that provides written documentation to support the formal request and the documentation of the coordination with other agencies. Early coordination between NDDOT and the FHWA Division office is recommended to refine the scope of the analysis and to make an initial determination if the project is reasonable. This coordination will allow for the project analysis to be performed in a cost-effective manner and provide for a more effective review of the request.

    The request is required to be a standalone document. Referencing information that is needed to support decision making in other documents is discouraged. Relevant information from these documents should be provided in the appropriate section of the access request. Excerpts may be included as appendices.

    NDDOT is responsible for ensuring that the collection of all data, conducting of all required analysis and development of the required documentation is compete, correct and appropriate for the proposed change in access.

    The milestone actual end date represents the date the request has been approved by FHWA.

50. ITS Checklist (ITSCL). In consultation with the District ITS Managers, complete a systems engineering analysis for all ITS projects and projects with ITS components as part of the environmental document. The systems engineering analysis includes items one through seven listed below and are detailed by completing the Systems Engineering Checklist.

As projects are developed, they will include normal systems engineering analysis associated with each ITS program area for items two through seven.

1. Identify the ITS elements (and associated program areas) to be installed or improved as part of the proposed project and provide a brief description of the work to be accomplished to complete installation or improvement of those elements.

2. Identify roles, responsibilities, and positions of agencies that will participate in designing, purchasing, installing, operating, maintaining, expanding, or removing the system and what their responsibility will be.

3. Identify what is needed to complete each system and how each element must function within the system. This includes all items necessary to complete a fully operational system including hardware, software, installation, training, etc.

4. Evaluate alternatives that will meet systems configuration and technology requirements and determine preferred alternatives.

5. Identify and evaluate procurement options (contractor fabricate and install, purchase proprietary system and contractor install, purchase proprietary system and install with State forces, etc). Identify the preferred option.

6. Identify the applicable standards and testing procedures from the regional ITS architecture standards section that apply to the project's ITS elements.

7. Identify all procedures and resources that are needed to manage, operate, and maintain the project's ITS elements.

Depending on the type of ITS project various divisions complete the ITS Checklist. Below is a list of possible devices and the applicable division's. There are other devices that may be deployed, usually the project champion is the division requesting the equipment.

Cameras – District
ESS/RWIS – District
HAR – District
ATR – Planning
WIM – Planning
DMS – Maintenance
Fixed Automatic Spray Technology F.A.S.T – District
Variable Speed – District
Signals/Video Detection only when connected to another intersection or center – District/City
Interconnect – District/City
Ramp Metering – District
Over-Height Detection System – District

The milestone actual end date represents the date that the ITS Engineer has received the ITS Checklist from the Project Champion.

51. Linear Soil Survey (LSS). The Materials and Research Division or consultant will provide Linear Soil Survey Report and Recommendations. The report identifies soil classifications, properties, moisture contents, and design recommendations. The design recommendations generally address subcuts, scarification, compaction, backfill materials, slopes, geotextile fabrics, etc. The Linear Soils Reports are sometimes omitted or abbreviated based on the type of project and proposed scope of work, such as restorations and resurfacing projects. The Linear Soils Report shall be included within the proposal for the plans.

    The milestone actual end date represents the date that the Linear Soil Survey Report has been completed and distributed to the environmental document author.

52. Mailboxes (RWMLB). ETS Division – Right of Way Services will process mailbox notices to the affected postmasters, informing them that the state will be replacing the existing mailbox support with a new crash tested support. Right of Way Services will inform the lead designer of the amount of mailboxes that will be affected.

    The milestone actual end date represents the date that the postmasters and lead designer have been notified.

53. Management Presentation (MGTPR). A management presentation is required on "Strategic Projects," as identified on the Project-Development Status Report (PSR) published by Design Division. The presentation will occur after the initial field review, and before the development of the environmental document. The purpose of this meeting is to provide project information to management and to receive guidance and direction on the project scope. This early management concurrence of the scope of proposed improvements is an effort to streamline and improve the efficiency of the project development process and reduce the time spent developing the formal environmental document.

    The designer, environmental document author, or consultant will provide a presentation to management that summarizes the scoping and field review activities. The presentation shall be complete with existing roadway data and photographs, current roadway standards, and options for resurfacing, restoration, rehabilitation, potential environmental issues, public concern, and reconstruction.

    Attendees at the presentation should include:
    1) *Deputy Director for Engineering
    2) *Director of Project Development
    3) *Director of Transportation Programs
    4) *Director of Operations
    5) affected City/County Engineers and Planners
    6) affected Division/District & Assistant District Engineers
    7) affected District Design Coordinator and District Designers
    8) FHWA (PODI projects only): District Operations Engineer

* At least two of the above asterisked attendees must be able to attend the management presentation or the presentation needs to be rescheduled.

The milestone actual end date represents the date that the Management Presentation was held.

54. Milestone Committee Review (MICOM). All projects that are milestoned should have this activity.

55. Milestone Core Analysis (PACOR). The Materials and Research Division provides analysis on existing pavement core samples for the development of surface thickness recommendations.

    The milestone actual end date represents the date that the cores have been submitted by the district and Material and Research's analysis of the cores is complete.

    The milestone actual end date represents the date that the milestone team assigns the milestone activities and projected completion dates. If the project is re-milestoned, the 2nd date is entered into the end date and the date of the first meeting is entered as a comment in the remark section.

56. Noise Analysis (NOISA). A traffic noise analysis will be conducted for a proposed project for the construction of a highway on new location or the physical alteration of an existing highway, which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes. These can include projects such as urban street reconstruction, rural and urban construction on new alignment, lane addition projects, new construction on urban freeways, or construction of new freeways. Prediction of traffic noise will be made twenty years into the future based on projected traffic volumes and posted speed limit upon completion.

    The milestone actual end date represents the date that FHWA has concurred on the findings of the analysis.

57. Opportunity For Public Hearing (OPPHR). Used when a proposed project is required to have a public hearing but public interest in the proposed project is limited and not controversial. This tool can be used to skip a Public Hearing but can be complicated and lengthen the project development process if used incorrectly.

    The milestone actual end date represents the date at the end of the two consecutive weeks in which the notice of opportunity for a hearing is published in one or more newspapers having general circulation in the area of the project.

58. Pavement Condition Information (PMS). The Planning/Asset Management Division - Pavement Management Section provides a historical summary of the pavement condition and maintenance costs for the proposed project. Pavement conditions are obtained from Pavement Management data and may include information about pavement distress and ride. The pavement condition information is summarized in the environmental document, and is used to evaluate the appropriate scope of work, and to develop the purpose and need for the project.

The milestone actual end date represents the date that the Pavement Condition Information has been obtained and the information has been distributed.

59. Pavement Design (PVMTD). The Materials and Research Division provides HBP pavement, PCC pavement, and aggregate base thickness recommendations and pavement design life. Asphalt Depth Core Data is normally included to establish existing surfacing depths and to develop blended base projects. This information is included in the environmental document and is used to develop the appropriate scope of work and proposed project improvements. The report should document the engineering analysis used to determine the recommendations.

    The milestone actual end date represents the date that the surface information has been obtained and the information has been distributed.

60. Pavement Design Review (PDR). This activity is intended to verify the pavement design is accurate and sufficient for the project. The milestone end date is typically 3 months prior to PSE.

61. Plan Completion Date (PLCD). The designer or technical support person will submit the original plan sheets and cost estimate to the Programming Division - Programming Section, on or before this date. Any changes to the original plans after this submittal must be coordinated with the Programming Section, or as provided in Section I-11 of the Design Manual.

    The milestone actual end date represents the date that the Plans have been turned into the Programming Division – Programming Section.

62. Plan Delivery To Design Division (PDDD). This activity is when the Consultant, District, Bridge Division, Materials & Research, or Traffic Section working on NDDOT plans submits the completed set of plans, or respective portion of the plans to the Lead Designer or Technical Support Person for the project.

    The milestone actual end date represents the date that the completed set of plans is submitted to the Lead Design or Technical Support Person.

63. Plans In Hand Field Inspection (PSE). The designer will conduct PS&E Plan Review and complete necessary plan revisions. This task is explained in detail in Section I-10 of the Design Manual.

    The milestone actual end date represents the date that the PS&E was conducted.

64. Post Hearing Meeting (PHRM). The environmental document author will conduct a post public hearing meeting to review the proposed project, transcript of public hearing, and to determine project recommendations. The meeting consists of all federal, state, and local officials involved in the project.

    The milestone actual end date represents the date that the meeting is held.

65. Preconstruction Cost History (COSHI). This activity tracks the dates and estimated construction and construction engineering costs at different stages of preconstruction. The stages include the cost estimate determined at the time a project is put on the bid opening schedule; the cost estimate determined in the environmental document; the final engineer's cost estimate prior to the bid opening; and the contractor's estimated bid. This information is entered by the Programming Division.

    The milestone actual end date represents the date of the scheduled bid opening for the project.

66. Preliminary Engineering (PE) Agreement (PEAGR). The Programming Division or Local Government Division will provide a Preliminary Engineering Agreement with the Municipalities. This non-binding agreement states what portions of the project the municipality is responsible for and their approximate participation cost.

    The milestone actual end date represents the date that the Preliminary Engineering Agreement has been signed by all parties involved.

67. Preliminary Engineering (PE) Agreement 2 (PEAG2). The Programming Division or Local Government Division will provide a Preliminary Engineering Agreement with the Municipalities. This agreement states that if the city should unilaterally and voluntarily terminate this agreement by whatever means or action, it should reimburse NDDOT for any and all costs it has incurred for engineering services under this agreement.

    The milestone actual end date represents the date that the Preliminary Engineering Agreement 2 has been signed by all parties involved.

68. Preliminary Utility Coordination (UTPRE). The desired schedule date is 2 weeks after the CATEX.

    This work is identified in Section III-08 of the Design Manual and in the "Coordination and Notification for Utility Relocation, Adjustments, and Reimbursement Policies and Procedure" manual on the NDDOT website.

    This milestone actual end date represents the date the Lead Designer or Consultant Project Manager and Technical Support Person have met, discussed, and coordinated with the NDDOT Utilities Engineer.

    This meeting will discuss the alternate selected for the project and any preliminary potential utility impacts, review any available preliminary information or comments from the SOV letters, and discuss future utility coordination.

    This milestone activity also indicates when the Lead Designer or Consultant Project Manager and Technical Support Person have provided the following deliverables needed for utility coordination letters:

    - Title Sheet
    - Scope of Work Sheets
    - Preliminary Utility Coordination Form

The Actual Completion Date for this activity shall be recorded in milestone by the Lead Designer or Technical Support Person.

The NDDOT Utilities Engineer or Consultant Project Manager will send a preliminary utility coordination letter to all potential impacted Utility Co. after this meeting requesting comments, share preliminary information, or further correspondence with Utility Company.

69. Preliminary Utility Engineering (UTENG). The desired schedule date is 6 months before the project completion date.

This work is identified in Section III-08 of the Design Manual and in the "Coordination and Notification for Utility Relocation, Adjustments, and Reimbursement Policies and Procedure" manual on the NDDOT website.

This milestone actual end date represents the date when draft plans, including cross sections, have been refined enough to complete utility conflict plans. At this point coordination between the Utility Engineer, Lead Designer or Consultant Project Manager and Technical Support Person should be sufficient to have minimized or eliminate utility impacts. Utility Engineering has been completed to a point where changes to the amount of impacts are not anticipated.

The Actual Completion Date for this activity shall be recorded in milestone by the Lead Designer or Technical Support Person. This coordination is to ascertain the location and extent of any utility relocations necessary to accommodate the planned project including any state optioned borrow sites, and where feasible and within acceptable design standards, to avoid relocation or adjustment of major or costly utilities without changing the scope of the project. The NDDOT Utilities Engineer or Consultant Project Manager may at this time request comments, share information, or further correspondence with Utility Co.

70. Prepare Notice of Intent (NOI). When a proposed project requires an Environmental Impact Statement (EIS), a NOI is prepared for publication in the Federal Register. The NOI initiates the EIS process and summarizes the proposed project and scoping process. The format and content of the NOI are specific and must be strictly adhered to as provided in the FHWA Technical Advisory Guidance Material and Section 6002. The environmental document author in conjunction with Environmental Services will prepare a NOI in accordance with FHWA Technical Advisory Guidance Material and Section 6002.

The milestone actual end date represents the date that the NOI is submitted to FHWA.

71. Project Completion (PC). This date represents the delivery date of project items to Programming Division such as plans, SPs, R/W, permits, etc. This date is typically the plan complete date.

72. Public Hearing (PUBHR). Public hearing meetings provide an opportunity for the public and other agencies to comment on the proposed improvements identified in the DCE, Environmental Assessment, or Environmental Impact Statement, and to discuss and comment on the social, economic, environmental, or other areas of concern regarding the project. The environmental document author will coordinate meeting location and time; advertise meeting and invite meeting attendees; prepare informational handouts and exhibits; provide project information for AV presentation; conduct public hearing meeting; and prepare and distribute the Public Involvement Report for DCE projects. For projects processed under an EA or EIS, the materials shall be contained in the appendices.

    The meeting advertisement should be reviewed and approved by the Communication Division and can be found on the web at http://www.dot.nd.gov/manuals/design/designmanual/reference-forms.htm.

    The milestone actual end date represents the date that the Public Hearing is held.

73. Public Information Meeting (PUBIM). Public Information meetings provide an early opportunity to inform the public and other agencies of the project proposal, not to receive input from the public. The environmental document author will coordinate meeting location and time, advertise meeting, invite meeting attendees, prepare informational handouts and exhibits, and conduct public information meeting.

    The meeting advertisement should be reviewed and approved by the Communication Division and can be found on the web at http://www.dot.nd.gov/manuals/design/designmanual/reference-forms.htm.

    The milestone actual end date represents the date that the Public Information Meeting is held.

74. Public Input Meeting (PIMTG). Public input meetings provide an early opportunity for the public and other agencies to comment on the need for the project, discuss and suggest project alternatives, and identify areas of concern. The environmental document author will coordinate meeting location and time, advertise meeting, and invite meeting attendees, prepare informational handouts and exhibits, conduct public input meeting, and prepare and distribute written summary of comments received.

    The meeting advertisement should be reviewed and approved by the Communication Division and can be found on the web at http://www.dot.nd.gov/manuals/design/designmanual/reference-forms.htm.

    The milestone actual end date represents the date that the Public Input Meeting is held.

75. Public Involvement Report (PIR). The Report is prepared for DCE projects after the public meetings are conducted and includes information and documentation pertaining to the public meeting preparation, meeting materials, and comments received, as well as responses provided, as necessary.

    The milestone actual end date represents the date that the Report is completed and ready for distribution.

76. Railroad Agreement Bridge (RRABR). The Bridge Division will provide a railroad agreement for projects that involve railroad structures. The provisions of the agreement are typically incorporated into the project's plans with a special provision.

    The milestone actual end date represents the date that the railroad agreement is signed by the associated railroad company.

77. Railroad Crossing Application (RRCRA). The Planning/Asset Management Division will coordinate and obtain railroad crossing permits. The designer should advise and discuss the railroad crossing with the Planning/Asset Management Division - Rail Section. The designer should begin coordinating with the Rail Section after the environmental document approval and on an on-going basis as the preliminary roadway design becomes available.

    The milestone actual end date represents the date that the applications have been completed and submitted to the Design Division or Technical Support Person with a copy going to the Planning Division.

    A Railroad Crossing Review should be completed for each railroad crossing within the project limits. The railroad crossing review should take place in conjunction with the field review conducted for the environmental document. This review is intended to acquire the necessary crossing information and to facilitate early coordination of the proposed highway improvements with the railroad crossing. This facilitation is necessary because of the lead time required (several months) to prepare a Railroad Crossing Application and to secure an agreement with the railroad and to coordinate railroad and contractor schedules.

    The Railroad Crossing Review form is provided on the web on the Reference and Forms Page of the Design Manual at:
    http://www.dot.nd.gov/manuals/design/designmanual/reference-forms.htm.

    The review forms may be completed by the District during or after the field review. The completed forms should be submitted to the Design Division with a copy to the Planning/Asset Management Division – Rail Section. Separate forms should be filled out for each railroad crossing.

    Under "other comments" note the following:

    1. The designer shall review the need to operate on the railroad right of way with the Rail Section in the Planning/Asset Management Division. If so, the number of flagging days should be estimated at $1200/day and incorporated in the estimate as a SPECIAL PROJECT ITEM so Federal Funds may be obtained.

    2. The actual hours of flagging will be monitored by the Project Engineer.

    3. Note the type and condition of warning devices (flashing signals with gates, flashing signals without gates, cantilever flashing signals or cross bucks).

4. Note the existing visibility (quadrants with restricted sight distance and the degree of the restriction, i.e. elevator, tree, etc.).

5. Note if highway-rail grade crossing Advanced Warning Signs and Pavement Markings are present and the general condition of each.

6. Railroads require a detour to install a new surface. An on-site review of the detour route should be made to determine the suitability to serve as a detour.

7. The crossing review should include crossings that are within 500 feet of the beginning and end of an urban project and 1320 feet of the beginning and end of a rural project, for the construction of a new highway or improvement of an existing roadway where federal funds will be used. This includes cross roads as well as the mainline. The crossing should not be open to unrestricted traffic until adequate warning devices are in place and operating properly.

The Planning/Asset Management Division will coordinate and obtain railroad crossing permits. The designer should advise and discuss the railroad crossing with the Planning/Asset Management Division - Rail Section. They will determine Warning Device adequacy.

The designer should begin coordinating with the Rail Section during the environmental document development and on an on-going basis as the preliminary roadway design becomes available.

78. Record Of Decision (ROD). The ROD summarizes the selected project alternative and mitigation measures and is completed for projects that require an EIS. The ROD normally consists of a cover sheet, summary of selected alternates and basis of decision, summary of alternatives considered and basis of decision, summary of Section 4(f) and 6(f) basis of decision, summary of measures to minimize harm and environmental commitments, summary of monitoring and enforcement program, summary of agency and public comments received on EIS and department responses, and a signature block. The environmental document author in conjunction with Environmental Services will prepare a draft ROD in accordance with FHWA Technical Advisory Guidance Material and will submit it to FHWA for comment and finalization.

    The milestone actual end date represents the date that the ROD has been approved by FHWA.

79. Relocation Assistance (RWREL). All relocation assistance shall comply with 49 CFR Part 24 and FHWA's current edition of the Real Estate Acquisition Guide for Local Public Agencies, Publication FHWA-PD-93-027. No lawful occupant shall be required to move unless they have received at least 90 days advanced written notice from the date the written appraisal offer was made. The 90 Day Relocation Notices will include expiration dates.

    The milestone actual end date represents the date that anything that was required to be relocated has been relocated off of the right of way.

80. Right of Way Application to BIA (RWBIA). The milestone end date represent the date the application has been sent and shall be 30 days prior to the Acquisition date.

81. Right of Way Authorization (RWAUT). Upon completion of a right of way cost estimate by ETS Division – Right of Way Services, or its consultant, Right of Way Services will obtain authorization from FHWA to commence with appraisals, acquisition of right of way, and relocation assistance if necessary.

    The milestone actual end date represents the date that authorization has been obtained from FHWA.

82. Right of Way Encroachments (RWENC). This work is identified in the NDDOT Maintenance Operations Manual. The District Engineers are responsible for the elimination of unauthorized encroachments and control of authorized encroachments within their districts. The Districts will conduct a right of way encroachment survey and arrange for removal or permit of encroachments. At the recommendation of the District Engineer, ETS Division - Right of Way Services will request the necessary approval from FHWA for any permitted encroachments. The environmental document author will provide the District and Right of Way Services with exhibits detailing encroachments for review and recommendations. Encroachments will be included and discussed in the environmental document.

    This milestone actual end date represents the completion survey and identification of encroachments. The agreements for removal or permit of encroachments must be obtained prior to certification of right of way.

83. Right of Way Plats Final (PLFIN). The final approved Right of Way plats are stamped, signed and submitted to ETS for recording, after the certification of right of way negotiations.

    The milestone actual end date represents the date the Right of Way plats are stamped, signed and submitted to ETS.

84. Right of Way Plats Preliminary to ETS (PLETS). This work is identified in Section VIII of the Right of Way Manual. The Right of Way Plats Section, or the consultant will prepare the right of way plats and legal descriptions of the right of way parcels. For consultant projects, the consultant will submit the plats and legal descriptions to the technical support person who will forward to the Right of Plats Section for review and approval. When the Right Way Plats Section has approved, they will submit the completed plats to the ETS Division. ETS may need revisions as their process proceeds. The actual end date will be updated after each revision and the previous submittal dates will be tracked in the comments section of this activity.

    The milestone actual end date shall be entered by the Right of Way Plats Section and represents the date the most recent version of the right of way plats have been submitted to ETS Division.

85. Right of Way Plats Recorded (PLREC). The final approved Right of Way Plats are recorded with the County Recorder.

The milestone actual end date represents the date the right of way plats have been recorded.

86. Roadway Hydraulics (RDHYD). Bridge Division or the Consultant will perform a hydraulic analysis to determine the appropriate size of culverts for replacement of existing culverts or new culverts.

The following hydraulic analysis and calculations for both centerline and approach culverts shall be submitted for review and approval concurrently with the submission of the PS&E plans. The submitted hydraulic analysis and calculation shall include:

- Delineated drainage areas shown on a map:
  - Label drainage area size
  - Label longest drainage path and slope
  - Label each culvert stationing
- USGS Regression Calculations or Rational Method Calculations.
- HY-8 or other computer generated output which was used to determine culvert size, including design discharge, design headwater, velocity, and other data required to prepare the hydraulic data sheet in the plans.

The milestone actual end date represents the date that the hydraulic analysis and calculations have been approved by the Hydraulics Section.

87. Safety Review (SRMIR, SRSIM, or SRMAR). This work is identified in Section III-14 of the Design Manual and in the Manual 90-1 for Minor Rehabilitation, Structural Improvements, and Major Rehabilitation projects.

Safety Reviews fall under the following investment strategy categories:

- Safety Review – Minor Rehab (SRMIR)
- Safety Review – Structural Improvement (SRSIM)
- Safety Review – Major Rehab (SRMAR)

The safety review is used to determine the existence and location of roadside obstructions and to propose cost-effective roadside safety improvements for the proposed project. The recommendations of the safety review should be summarized in the environmental document; it is used to evaluate the appropriate scope of work and to develop the purpose and need for the project.

The milestone actual end date represents the date that the Safety Review has been completed and the designer has been notified.

88. Scoping Report (SCPRP). This activity is added to any project that requires a scoping report. Scoping reports will not be done on Preventive Maintenance projects such as seal coats, microsurfacing, thin lift overlays, pavement marking, minor bridge repair, or major urban projects. Scoping reports will consist of general project information along with information on traffic, existing roadway characteristics, geometry, structures, adjacent land, other structural and incidental items, proposed performance guidelines, and

proposed improvements. They will also include a cost estimate and decision items along with comments from the District Engineer. The Deputy Director for Engineering will sign off on the scoping reports after a meeting with the Office Holders and the Programming Engineer.

The milestone actual end date represents the date the scoping report is signed by the Deputy Director for Engineering.

89. Section 106 Compliance (Cultural Resources) (106). Normally, cultural resource reviews are required on projects that require a safety review and/or grading. Cultural resource reviews are always necessary if there are proposed improvements that disturb existing ground cover such as slope flattening, culvert extension, widening, and grading. ETS Division - Cultural Resource Services will normally provide a Section 106 Cultural Resource review and recommendations to the Engineer for inclusion into the environmental document. The Section 106 Compliance is also required for NDDOT option and contractor option borrow site locations and gravel pit locations. If the project scope of work changes from that originally proposed in the project milestone, the designer should advise and discuss the proposed changes with Cultural Resource Services.

This milestone actual end date represents the date Section 106 activities have been completed. Cultural Resource Services is working on Section 106 issues before a date is listed. The comments section includes information on cultural resource review and where we are in the Section 106 process. Contact Cultural Resource Services if you need to know the anticipated Section 106 completion date.

90. Section 4(f) Evaluation (SEC4F). Section 4(f) refers to part of the 1966 U.S. Department of Transportation Act, which gave specific protection to certain classes of public properties. These lands include public parks, recreation areas, wildlife and waterfowl refuges, and most Historic Properties (i.e., cultural resources eligible for the National Register of Historic Places).

Whenever a project involves such properties, a Section 4(f) document must be prepared for each location before the land use is approved. The 4(f) document shows that the provisions of the law are met. The environmental document author should coordinate the need and preparation of Section 4(f) documentation with Environmental Services.

The milestone actual end date represents the date that the Section 4(f) Evaluation is complete.

91. Section 404 Agency Mitigation Site Review (WETMP). This activity is required for onsite mitigation areas requiring an agency site visit to verify that the site is an acceptable compensatory mitigation location. Site visits are for onsite mitigation areas not located within a typical ditch section or are requested by an agency. ETS Division – Environmental Services Section will coordinate with the appropriate agencies to determine if a site visit is warranted and will also work with Design to determine the appropriate documents needed. Coordination of the site visit will be conducted by ETS Division – Environmental Services Section prior to final design.

The projected end date represents the date the onsite visit is to be conducted and will be set by ETS Division – Environmental Services Section to fit the projects timeline.

The milestone actual end date represents the date that a site visit was conducted or determined not required and is entered in by ETS Division – Environmental Services Section. It is the ETS Division – Environmental Services Section responsibility to ensure the milestone date is met.

92. Section 404 and Wetland Information (WETIE).

For a consultant project
This activity requires non-NDDOT entities, working on NDDOT projects, submit final wetland information which may include completing a Section 404 Permit application. Information is to be submitted to ETS Division – Environmental Services Section through the NDDOT Technical Support representative by the projected end date.

For NDDOT Design Project
This activity requires the NDDOT Lead Project Designer to submit final wetland information to ETS Division – Environmental Services Section by the projected end date.

If a Section 404 Permit Application is not required the milestone projected end date is **3 months** prior to the plan complete date to ensure enough time to review the information and make any revisions prior to plans complete.

Nationwide 404 Permit Applications
If a Section 404 Permit Application is required the milestone projected end date is **3 months** prior to the plan complete date to ensure enough time to review the permit application, make any revision, and receive the permit prior to plans complete. For a typical Nationwide Section 404 Permit the USACE has 15 days after receiving the 404 permit application to determine if the application is complete and 45 days to complete the permit.

Individual 404 Permit Applications
If a Section 404 Permit Application is required the milestone projected end date is **5 months** prior to the plan complete date to ensure enough time to review the permit application, make any revisions, and receive the permit prior to plans complete. For a typical Individual Section 404 Permit the turnaround time ranges from 90 to 180 days.

The milestone actual end date represents the date that Environmental Services receives the wetland impact information with any revisions completed and is entered in by the project designer or consultant technical support. It is the lead designer's responsibility to ensure the milestone date is met.

The information and forms required can be found in the Reference and Forms area of the Design Manual, Environmental Information. The information will satisfy a typical Nationwide or 404 Permit Application.

See the Design Manual Chapter II - Section 4 for more information.

93. Section 404 Permit (CE404). Section 404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers (USACE) to issue permits for the discharge of dredged or fill material into Waters of the United States (WOUS), including wetlands. WOUS are identified in the Jurisdictional Determination. If any construction activity includes placing fill within WOUS, a Section 404 Permit is required. If impacts do not meet the Nationwide Permit thresholds an Individual Permit would be needed.
See the Design Manual Chapter II - Section 4 for more information.

Nationwide 404 Permits
The USACE has 45 days to issue the permit after the USACE determines the permit complete.

Individual 404 Permit Applications
For a typical Individual Section 404 Permit the turnaround time ranges from 90 to 180 days.

The projected end date is **2 weeks** prior to the plan complete date for both a Nationwide Permit and Individual Permit. The milestone actual end date represents the date that the Section 404 permit is signed by the USACE and is entered in by the ETS Division - Environmental Services Section. It is the Environmental Services Section's responsibility to ensure the milestone date is met.

See the Design Manual Chapter II - Section 4 for more information.

94. Section 408 Permission (CE408). Pursuant to 33 USC 408 (Section 408) Section 408 permission is needed from the USACE Secretary of the Army to make alteration to, or temporarily or permanently occupy or use, any USACE Corps of Engineers (USACE) federally authorized Civil Works Project, referred to as USACE Project. A USACE Project can consist of USACE owned lands, USACE flowage easements, USACE managed levees, USACE channel realignments…etc. If any construction activity impacts a USACE Project, temporarily or permanently, Section 408 Permission will be needed and this activity should be added. The turnaround time for 408 permission varies from 2 months to 2.5 years after final information is submitted to the USACE depending on the complexity of the project.

The projected end date is 2 weeks prior to the plan complete date. The milestone actual end date represents the date that the Section 408 Permission is signed by the USACE and is entered in by the ETS Division - Environmental Services Section. It is the Environmental Services Section's responsibility to ensure the milestone date is met.

95. Section 408 Permission Request (CE408R) This activity requires that the Section 408 Permission Request Information be submitted to the ETS section after a Section 408 coordination meeting is held between the USACE and NDDOT. The meeting will identify the information needed for the application and determine the approximate turnaround time which will be reflected in the projected milestone end date.

The milestone actual end date represents the date that Environmental Services receives the Section 408 Permission Request information with any revisions completed and is entered in by the project designer or consultant technical support. It is the lead designer's

responsibility to ensure the milestone date is met.

96. Slope Stability (SS). This activity is for stability evaluation of existing and proposed slopes and will be completed by the Geotechnical Section of Materials and Research or a Consultant. This activity is conducted on, but is not limited to: backslopes, foreslopes, bridge end slopes, and landslide areas. The report will provide an analysis and recommend corrective measures or acceptable slopes to obtain or increase stability.

    The milestone actual end date represents the date that he Slope Stability Report have been completed and distributed.

97. Solicitation of Views (SOLVW). The environmental document author or consultant will conduct solicitation of views by letter to agencies, associations, or officials that may have an interest in the proposed improvements. A copy of the letters used, mailing list, and comments received should be incorporated into the environmental document as an appendix. The original letters and responses should be stored in FileNet.

    The milestone actual end date represents the date that the Solicitation of Views letters have been signed and sent out.

98. Sovereign Lands Permit (SOVLD). Century Code 61-33 and Administrative Code Article 89-10 states a Sovereign Lands Permit is needed when a portion of a transportation project lies partially or wholly below the ordinary high water mark of navigable lakes and streams and is managed by the State Engineer. The solicitation of views response from the ND State Water Commission will identify if there is are Sovereign Lands within the project area.

    The projected end date is **2 weeks** prior to the plan complete a Sovereign Lands Permit. The typical turnaround time to receive a sovereign lands permit after submitting a complete application is 2 months. The milestone actual end date represents the date that the Sovereign Lands Permit is signed by the State Engineer and is entered in by the ETS Division - Environmental Services Section. It is the Environmental Services Section's responsibility to ensure the milestone date is met.

    See the Design Manual Chapter II - Section 4 for more information. The list of waters considered Sovereign Lands and additional information can be founded on the ND State Water Commission & Office of the State Engineers website.

99. Sovereign Lands Permit Application (SOVL1).
    For a consultant project
    This activity requires that non-NDDOT entities working on NDDOT projects submit a complete Sovereign Lands Permit application. Information is to be submitted to ETS Division – Environmental Services Section through the NDDOT Technical Support representative by the projected end date.

    For NDDOT Design Project
    This activity requires that the NDDOT Lead Project Designer submit Sovereign Lands Permit Information to ETS Division – Environmental Services Section by the projected end date.

The milestone projected end date is **5 months** prior to plan complete date. The projected end date ensures that the information can be reviewed, processed by Environmental Services Section, and submit and obtain a Sovereign Lands Permit by the plan completion date. The milestone actual end date represents the date that Environmental Services receives the Sovereign Lands Permit information with any revisions completed. The information and forms required can be found in the Reference and Forms area of the Design Manual, Environmental Information.

The milestone actual end date represents the date that a *complete* Sovereign Lands Permit Application has been submitted to Environmental Services and is entered in by the project designer or consultant technical support. It is the lead designer's responsibility to ensure the milestone date is met.

See the Design Manual Chapter II - Section 4 for more information.

100. Special Use Permit (SUPER). A Special Use Permit is required for temporary impacts on a US Fish and Wildlife Service property interests which typically occur outside of the road right of way. This permit is also used when there are permanent impacts to US Fish and Wildlife Service property requiring mitigation to allow the project to proceed while a USFWS easement exchange is being processed and will not be completed two weeks prior to the plan complete date.

The milestone projected end date is **2 weeks** prior to plan complete date. It takes approximately 2 months to receive a permit after submitting a complete application. The milestone actual end date represents the date that the Special User Permit is signed and is entered in by the Environmental Section. It is the Environmental Services Section's responsibility to ensure the milestone date is met.

101. Special Use Permit Application (SUPA).
For a consultant project:
This activity requires that non-NDDOT entities working on NDDOT projects submit a completed Special Use Permit Application to ETS Division – Environmental Services Section through their NDDOT Liaison representative by the projected end date. This ensures that the Special Use Permit can be obtained prior to the project bid opening.

For a NDDOT Design Project:
This activity requires that the Lead Designer submit the project Special Use Permit Information to ETS Division –Environmental Services Section by the projected end date.

The projected end date ensures that the information is submitted to ETS Division – Environmental Services Section so that the Special Use Permit can be obtained two weeks prior to the plan complete date. Upon receipt of the information, Environmental Services will proceed with the Special Use Permit Application. The information required for Special Use Permit Application can be found in the Reference and Forms area of the Design Manual, Environmental Information.

The milestone projected end date is **3 months** prior to plan complete date. The milestone actual end date represents the date that *complete* Special Use Permit Application

information has been submitted to ETS Division – Environmental Services. It is the lead designer's responsibility to ensure the milestone date is met.

102. Structure Hydraulics (STHYD). The Bridge Division or consultant will perform a hydraulic analysis and report at the bridge and box culvert locations that require replacement. After the completion of the hydraulic report, the Bridge Division or consultant will conduct a Type, Size, and Location (TS&L) field review and prepare and distribute a written summary. The milestone actual end date represents the date that the hydraulic analysis and report is completed.

103. Survey Transmittal (TRANS). The completed survey, which includes the original survey books, utility plats, and a CD of the electronic data, will be transmitted (given) by the Survey Section of Design Division to the Records Management Section of the Information Technology Division. All completed surveys from consultants are sent to Survey Section of Design Division and are then transmitted through the above process.

    The milestone actual end date represents the date that the completed survey is transmitted to the Records Management Section of the Information Technology Division.

104. TERO Agreement (TERO). ETS Division - Technical Services will provide a TERO agreement for projects that require agreements. The provisions of the agreement are typically incorporated into the project with a special provision. The designer should advise and discuss the need for the TERO Agreement with Technical Services Section.

    The designer should begin coordinating with Technical Services Section after the environmental document approval and on an on-going basis as the preliminary roadway design becomes available. The TERO agreement must be obtained prior to the plan completion date.

    The milestone actual end date represents the date that the TERO agreement is completed.

105. Traffic Count Review (TCR). This activity is intended to verify the traffic count is accurate and sufficient for the project. The milestone end date is typically 4 months prior to PSE.

106. Traffic Data (TRAFF). The Planning/Asset Management Division – Roadway Data Section provides current and forecast mainline traffic volumes, pavement loadings, and equivalent single axle loadings (ESALS) for the proposed project. This information is used for some traffic operation analysis, to complete safety reviews, and to develop pavement surface thickness recommendations. Preventative Maintenance and Minor Rehabilitation projects only use current traffic volumes for design. Structural Improvement, Major Rehabilitation, and New/Reconstruction projects use 20 or 30 year projected volume. The traffic data information should be summarized in the environmental document; it is used to evaluate the appropriate scope of work and to develop the purpose and need for the project.

    The milestone actual end date represents the date that the Traffic Data has been completed and the mainframe has been updated.

107. Traffic Operations (TRPOS). The Programming Division - Traffic Operations Section or consultant provides traffic operations analysis and report consisting of lighting, crashes, capacity, traffic control, and recommendations. Traffic operations analysis and reports will be completed for Structural Improvement, Major Rehabilitation, New/Reconstruction, and sometimes Safety projects. The information provided in the traffic operations report is included in the environmental document and is used to develop the appropriate scope of work and to develop the purpose and need for the project.

    The milestone actual end date represents the date that the Traffic Operations report has been completed, approved, and the information has been distributed.

108. USFWS Easement Exchange (FWSEE). A wetland easement is a legal agreement through which the US Fish and Wildlife Service pays a landowner to permanently protect wetlands. Similarly, a grassland easement is a legal agreement through which the USFWS pays a landowner to permanently keep land in grass. If a project impacts either a wetland or grassland easement, the Department will need to replace easements that will be released with lands of similar or greater biological and financial value. This is considered an easement exchange.

    The milestone projected end date is **2 weeks** prior to plan complete date. It takes upwards of 120 days to go through an easement exchange for USFWS to complete the easement exchange. If the 120 time frame does not fit into the project timeline, a Special Use Permit Application should be milestoned.

    The milestone actual end date represent the date that the easement exchange has been approved by USFWS. It is the Environmental Services Section's responsibility to ensure the milestone date is met.

109. Utilities Certification (UCERT). Certification letters in regard to utility relocations and adjustments must be included with the submission of the original plan sheets. There are various types of letters depending on the type of project. It is the responsibility of the Utility Engineer to submit the appropriate letters to the Programming Section of the Programming Division. The certification letters must be submitted by the plan completion date.

    The milestone actual end date represents the date that the Utility Certification Letter has been submitted.

110. Utility Conflict Plans (UCPL). The desired schedule date is 4 months before project completion. It is the Departments policy to notify Utility Company of specific conflicts a minimum of 3 months before the bid opening date.

    This work is identified in Section III-08 of the Design Manual and in the "Coordination and Notification for Utility Relocation, Adjustments, and Reimbursement Policies and Procedure" manual on the NDDOT website. These manuals refer to this activity as "Notification to Utility Company". The UCPL are a large part of the "Notification to Utility Company" and the terms are synonymous.

    This milestone actual end date represents the date the Utility Engineer or Consultant

sends documentation notifying the Utility Company of its facilities that must be relocated or adjusted and which portions, if any, will be eligible for reimbursement. This milestone date also represents when all required utility agreements, if needed, have been sent to the utility companies.

The Actual Completion Date for this activity shall be recorded in milestone by the Utility Engineer. The Utility Company is requested to proceed with the necessary field inspection, preparation of plans, and a cost estimate for the relocation work upon receipt of the UCPL.

111. Value Engineering (VAENG). ETS Division – Technical Services Section will coordinate a Value Engineering (VE) study on projects with an estimated cost of:

- $50 million or more for a highway project on the NHS receiving Federal assistance
- $40 million or more for a bridge project on the NHS receiving Federal assistance
- VE not required off the NHS
- VE not required for design-build projects
- Each project located on the National Highway System (NHS) with an estimated total project cost of $50 million or more that utilizes Federal-aid highway program (FAHP) funding.
- Each bridge project located on the NHS with an estimated total project cost of $40 million or more that utilizes FAHP funding.
- Any major project located on or off the NHS that utilized FAHP funding in any contract or phase comprising the major project.
- Any project where a VE analysis has not been conducted and a change is made to the project's scope or design between the final design and the construction letting which results in an increase in the project's total cost exceeding the thresholds as identified in III.a.1, 2, or 3.
- Any other project FHWA determines to be appropriate that utilized FAHP funding.
- Any project that has been split into smaller projects or programmed to be completed by the letting of multiple construction projects that has a total combined cost that exceeds the above federal requirements for VE.
- Additional VE analysis is not required when a VE analysis has been completed for a project which is then subsequently split into smaller projects during the design phase or the project is programmed to be completed by the letting of

multiple construction projects. VE analysis is also not required for projects delivered using the design/build method of construction.

- A VE analysis will be conducted for any project that has been recommended from the Technical Services Section of the ETS Division where there is a high potential to realize the benefits of a VE analysis and has also been recommended by the Office of Project Development and approved by the Deputy Director for Engineering.

Program procedures should provide for the identification of candidate projects for VE studies early in the development of the State's multi-year STIP.

The milestone actual end date represents the date that the Value Engineering study is completed.

112. Wetland Delineation – Field (WETDF) is an on-site wetland delineation. The field delineation will be conducted in accordance with the United States Army Corps of Engineers publication "Corps of Engineers Wetlands Delineation Manual" January 1987 – Final Report (87 Manual).

This milestone actual end date represents the date of the completion of the field wetland delineation and submittal of a complete delineation report and shape files.

113. Wetland Delineation – Office (WETDO) is a wetland delineation using readily available references to determine where wetlands lie within the project area. Unless told otherwise, the environmental document author will be responsible for doing the office delineation.

This milestone actual end date represents the date of the completion of the office wetland delineation and submittal of a complete delineation report and shape files.

114. Wetland Jurisdictional Request (WJREQ). Office and/or field delineations completed by the NDDOT require USACE review to determine if the wetlands contained within the project limits are jurisdictional.

For projects completed in house (Bridge, Design, and District), Environmental Services will transmit the maps, USACE Data Forms, wetland table, additional information to USACE, along with SOV letter #2, requesting a wetland jurisdictional determination. This information will be placed on FileNet and a link will be provided to the environmental document author.

When the delineation is completed by a consultant (Bridge, Design, Local Government – Urban Regional), the consultant will transmit all delineation documentation, along with SOV letter #2 to Environmental Services through the NDDOT Technical Support Contact. Upon satisfactory review of the delineation by Environmental Services, Environmental Services will submit the information provided by the consultant to the USACE requesting a wetland jurisdictional determination.

For Local entity projects, the Local Government Technical Support Contact will transmit

all delineation documentation after a satisfactory review by the Rural Program Manager.

The milestone actual end date represents the date that the request was sent to the USACE for review.

115. Wetland Jurisdictional Determination (JRDET). Subsequent to the submittal of a Wetland Jurisdictional Request, the USACE will respond with a Wetland Jurisdictional Determination. This determination will correspond to a complete determination that is located on the USACE website (https://www.nwo.usace.army.mil/html/od-rnd/jur/jur.htm). The permit number will correspond to the filename on the website.

When a project is completed in house, upon receipt of the Jurisdictional Determination from the USACE, the wetland table and maps are updated by Environmental Services and placed into FileNet, the original is sent to the environmental document author.

When a project is completed by a consultant, upon receipt of the Jurisdictional Determination from the USACE, the wetland table and maps are updated by the consultant, and entered into FileNet. The complete updated document is then provided to Environmental Services from the NDDOT Technical Support Contact by FileNet link.

The milestone actual end date represents the date that the determination was made by the USACE.

I-02.03 Adding Activities/Tasks or Revising Projected Completion Dates

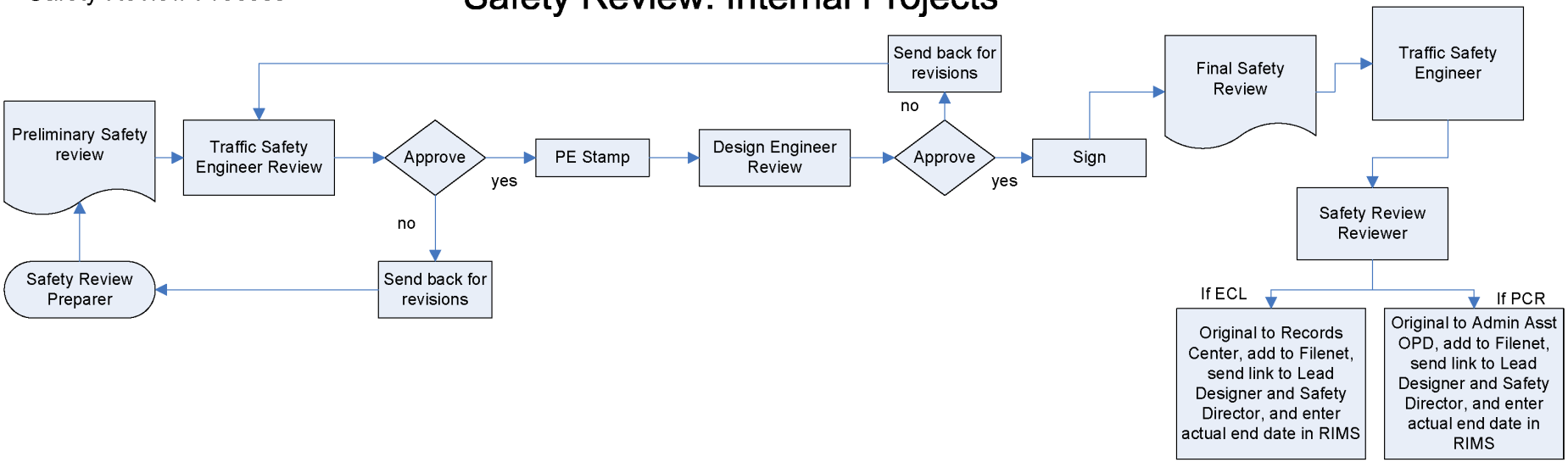
Bid opening and authorization dates are revised by Programming Division when a new bid opening schedule is published. Activities are added and deleted by the Milestone Committee. Dates for other activities are revised by the Milestone Committee.

I-02.04 Entering Completion Dates for Activities/Tasks

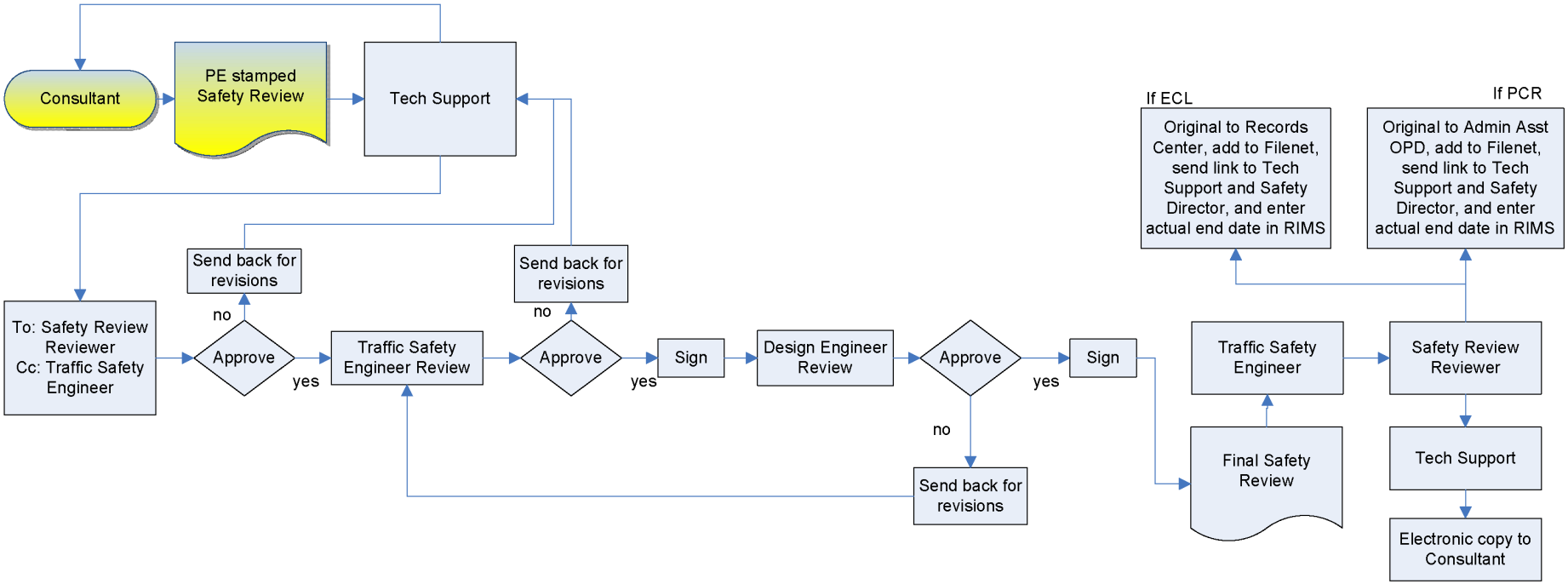
The designer, technical support person, or responsible division/district enters the actual end (completion) dates for the milestone activities. The milestone team sets the projected end dates and revises the projected actual end dates as required.

Safety Review Process

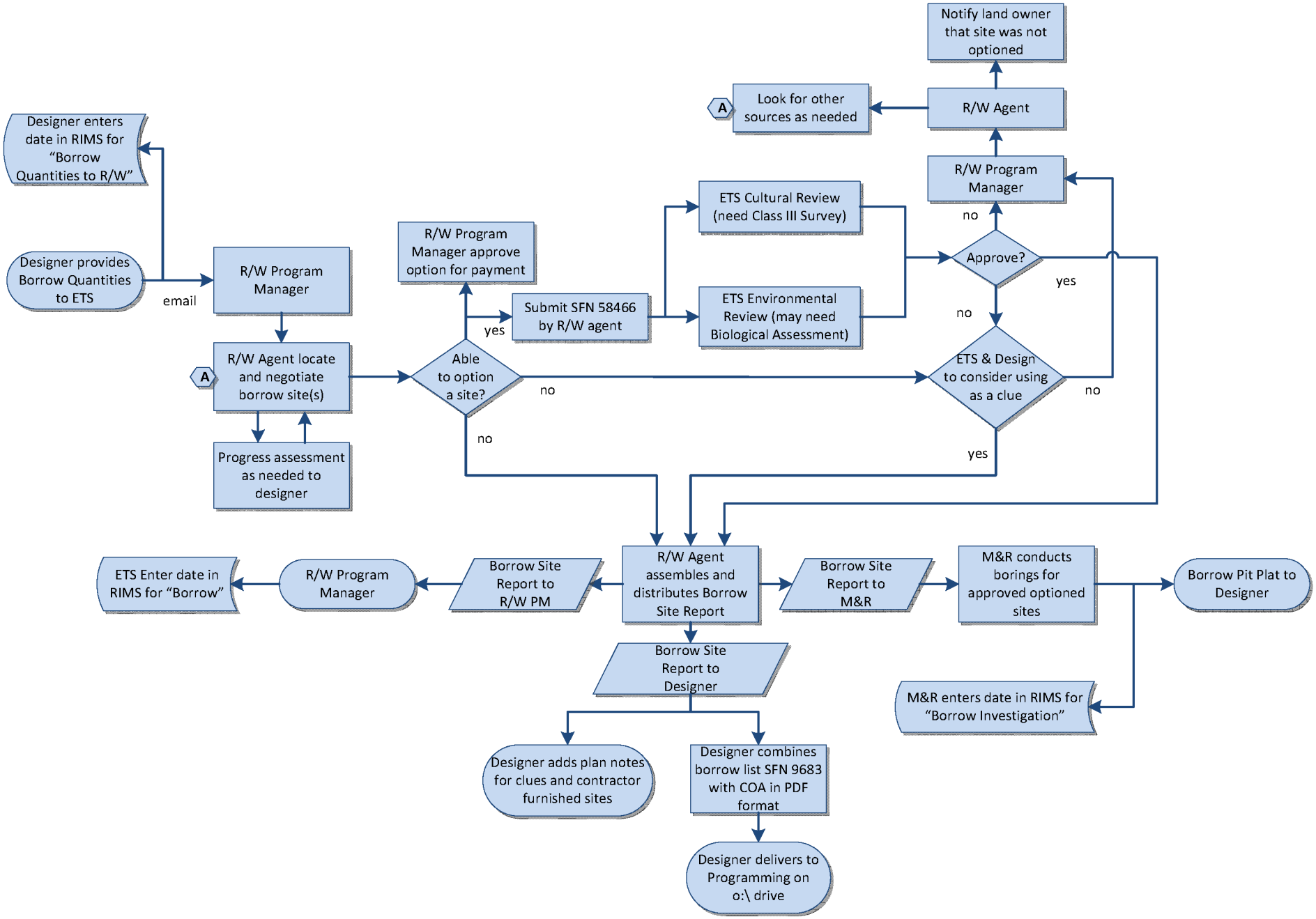
Safety Review: Internal Projects



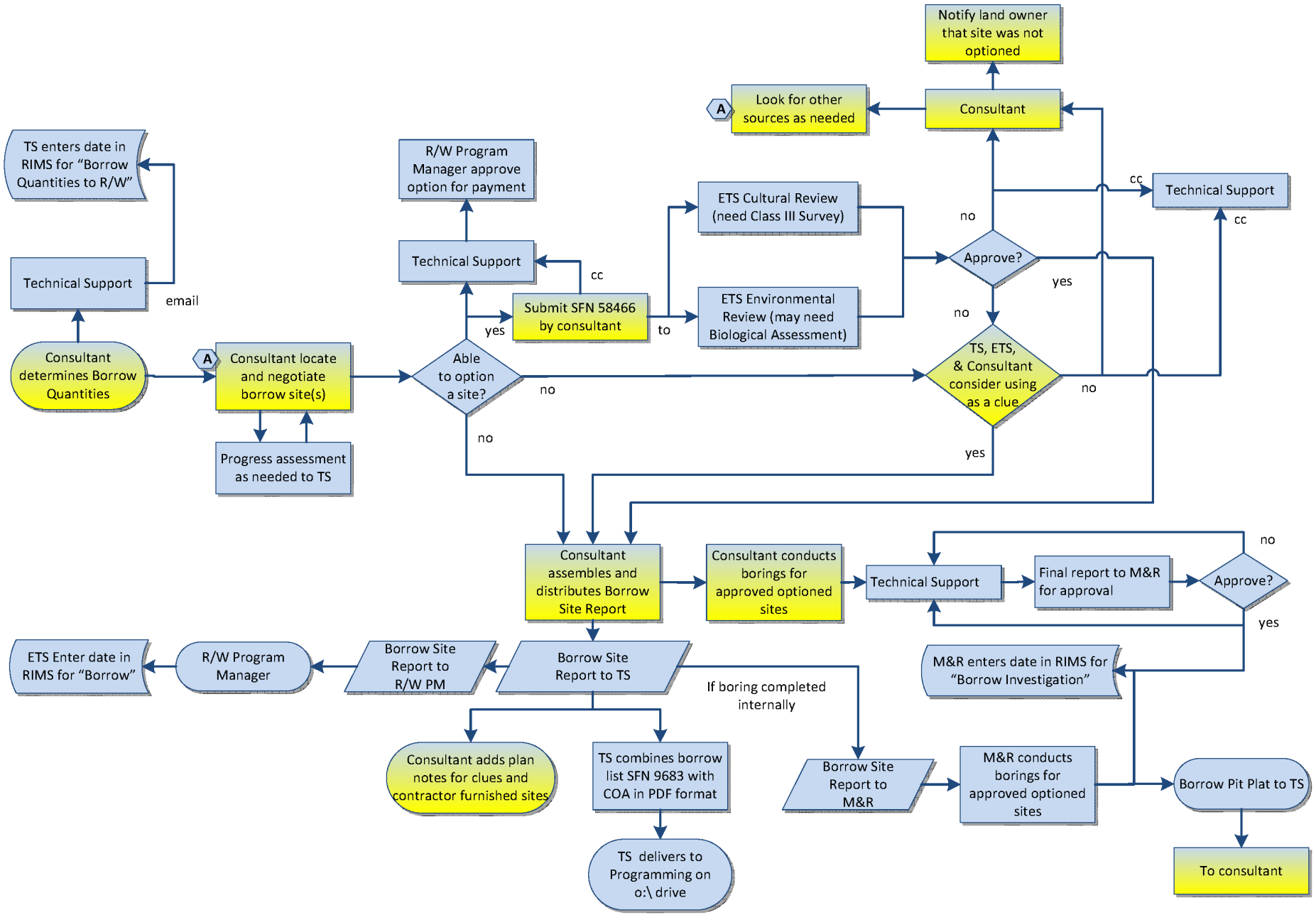
Safety Review: Consultant Projects



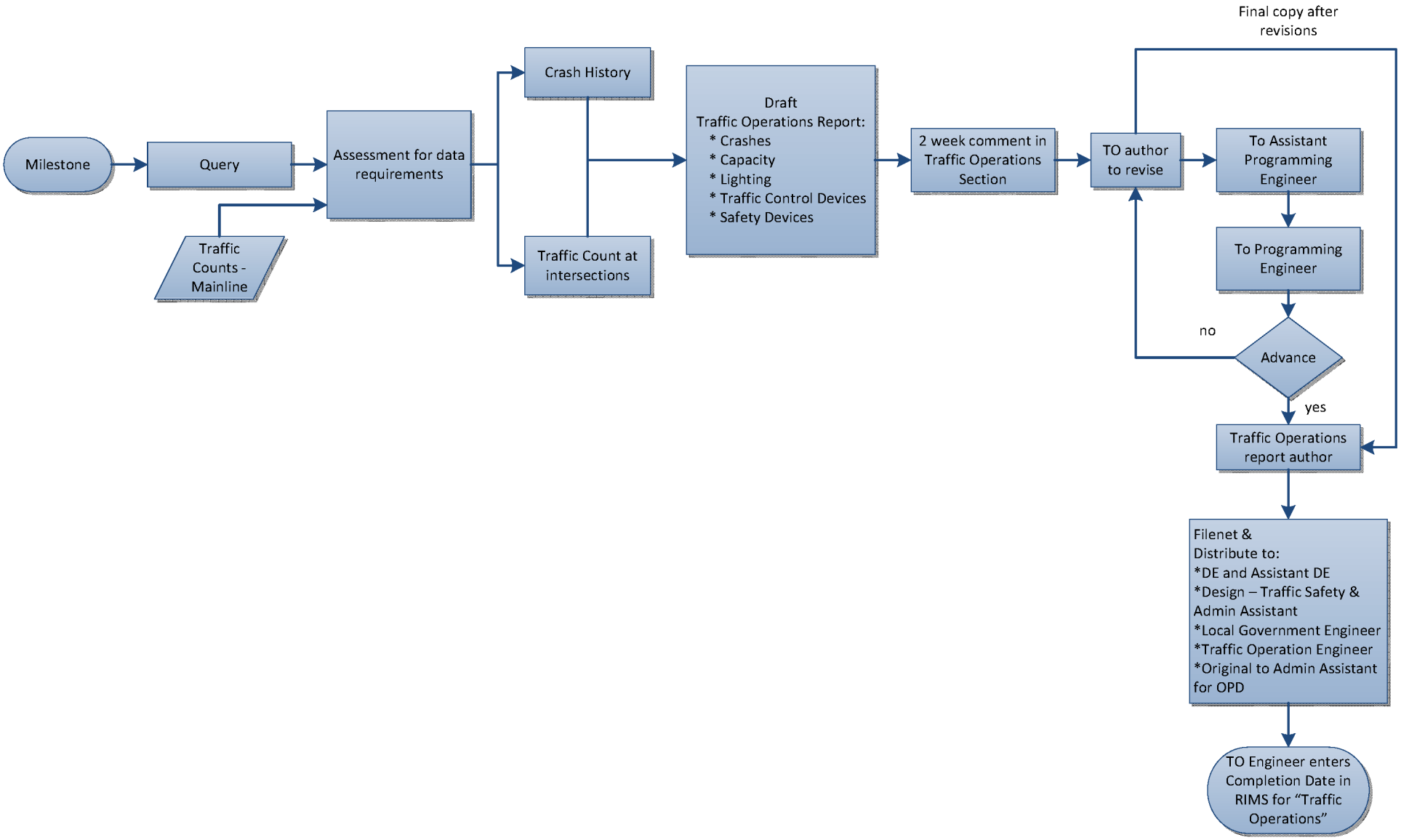
Borrow Acquisition Process-Internal Projects



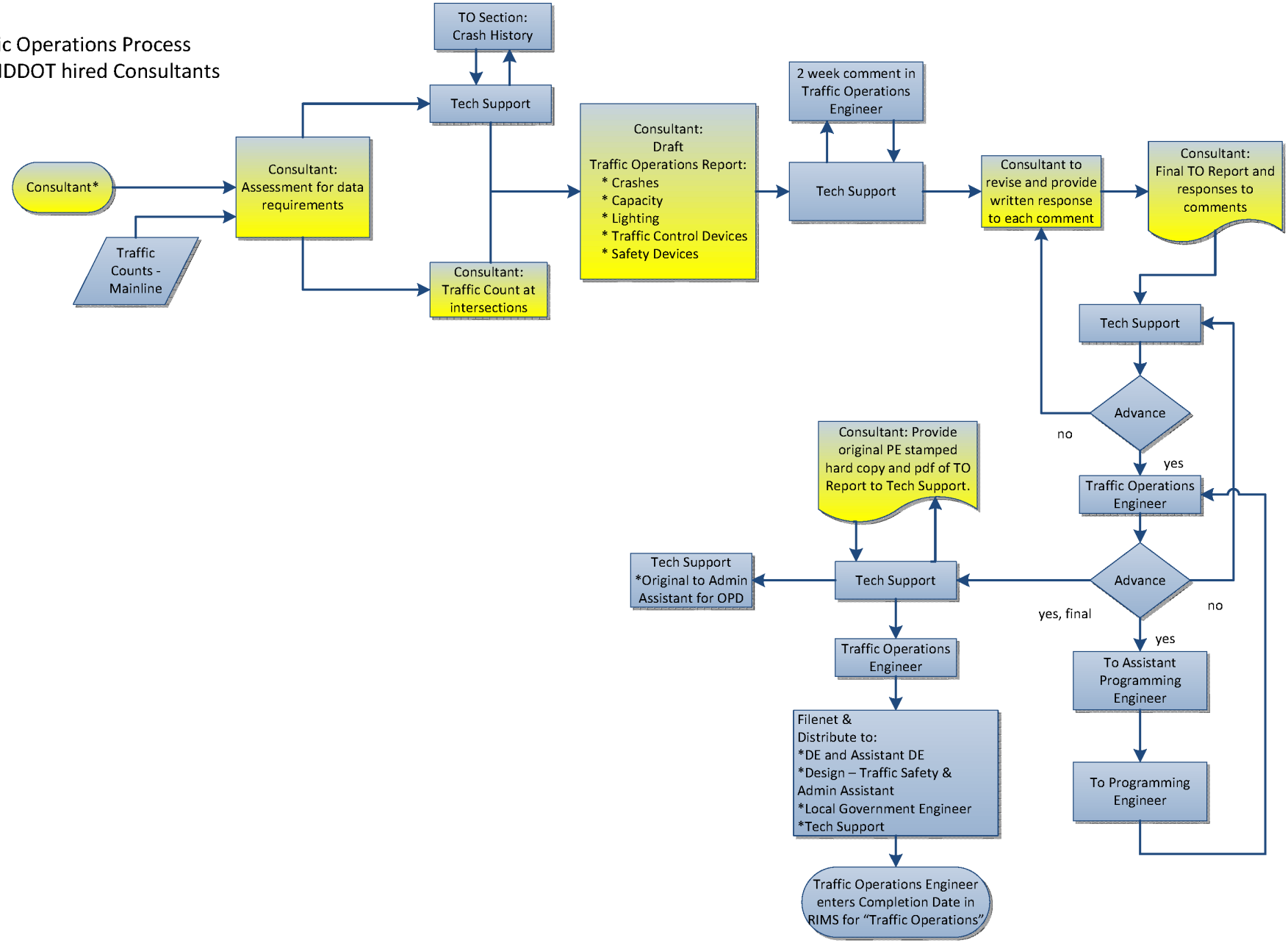
Borrow Acquisition Process-Consultant Projects



Traffic Operations Process-Internal Projects

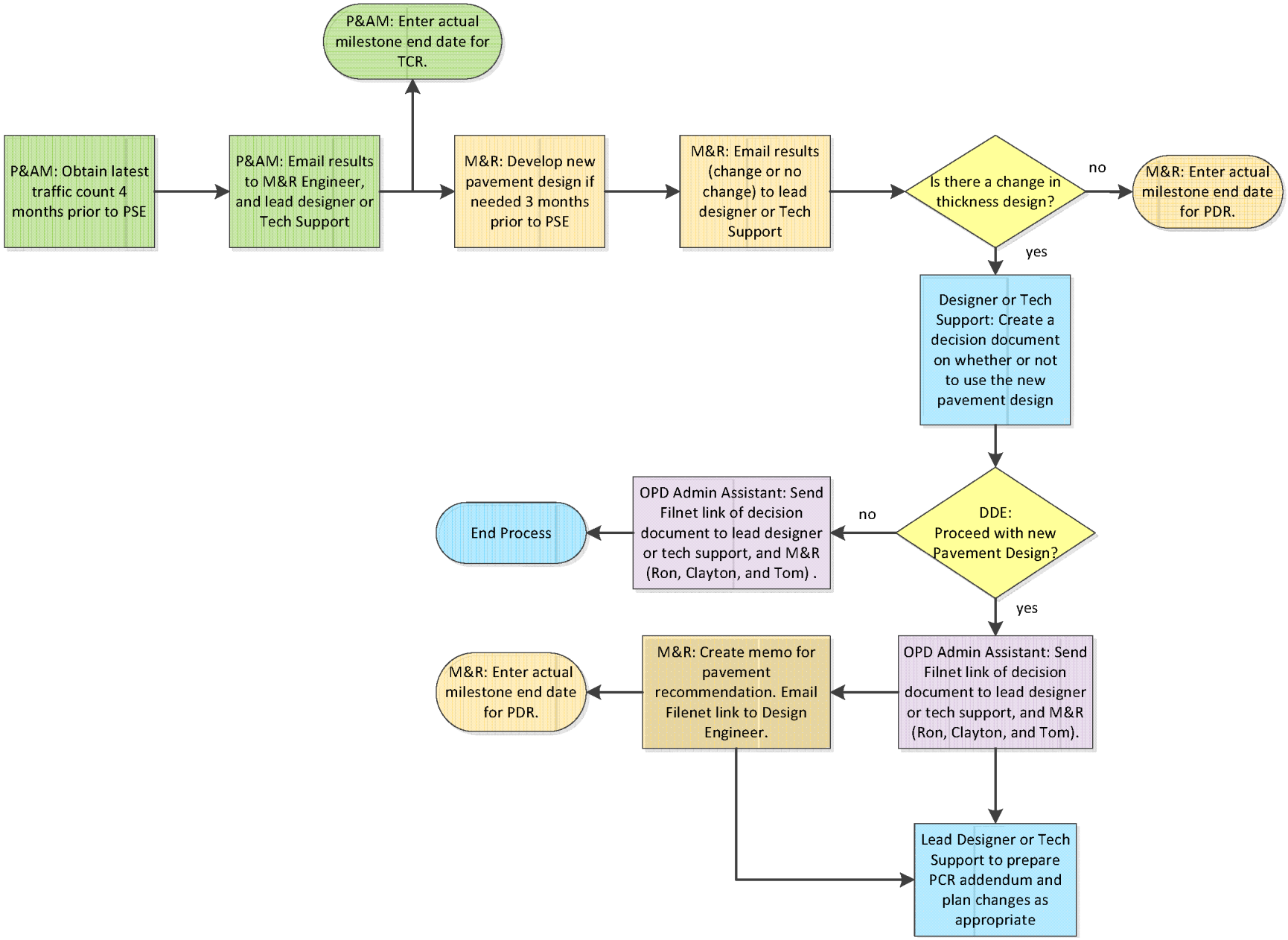


Traffic Operations Process
For NDDOT hired Consultants



*Process for State Highways and Urban Regional (primary and secondary) projects.

Process for Traffic Count Review and Pavement Design Review In Western North Dakota



I-03.01 FHWA/NDDOT Stewardship Agreement

The Federal-Aid Highway Program Stewardship and Oversight Agreement on Project Assumption and Program Oversight by and between North Dakota Department of Transportation and Federal Highway Administration North Dakota is available on the web at: http://mydot.nd.gov/manuals/StewardshipAgreementManualTag.pdf

The purpose of this agreement is to document the roles and responsibilities of FHWA and NDDOT in administering the Federal-Aid Highway Program. This agreement outlines responsibilities, clarifies actions, prevents misinterpretations, and avoids time delays.

I-03.02 FHWA Project of Division Interest (PODI)

FHWA will provide oversight for projects of division interest (PODI), of which these projects are mutually agreed upon with NDDOT. Final selection of PODI projects will be identified in a FHWA/NDDOT letter. PODI projects are assigned to a FHWA Transportation Engineer, typically according to their assigned risk areas. These projects will have a PODI Plan outlining which project development items/phases require FHWA review and/or approval.

The degree of FHWA project review and inspection for project development activities of a PODI project is established and outlined by the PODI Plan for that particular project. The PODI Plan may differ from project to project, and will contain the specific project items to receive FHWA oversight. However, there may be specific federal actions that are not listed within the project's PODI Plan that still require FHWA oversight or approval.

FHWA will ensure NDDOT is provided a copy of the PODI plan, as well as coordinate PODI review. FHWA will contact Divisions and Districts that are responsible for the portions that are listed within the PODI plan. Office Holders will notify each Division Director and/or District Engineer of projects selected as PODI.

I-04.01 Purpose

Project Status Report (PSR) is an internal system that was developed to track the bid ready status of projects bid through the NDDOT. The purpose of PSR is to track and discuss the status of the development for upcoming projects, and ensure responsible divisions attend to any necessary items for upcoming project delivery. The focus of the PSR meeting is on projects that are flagged as critical, behind schedule, not scheduled to start, or not defined.

The PSR system can only be accessed by NDDOT employees using there NDDOT login at via the intranet at: https://intranetapps.nd.gov/dot/prjstat/psr/login.htm

I-04.02 PSR Reporting

Within PSR, there are multiple project development fields for each project that need to be reported. The Division user responsible for that particular field will need to select one of the following values for that item:

PROJECT STATUS KEY	
Complete	100% Complete (bid ready)
Ahead of Schedule	Projected to be complete more than 1 month ahead of due date
On schedule	No schedule concerns
Not scheduled to start	Not ready to start (used for projects on hold)
Behind schedule	Delaying other tasks
Critical	Will likely not make bid opening
Not Defined	Currently Not Defined in System

The following items are contained with PSR for every project, and the responsible divisions for reporting on that item are as follows:

Item Description	Responsible Division	
	ND Highway System Projects	Off the ND Highway System
Env & Cultural Studies	ETS, Local Gov't	Local Gov't
Env Document Writing	Lead Division for the Environmental Document	Local Gov't
Final Env Doc & Approval	ETS, Local Gov't	Local Gov't
Roadway Hydraulics	Bridge	Local Gov't
Structure Hydraulics	Bridge	Local Gov't
Structure Design	Bridge	Local Gov't
Roadway Design	Design or Local Gov't	Local Gov't
Traffic Safety	Design or Local Gov't	Local Gov't
Materials	Materials & Research	Local Gov't
Limits/Titles/Plats	Limits: Lead Division Titles: ETS Plats: Design	Limits: Local Gov't Titles: Local Gov't Plats: Local Gov't
Appraisal	ETS	Local Gov't
Acquisition	ETS	Local Gov't
Utility Engineering	Design or Local Gov't	Local Gov't
Permits	ETS	Local Gov't
Agreements	Local Gov't or Programming	Local Gov't

Comments are added to each of the above items to shortly justify the basis for the entered status for each value. If projects are critical or behind schedule, a plan on how to correct is discussed.

I-04.03 PSR Meetings

PSR meetings are typically held every two weeks. These meetings are organized and conducted by the Design Division. Members of the PSR meeting group include Design Division, Environmental Transportation Services, Bridge Division, Planning/Asset Management, Programming Division, Local Government Division, Materials & Research, Construction Services, Maintenance & Engineering Services, FHWA, Office of Project Development, and Office of Transportation Programs, Office of Operations, and the Deputy Director for Engineering.

A PSR report is developed from projects that are programmed. All upcoming projects scheduled for the next 3 years are included on the PSR report for the meeting. The PSR group discusses each project on the PSR report that has any project development items in the Behind Schedule, Critical, Not Scheduled, or Not Defined status.

I-05.01 General

The basic requirements for highway design are outlined in 23 CFR 625, "Design Standards for Highways" and 23 CFR 650 "Bridges, Structures, and Hydraulics." This regulation references a number of other documents and publications which are included in the Design Manual by reference. Following is a listing of specific publications that are utilized in highway design in North Dakota.

I-05.02 Reference Publications – Roadway Design

- A Policy on Geometric Design of Highways and Streets. 7th edition. AASHTO, 2018 (referenced as *A POLICY*).
- A Policy on Design Standards Interstate System. 5th edition. AASHTO, 2005.
- Roadside Design Guide. 4th edition. AASHTO, 2011.
- Manual on Uniform Traffic Control Devices (MUTCD). 2009 edition, FHWA. http://mutcd.fhwa.dot.gov/
- Clearview Typeface Supplement, English Version (MUTCD). FHWA, 2004. http://mutcd.fhwa.dot.gov/pdfs/clearviewspacingia5.pdf
- Standard Highway Signs, English Version. 2004 edition with 2012 Supplement. FHWA. http://mutcd.fhwa.dot.gov/ser-shs_millennium_eng.htm
- Highway Capacity Manual. 2010 edition. Transportation Research Board.
- Traffic Control Devices Handbook. Institute of Transportation Engineers, 2001.
- Traffic Engineering Handbook. 6th edition. Institute of Transportation Engineers, 2009.
- Access Management Manual. Transportation Research Board, 2003.
- Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. 6th edition. AASHTO, 2013.
- Roadway Lighting Design Guide. AASHTO, October 2005.
- National Electric Code. Current Edition.
- Roadway Lighting, Publication RP-8-00, Illumination Engineers Society (IES), 2005.
- A Guide to Standardized Highway Barrier Hardware. 2nd edition. AASHTO, 1995. http://www.aashtotf13.org/Barrier-Hardware.asp
- Standard Specifications for Road and Bridge Construction. 2014 edition. NDDOT. http://www.dot.nd.gov/dotnet/supplspecs/standardspecs.aspx

- "NDDOT Design Manual." Current Edition. NDDOT. http://www.dot.nd.gov/manuals/design/designmanual/designmanual.htm

- "NDDOT CADD Standards Manual." Current Edition. NDDOT. http://www.dot.nd.gov/manuals/design/designmanual/designmanual.htm

- "NDDOT Standard Drawings." Current Edition. NDDOT. http://www.dot.nd.gov/dotnet2/view/stddrawings.aspx

- "NDDOT Right of Way Manual." Current Edition. NDDOT. http://www.dot.nd.gov/manuals/manuals-publications.htm

- "NDDOT Local Government Manual." Current Edition. NDDOT. http://www.dot.nd.gov/manuals/manuals-publications.htm

- "NDDOT Surveys and Photogrammetry Manual" Current Edition. NDDOT. http://www.dot.nd.gov/manuals/manuals-publications.htm

- "Sign Calculator Program" Current Version. NDDOT. https://www.dot.nd.gov/manuals/design/signcalculator/signcalculator.htm

- "A Policy for Accommodation of Utilities on State Highway Right-of-Way." Dec. 2006. NDDOT. http://www.dot.nd.gov/manuals/manuals-publications.htm

- Guide for Development of Bicycle Facilities. 4th edition. AASHTO, 2012.

- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities. 1st edition. AASHTO, 2004.

- Proposed Guidelines for Pedestrian Facilities in the Public Rights-of-Way. 2011. United States Access Board.

- "Designing Sidewalks and Trails for Access, Part I of II: Review of Existing Guidelines for Access." 1999. Federal Highway Administration. http://www.fhwa.dot.gov/environment/sidewalks/

- "Designing Sidewalks and Trails for Access, Part II of II: Best Practices Design Guide." 2001. Federal Highway Administration. http://www.fhwa.dot.gov/environment/sidewalk2/

- "Utility Relocation and Accommodation of Federal-Aid Highway Projects." Jan. 2003. Federal Highway Administration. http://www.fhwa.dot.gov/reports/utilguid/

- Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-03, U.S. Customary Units). Federal Highway Administration, 2003. http://www.wfl.fhwa.dot.gov/design/specs/fp03.htm

- Guide for Design of Pavement Structures and 1998 Supplement. AASHTO, 1998.

I-05.03 Reference Publications – Structural Design

- AASHTO LRFD Bridge Design Specifications. 8th edition. AASHTO, 2017.

- AASHTO LRFD Bridge Construction Specifications. 4th edition. AASHTO, 2017.

- Standard Specifications for Highway Bridges. 17th ed. AASHTO, 2002.
  (*for Rehabilitation only)*

- Highway Structures Design Handbook. Vols. I and II. American Institute of Steel Construction.

- "Box Culvert Program." NDDOT.

I-05.04 Reference Publications – Other

A. Code of Federal Regulations (CFR). The CFR is a codification of the general and permanent rules published in the Federal Register by agencies of the Federal Government. The code is divided into 50 titles representing broad areas of Federal regulations. Title 23 CFR, Highways, is the volume representing those current regulations applicable to the Federal Highway Administration and the Federal Lands Highway Program. The following are the parts of 23 CFR that are most relevant to the development and design of highways:

- Part 620, Subpart A. Highway Improvements in the Vicinity of Airports.
- Part 625. Design Standards for Highways.
- Part 630. Preconstruction Procedures.
- Part 650. Bridges, Structures, and Hydraulics.
- Part 650, Subpart B. Erosion and Sediment Control on Highway Construction Projects
- Part 652. Pedestrian and Bicycle Accommodations and Projects.
- Part 655. Traffic Operations.
- Part 752. Landscape and Roadside Development.
- Part 771. Environmental Impact and Related Procedures.
- Part 772. Procedures for Abatement of Highway Traffic Noise and Construction Noise.

NOTE: CFR's can be viewed online at the following link: http://www.fhwa.dot.gov/legsregs/directives/cfr23toc.htm

B. Federal Lands Highway Manual (FLHM). The manual is a one-volume book of documents developed by the Federal Lands Highway Office to consolidate all basic policies, directives, standards and guides pertaining to the Federal Lands Highway operations. Link to FLHM Project Development and Design Manual: http://www.wfl.fhwa.dot.gov/design/manual/

All of the above publications are readily available to persons performing design work for the department. In addition, there are many other AASHTO and FHWA publications and periodicals that are received and distributed to the various design entities.

I-06.01 Design Philosophy

The basic philosophy to consider when designing new or existing roadway facilities is to do so in accordance with AASHTO A Policy on Geometric Design of Highways and Streets; hereinafter referred to as *A POLICY.* In using *A POLICY,* generally start with the minimum values provided and then adjust them as the need would dictate. There may be circumstances where it may be in the best interest to use the minimum or desirable values. There may be circumstances where it may not be in the best interest to use the values in *A POLICY.* In those instances, it would be necessary to develop different values and process a design exception. Design exceptions are defined in more detail in Section I-06.04 of the Design Manual.

The philosophy to consider when applying *A POLICY* design values is to do so in accordance with NDDOT DESIGN GUIDELINES for Preventive Maintenance, Minor Rehabilitation, Structural Improvement, Major Rehabilitation, and New/Reconstruction Projects*,* March 2007; hereinafter referred to as *DESIGN GUIDELINES.* The *DESIGN GUIDELINES* are FHWA approved and recognized as of March 19, 2007. The *DESIGN GUIDELINES* have been referenced in the Design Manual in Section I-06.03 of the Design Manual.

The Director may designate and post special areas of state highways where lower speeds are required by condition. The design speeds for those segments are to be determined during the Project Concept Report process.

Safety measures and issues will be identified and addressed as part of the Statewide Safety Program. The Statewide Safety programs will consist of four different types of analysis: Critical Rate Analysis, High Crash Analysis, Project Level Analysis, and Strategic Highway Safety Plan. Safety measures will be implemented with a safety project that will be scheduled and included in the Statewide Transportation Improvement Program (STIP), or if cost effective to be included with other projects. The Statewide Safety Program is defined in more detail in Section I-06.05 of the Design Manual.

I-06.02 Investment Strategies

The North Dakota Department of Transportation, NDDOT, in conjunction with the Federal Highway Administration, FHWA, has developed a series of investment strategies outlined in the *DESIGN GUIDELINES* that will ensure the life expectancy of the roadway is met. These investment strategies are Preventive Maintenance, Minor Rehabilitation, Structural Improvement, Major Rehabilitation, and New/Reconstruction Projects. Below is a brief summary of each investment strategy:

Preventive Maintenance – The intended purpose of this strategy is to protect the pavement structure, slow the rate of pavement deterioration, and/or correct deficiencies in the pavement surface only; structural deficiencies cannot be corrected with this application. The surface defects may be caused by the environment, and by daily wear and tear of traffic. This type of project may occur on the same roadway as frequently as supported by a cost effectiveness determination. A detailed definition of Preventive Maintenance can found in Section I-06.03.01, which also includes examples of projects that can be considered Preventive Maintenance. An overlay is considered to be Preventive Maintenance when the maximum thickness is two inches (no allowance for rut filling).

Minor Rehabilitation – This strategy aims to correct the structural integrity of the pavement without necessarily changing the existing geometrics. A detailed definition of Minor Rehabilitation can be found in Section I-06.03.02, which also includes examples of projects that can be considered Minor Rehabilitation. When an overlay is between two and three inches the project is considered to be Minor Rehabilitation.

Structural Improvement – A Structural Improvement restores the structural integrity of the pavement without necessarily changing the existing geometrics. In addition, the load carrying capacity should be increased to meet the HPCS guidelines. A detailed definition of Structural Improvement can be found in Section I-06.03.03. A Structural Improvement is either an HBP overlay in excess of three inches or a white top.

Major Rehabilitation – Major Rehabilitation requires a large amount of work to bring the condition of the highway up to a level that will extend the service life. This strategy also provides the opportunity to perform operational improvements. A detailed definition of Major Rehabilitation can be found in Section I-06.03.04, which also includes examples of projects that can be considered Major Rehabilitation.

New/Reconstruction – There may be extensive changes to the existing route such as relocating on a new alignment, or completely removing the roadway down to the subgrade and rebuild from the bottom up. Everything from ADA requirements to signing must be addressed when performing a new or reconstruction project. A detailed definition of New/Reconstruction can be found in Section I-06.03.05.

I-06.03 Design Guidelines

1. The intent of the roadway width guidelines is not to reduce the roadway width to the minimum width shown in the guidelines, but rather to maintain the width as close as possible to the existing width.

2. If a District Corridor is on the NHS system the roadway will be designed to meet the minimum design guidelines for a State Corridor.

3. Design features that do not meet the minimum design guidelines, but are incorporated into a project will require a design exception.

4. Safe pavement sloughs will be maintained as described in the Departments shoulder/slough standards. If there is no shoulder the slough should have a minimum slough of 3:1.

5. The traffic volumes shown are general guidelines. A 10% tolerance in the volumes may be allowed without requiring the designer to move to the next level of standard or the need for a design exception.

6. The rail system is defined as both the bridge and roadway facility rail systems servicing as one entire rail system including all of the following items:

   - end treatments and end terminals
   - linear guardrail runs
   - transition sections
   - bridge rails

   In cases where the roadway improvement strategy and bridge improvement strategy for the rail system are different, the investment strategy with the highest rail system requirement will be applied to the entire rail system. If the roadway strategy requires the bridge rail to be in compliance with MASH, the bridge rail at a minimum shall comply with MASH Test Level 3. However, if a portion of the bridge deck needs to be removed in order to upgrade the bridge rail to be in minimum compliance with MASH Test Level 3, the bridge rail will instead be required to be in minimum compliance with NCHRP Report 350 Test Level 3.

   On Minor Rehabilitation and Structural Improvement roadway projects, the rail system may be left in place if the rail system was originally installed in compliance with NCHRP Report 350 or MASH performance criteria, and has been maintained in a condition that is in reasonably close conformity to NCHRP Report 350 or MASH performance criteria.

I-06.03.01 Preventive Maintenance

Design Guidelines for Preventive Maintenance Projects

Traffic Data	Use current ADT
Roadway Width	Use appropriate width to meet NDDOT guidelines.
Superelevations	Use existing.
Design Speed	Use posted speed limit.
Driving Lane Cross Slope	Use existing.
Horizontal Curvature	Use existing.
Vertical Curvature	Use existing.
Clear Zone	Use existing.
Foreslope	Use existing.
Roadway Shoulder/Slough Cross Slope	Use NDDOT shoulder/slough treatment methods.
Safety	Safety issues will be identified and addressed as part of the Statewide Safety Program. Safety features will remain as they exist unless a need is identified.

The purpose of the Preventive Maintenance program is to protect the pavement structure, slow the rate of pavement deterioration and/or correct pavement surface deficiencies. Surface treatments used for preventive maintenance are targeted at pavement surface defects primarily caused by the environment and by the daily wear and tear of traffic. Structural deficiencies caused by traffic loading are not corrected by using these treatments.

Preventive Maintenance treatments may be applied as frequently as supported by a cost effectiveness determination. Improvements for ADA requirements will be considered and be addressed in the environmental document. Most preventive maintenance projects will be conducted on the top of the existing roadway and will have no impact to wetlands or cultural resources. Miscellaneous features such as mailboxes, signing, delineators and others will not be required to be upgraded as part of these projects unless identified by the Statewide Safety Program. Signage not in compliance with the MUTCD will be updated if engineering judgment indicates that:

- One compliant device in the midst of a series of adjacent non-compliant devices could potentially be confusing to road user.
- The anticipated schedule for replacement of the whole series of non-compliant devices will result in achieving timely compliance with the MUTCD.

All railroad crossings will have adequate warning/protective devices in place or be otherwise addressed in the State Railroad Crossing Improvement Program.

Examples of Preventive Maintenance treatments are: Crack Pouring/Sealing, Route and Seal, Seal Coats, Micro-Surfacing, Pavement Patching, Milling and Asphalt Overlay 2" Maximum with or without subcut repair*, Asphalt Overlay 2" Maximum with or without subcut repair*, Repair of depressed cracks, Minor Concrete Pavement Repair (less than 10% of the pavement surface area per mile), Dowel Bar Retrofit, Diamond Grinding, Rumble Strips, Pavement Marking, Signals, Slope Protection Repair, Joint Repair, Painting Structures, Scour Repair, Abutment Repair, Pier Repair, Damaged Railing Repair, etc.

*Milling and Asphalt Overlay 2" Maximum with or without subcut repair, and
*Asphalt Overlay 2" Maximum with or without subcut repair shall be limited to:

- The subcut repair shall be limited to a maximum of 2% of the total square yards of the project, and a maximum of 1000 square yards per mile.
- The subcut repair shall be limited to 12" maximum depth of subcut below the bottom of existing asphalt layer.
- The subcut repair will not be allowed at reoccurring frost heaves or in areas with an existing pipe.
- The subcut repair work shall have nearly vertical cuts on all sides, be performed from on top of the roadway, the adjacent foreslope topsoil shall not be disturbed, and no construction equipment or traffic is allowed in the ditch bottom.
- No allowance for rut filling. If rut filling is needed, the quantity shall be taken from the overall mainline quantity.

I-06.03.02 Minor Rehabilitation

Design Guidelines for Minor Rehabilitation Projects

Traffic Data	Use current ADT
Roadway Width	Use appropriate width to meet NDDOT guidelines.
Superelevations	Use existing.
Design Speed	Use posted speed limit
Driving Lane Cross Slope	Use existing.
Horizontal Curvature	Use existing.
Vertical Curvature	Use existing.
Clear Zone	Use existing.
Foreslope	If the proposed foreslope is less than 3:1 consider cost effective treatment. In fill sections where the foreslope breaks to less than 3:1 outside the clear zone a 4:1 foreslope should be used in the clear zone.
Roadway Shoulder/Slough Cross Slope	Use Department Shoulder Guidelines.
Safety	Safety issues will be identified and addressed as part of the Statewide Safety Program. Safety features will remain as they exist unless a need is identified. Safety hardware that is not in compliance with NCHRP Report 350 performance criteria will be upgraded to be in compliance with MASH* performance criteria. Existing guardrail that is in compliance with NCHRP Report 350 except for rail height, may be reset to correct rail height for compliance with NCHRP Report 350.

* *If safety hardware is not available for MASH performance criteria, safety hardware shall instead be required to be in compliance with NCHRP Report 350 performance criteria.*

Minor Rehabilitation is a planned strategy to extend the useful life of a highway by restoring the pavement structure without necessarily improving existing geometrics. The minor rehabilitation of roadways will use repair techniques designed to repair pavement distress areas primarily caused by the environment and by the daily wear and tear of traffic. A minor rehabilitation strategy will restore the load carrying capacity to its original condition. During the scoping process the department will determine if the foreslope criteria is being met. The appropriate NEPA process will be followed to address any environmental impacts. Improvements for ADA requirements will be considered and be addressed in the environmental document. Miscellaneous features such as mailboxes, signing, delineators and others will not be required to be upgraded as part of these projects unless identified by the Statewide Safety Program. Signage not in compliance with the MUTCD will be updated if engineering judgment indicates that:

- One compliant device in the midst of a series of adjacent non-compliant devices could potentially be confusing to road user.

- The anticipated schedule for replacement of the whole series of non-compliant devices will result in achieving timely compliance with the MUTCD.

All railroad crossings will have adequate warning/protective devices in place or be otherwise addressed in the State Railroad Crossing Improvement Program.

Examples of Minor Rehabilitation treatments are: Asphalt Overlay up to 3”, Distress Area Repairs and Asphalt Overlay, Mill & Overlay up to 3”, Cold In-Place Recycling (CIR), Sliver Grading to correct foreslope or re-establish the original traveled-way-plus-shoulders width, Bridge Approach Repair, Bridge Rail Repair, Deck Overlay, Guardrail, etc.

Sliver Grading is defined as minor grading required to correct foreslope, or re-establish the original traveled-way-plus-shoulders width. Where re-establishing the original traveled-way-plus-shoulders width is triggered to accommodate an overlay, Minor Rehabilitation may include: up to 2’ of widening on each side of the roadway or widening to provide 12’ driving lanes with 2’ shoulders on each side of narrow roadways, even if the total resulting width exceeds the original roadway width. Sliver Grading is required to provide 4:1 foreslopes or flatter within the clear zone, and the installation of rumble strips. Examples of Sliver Grading are shown in the Department Shoulder/Slough Guidelines.

I-06.03.03 Structural Improvements

Design Guidelines for Structural Improvements Projects

Traffic Data	Use 20 year projected
Roadway Width	Use appropriate width to meet NDDOT guidelines.
Superelevations	Attempt to correct to AASHTO Standards. (6% max superelevation) Request design exception if not cost effective.
Design Speed	Use posted speed limit
Driving Lane Cross Slope	HBP Over Asphalt Roadways: 2.1% HBP Over Non Interstate Concrete Roadways: 1.5-2.5 % HBP Over Interstate Concrete Roadways: 1.5-2.5 %
Horizontal Curvature	Use existing, sign when less than posted speed.
Vertical Curvature	Use existing.
Clear Zone	20 foot clear zone.
Foreslope	If the proposed inslope is less than 3:1 consider cost effective treatment. In fill sections where the inslope breaks to less than 3:1 outside the clear zone a 4:1 inslope should be used in the clear zone.
Roadway Slough	Use Department Guidelines for sloughs.
Roadway Shoulder Cross Slope	HBP Over Asphalt Roadways: 8.0 % Max. HBP Over Non Interstate Concrete Roadways: 8.0 % Max HBP Over Interstate Concrete Roadways: 6.0% Max
Safety	Safety issues will by identified and addressed as part of the Statewide Safety Program. Safety features will remain as they exist unless a need is identified. Safety hardware that is not in compliance with NCHRP Report 350 performance criteria will be upgraded to be in compliance with MASH* performance criteria. Existing guardrail that is in compliance with NCHRP Report 350 except for rail height, may be reset to correct rail height for compliance with NCHRP Report 350. Replace mailbox supports where necessary.

* *If safety hardware is not available for MASH performance criteria, safety hardware shall instead be required to be in compliance with NCHRP Report 350 performance criteria.*

Structural improvement is a planned strategy to extend the useful life of a highway by restoring the pavement structure without necessarily improving existing geometrics. Examples of Structural Improvements include: white topping, full depth reclamation, crack and seat or break and seat and HBP overlay or an HBP overlay in excess of 3" and is designed based on an engineering analysis. A structural improvement will increase the load carrying capacity to meet the HPCS guidelines. The appropriate NEPA process will be followed to address any environmental impacts. Improvements for ADA requirements will be considered and be addressed in the environmental document. All regulatory and warning signs and pavement markings will be verified to comply with current MUTCD standards or brought up to MUTCD standards if necessary, and all railroad crossings will have adequate warning/protective devices in place or be otherwise addressed in the State Railroad Crossing Improvement Program.

I-06.03.04 Major Rehabilitation

Design Guidelines for Major Rehabilitation Projects

Traffic Data	Use 20 year projected
Roadway Width	Use appropriate width to meet NDDOT guidelines.
Superelevations	Correct to AASHTO Standards. (6% max superelevation)
Design Speed	Use posted speed limit.
Cross Slope	Driving lanes 1.5 – 2.5%, Shoulder 6% max.
Horizontal Curvature	Use existing, sign when less than posted speed. On State and Interregional Corridors with ADT >750, if existing horizontal curvature is designed for less than 15 mph less than the posted speed make cost effective improvement or sign accordingly.
Vertical Curvature	**Interregional System:** ADT < 2000 maintain existing. ADT > 2000 use stopping sight distance for crest curve design and comfort curve design for sag curves. Decision sight distance should be considered in areas where complex driver decisions are required such as intersections with major collectors or higher, interchanges, lane drops or additions, etc. Passing areas should be provided at reasonable intervals based on terrain and traffic volumes. A rule of thumb would be a passing area every 3 to 5 miles when the ADT <2000 and every 3 miles when the ADT >2000. **State Corridors, District Corridors & Collectors:** ADT < 2000, existing vertical curves should meet a design speed of no less than 20 mph below the overall project design speed. ADT > 2000 use stopping sight distance for crest curve design and comfort curve design for sag curves. Passing areas should be provided at reasonable intervals based on terrain and traffic volumes. A rule of thumb would be a passing area every 3 to 5 miles when the ADT <2000 and every 3 miles when the ADT >2000.
Clear Zone	Upgrade safety work to 20' clear zone except when ADT >2000 use AASHTO roadside design clear zone.
Foreslope	4:1 minimum, on Interregional system > 2000 ADT a 6:1 inslope is desirable where grading or roadway widening is required.
Pavement Slough	Use NDDOT shoulder treatment methods.
Safety	A 90-1 survey will be completed and areas needing safety improvements will be addressed. Upgrade safety hardware to be in compliance with MASH* performance criteria.

* *If safety hardware is not available for MASH performance criteria, safety hardware shall instead be required to be in compliance with NCHRP Report 350 performance criteria.*

Major Rehabilitation is a planned strategy in which major work is performed to bring a highway up to an acceptable condition to extend the service life and provide operational improvements (i.e. adding turn lanes). Improvements for ADA requirements will be addressed in the environmental document.

Major rehabilitation projects may include reclaiming the existing surface material and base along with the placement of additional surface material and/or other work necessary to return an existing roadway, including shoulders, bridges, the roadside, and appurtenances to a condition of structural or functional adequacy. On these projects the roadway elevation may change, shoulders may be added, and foreslope corrections may be made. The roadway will be resurfaced and safety improvements will be completed as required. A crash analysis will be completed and cost effective enhancements will be addressed. All regulatory and warning signs and pavement markings will be verified to comply with current MUTCD standards or brought up to MUTCD standards if necessary, and all railroad crossings will have adequate warning/protective devices in place or be otherwise addressed in the State Railroad Crossing Improvement Program.

Examples of Major Rehabilitation treatments are: Mine and Blend and HBP, Full depth Reclamation, Major Concrete Pavement Repair (greater than 10% of the surface area per mile), etc.

I-06.03.05 New/Reconstruction Projects

Design Guidelines for New/Reconstruction Projects

Traffic Data	Use 20 year projected
Roadway Width	Use AASHTO Standards.
Superelevations	Use AASHTO Standards. (6% max superelevation)
Design Speed	Use posted speed limit.
Cross Slope	Driving lanes 1.5 – 2.5%, Shoulder 6% max.
Horizontal Curvature	Use AASHTO Standards.
Vertical Curvature	**Interregional System:** Use stopping sight distance for crest curve design and comfort curve design for sag curves. Decision sight distance should be considered in areas where complex driver decisions are required such as intersections with major collectors or higher, interchanges, lane drops or additions, etc. Passing areas should be provided at reasonable intervals based on terrain and traffic volumes. A rule of thumb would be a passing area every 3 to 5 miles when the ADT <2000 and every 3 miles when the ADT >2000. **State Corridors, District Corridors & Collectors:** Use stopping sight distance for crest curve design and comfort curve design for sag curves. Passing areas should be provided at reasonable intervals based on terrain and traffic volumes. A rule of thumb would be a passing area every 3 to 5 miles when the ADT <2000 and every 3 miles when the ADT >2000.
Clear Zone	Use AASHTO roadside design clear zone.
Foreslope	Use 4:1 except Interregional system > 2000 ADT and Interstate use 6:1
Pavement Slough	Use AASHTO Standards.
Safety	Safety hardware will be in compliance with MASH* performance criteria.

* *If safety hardware is not available for MASH performance criteria, safety hardware shall instead be required to be in compliance with NCHRP Report 350 performance criteria.*

Is defined as a planned strategy in which a new road is constructed. This work may include work items such as relocating an existing route on new alignment, or completely removing the old pavement structure and restoring the roadbed and surfacing, or major widening on an existing roadway to increase traffic capacity (excludes realigning horizontal curves).

On New/Reconstruction projects a crash analysis will be completed and cost effective enhancements will be addressed. All safety hardware will be in compliance with MASH* performance criteria. ADA requirements will be addressed. All regulatory and warning signs and pavement markings will be verified to comply with current MUTCD standards or brought up to MUTCD standards if necessary, and all railroad crossings will have adequate warning/protective devices in place or be otherwise addressed in the State Railroad Crossing Improvement Program.

I-06.03.06 Minimum Roadway Width on Four Lane Highways

Minimum Roadway Width on Four Lane Highways

Interstate 4 - Lane	<400	400-750	750-1500	1500-2000	>2000
New / Reconstruction	AASHTO STDS	AASHTO STDS	AASHTO STDS	AASHTO STDS	AASHTO STDS
Major Rehabilitation	AASHTO STDS	AASHTO STDS	AASHTO STDS	AASHTO STDS	AASHTO STDS
Structural Improvement	Maintain Existing	Maintain Existing	Maintain Existing	Maintain Existing	Maintain Existing
Minor Rehabilitation	Maintain Existing	Maintain Existing	Maintain Existing	Maintain Existing	Maintain Existing
PM	Maintain Existing	Maintain Existing	Maintain Existing	Maintain Existing	Maintain Existing

Interregional 4 - Lane	<400	400-750	750-1500	1500-2000	>2000
New / Reconstruction	AASHTO STDS	AASHTO STDS	AASHTO STDS	AASHTO STDS	AASHTO STDS
Major Rehabilitation	36	36	36	36	36
Structural Improvement	32	32	32	32	32
Minor Rehabilitation	32	32	32	32	32
PM	31	31	31	31	31

I-06.03.07 Minimum Roadway Width on Two Lane Highways

Minimum Roadway Width on Two Lane Two Way Highways

Interregional 2 - Lane	<400	400-750	750-1500	1500-2000	>2000
New / Reconstruction	32	36	36	36	40
Major Rehabilitation	30	30	36	36	36
Structural Improvement	26	26	28	30	32
Minor Rehabilitation	26	26	28	30	32
PM	26	26	28	28	30

State Corridor	<400	400-750	750-1500	1500-2000	>2000
New / Reconstruction	32	36	36	36	40
Major Rehabilitation	*28	*28	*32	36	36
Structural Improvement	24	24	28	28	32
Minor Rehabilitation	24	24	26	28	32
PM	24	24	26	26	28

District Corridor	<400	400-750	750-1500	1500-2000	>2000
New / Reconstruction	32	36	36	36	40
Major Rehabilitation	*26	*28	*30	32	36
Structural Improvement	22	24	26	26	28
Minor Rehabilitation	22	24	26	26	28
PM	22	24	24	26	26

District Collector	<400	400-750	750-1500	1500-2000	>2000
New / Reconstruction	32	36	36	36	40
Major Rehabilitation	*26	*26	*28	30	30
Structural Improvement	22	22	24	26	26
Minor Rehabilitation	22	22	24	26	26
PM	22	22	24	26	26

- The intent of these guidelines is not to reduce the roadway width to the minimum guidelines, but rather to maintain the width as close as possible to the existing width. Roadway widths shown are the minimum recommended widths, actual allowable widths should be determined on a case by case basis using the Resurfacing Safety Resource Allocation Program (RSRAP) provided in NCHRP Report 486. If the width of the existing roadway is less than the stated guidelines, the width of the existing roadway may remain if it is determined to be safe by RSRAP and a design exception is approved.
- A design exception is only needed on a Preventive Maintenance Thin Lift Overlay (TLO) that does not meet the minimum roadway width requirement. All other Preventive Maintenance types of work do not require a design exception for minimum roadway width.
- District Corridor routes on the National Highway System (NHS) will be designed to State Corridor Guidelines
- Numbers in the shaded areas are ADT. Roadway widths are in feet.

* Minimum roadway widths for “Major Rehabilitation” strategies will be the same as “Minor Rehabilitation” strategies, unless widening is required. If widening is required to meet “Minor Rehabilitation” strategies minimum widths, widening will be sufficient to meet “Major Rehabilitation” strategies minimum widths.

I-06.03.08 Minimum Interstate and Four Lane Divided Highway Bridge Widths

Interstate & Four Lane Divided Highway	All ADT
*New or Reconstructed	40'
*Rehabilitation	Approach Roadway Width
Preventive Maintenance	Existing Bridge Width

* This bridge width is for a two lane roadway. Bridge widths will be determined on an individual bases, where there are 3 lanes or more, ramps or auxiliary lanes impacting the bridge.

The bridge widths in the above table are dimensions measured from face-to-face of curb or face-to-face of rail whichever is less.

The minimum bridge width shall be as shown in the table or the approach roadway width (traveled lanes plus shoulders), whichever is greater.

Deck replacements are in the Reconstructed category. Deck overlays are in the Rehabilitation category.

Any new or reconstructed two lane bridge over railroad tracks shall be a minimum of 40’ wide.

For Interstate System bridges longer than 200’, the traveled lanes plus 4’ on each side is an acceptable bridge width when considering new or reconstruction.

In assessing acceptable Interstate System bridge widths for rehabilitation of bridges or bridges to remain in place without rehabilitation within the limits of paving or re-grading projects: 1) bridges longer than 200’, that are as wide as the traveled lanes plus 3.5’ on each side are acceptable, 2) bridges shorter than 200’, that are as wide as the table less 4’ are acceptable; if there are no reported crash problems at that site.

For other four lane divided rural bridges longer than 200’, the traveled lanes plus 4’ on each side is an acceptable bridge width when considering new or reconstruction.

In assessing other four lane rural divided bridge widths for rehabilitation of bridges or bridges to remain in place without rehabilitation within the limits of paving or regarding projects: 1) bridges longer than 200’, that are as wide as the traveled lanes plus 2’ on each side are acceptable, 2) bridges shorter than 200’, that are as wide as the table less 4’ are acceptable; if there are no reported crash problems at that site.

Bridge Rail:

- For bridge New or Reconstruction category projects, the bridge rail shall be in compliance with MASH Test Level 4 performance criteria.
- For bridge Rehabilitation category projects, the existing bridge rail can remain in place if in minimum compliance with NCHRP Report 350 Test Level 3 performance criteria. If the existing bridge rail is not in minimum compliance with NCHRP Report 350 Test Level 3 performance criteria, the bridge rail will be upgraded to be in minimum compliance with MASH Test Level 3 performance criteria. However, if a portion of the bridge deck needs to be removed in order to upgrade the bridge rail to be in minimum compliance with MASH Test Level 3 performance criteria, the bridge rail will instead be required to be in minimum compliance with NCHRP Report 350 Test Level 3 performance criteria.
- For bridge Preventive Maintenance category projects, the existing bridge rail can remain. Slope Protection repair, joint repair, painting, scour repair, abutment repair, pier repair, damaged railing repair, etc. are all examples of bridge preventive maintenance.

I-06.03.09 Minimum State Route Bridge Widths

Interregional 2 Lane	< 400**	400-750**	750-1500**	1500-2000**	> 2000**
New or Reconstructed	32'	36'	36'	36'	40'
Rehabilitation	28'	30'	30'	32'	32'
Preventive Maintenance	Existing Bridge Width				

State Corridor	< 400*	400-750*	750-1500*	1500-2000**	> 2000**
New or Reconstructed	32'	36'	36'	36'	40'
Rehabilitation	28'	30'	30'	32’	32'
Preventive Maintenance	Existing Bridge Width				

District Corridor	< 400*	400-750*	750-1500*	1500-2000**	> 2000**
New or Reconstructed	32'	36'	36'	36'	40'
Rehabilitation	28'	30'	30'	32'	32'
Preventive Maintenance	Existing Bridge Width				

District Collector	< 400*	400-750*	750-1500*	1500-2000**	> 2000**
New or Reconstructed	32'	36'	36'	36'	40'
Rehabilitation	28'	30'	30'	32'	32'
Preventive Maintenance	Existing Bridge Width				

* Existing bridge widths can remain if there is no crash history.

** For rehabilitation strategies or for bridges to remain in place within paving or re-grading projects, bridge widths are acceptable if the following criteria are met and there is no crash history

1. The existing width is no more than 4’ less than shown in the table; and,
2. The existing width is no more than 6’ less than the approach roadway.

All bridge widths in the above table are dimensions measured from face-to-face of curb or face-to-face of rail whichever is less.

Deck replacements are in the Reconstructed category. Deck overlays are in the Rehabilitation category.

Any new or reconstructed two lane bridge over railroad tracks shall be a minimum of 40’ wide.

For bridges longer than 200’, the traveled lanes plus 4’ on each side is an acceptable bridge width when considering new or reconstruction.

Bridge Rail:

- For bridge New or Reconstruction category projects, the bridge rail shall be in compliance with MASH Test Level 4 performance criteria.
- For bridge Rehabilitation category projects, the existing bridge rail can remain in place if in minimum compliance with NCHRP Report 350 Test Level 3 performance criteria. If the existing bridge rail is not in minimum compliance with NCHRP Report 350 Test Level 3 performance criteria, the bridge rail will be upgraded to be in minimum compliance with MASH Test Level 3 performance criteria. However, if a portion of the bridge deck needs to be removed in order to upgrade the bridge rail to be in minimum compliance with MASH Test Level 3 performance criteria, the bridge rail will instead be required to be in minimum compliance with NCHRP Report 350 Test Level 3 performance criteria.
- For bridge Preventive Maintenance category projects, the existing bridge rail can remain. Slope Protection repair, joint repair, painting, scour repair, abutment repair, pier repair, damaged railing repair, etc. are all examples of bridge preventive maintenance.

OTHER ROUTES

For county route traffic bridges that are State owned bridges that do not carry state route traffic, widths will be addressed on an individual basis.

For State owned bridges on county roads. i.e. county roads over the Interstate:

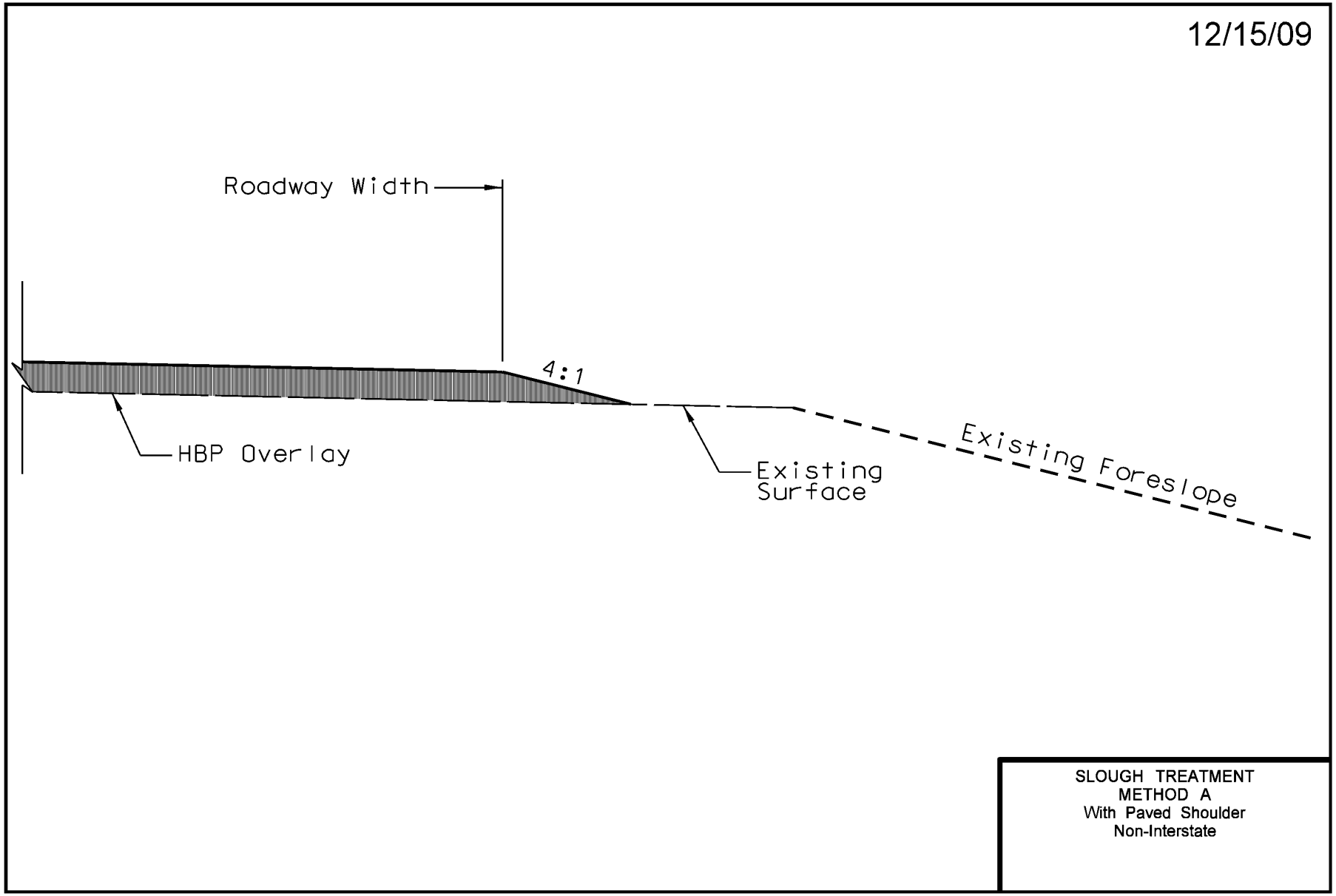
<= 750 ADT, existing width adequate, if no crash history

> 750 ADT, existing width adequate if no more than 6’ less than the width of the approach roadway, if no crash history.

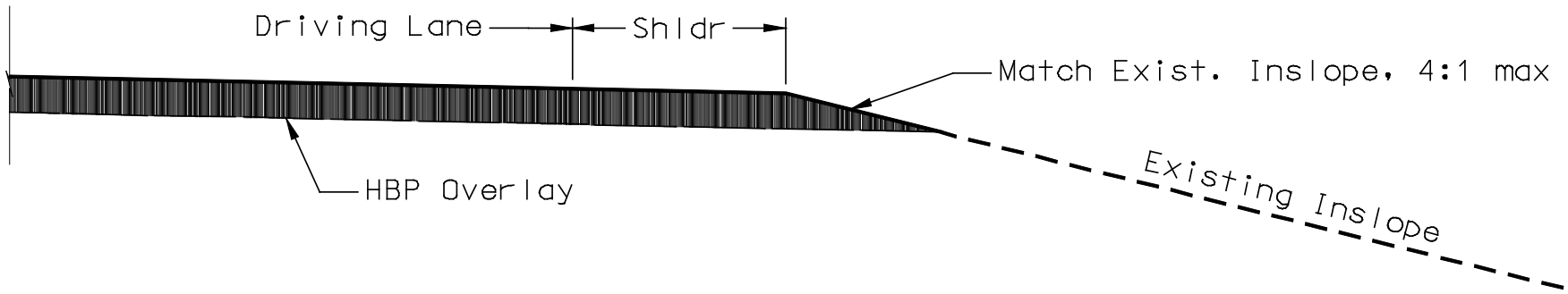
For Preventive Maintenance projects existing bridge widths can remain.

Slope Protection repair, joint repair, painting, scour repair, abutment repair, pier repair, damaged railing repair, etc. are all examples of bridge preventive maintenance. For these types of preventive maintenance projects, the existing railing system can remain.

I-06.03.10 Department Shoulder/Slough Guidelines



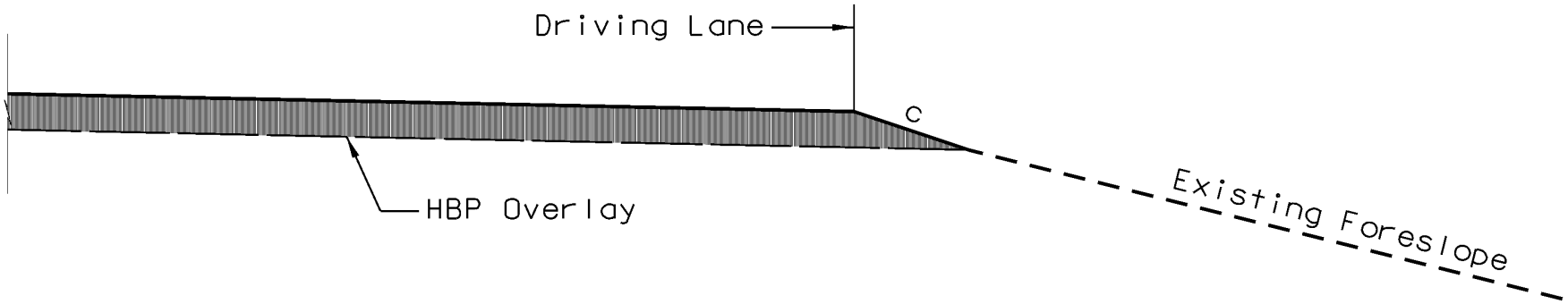
3/9/07



* This is the only Slough Treatment that will be applied to Interstate Overlays

SLOUGH TREATMENT
METHOD B
With Paved Shoulder
Match Existing Inslope, 4:1 max
Non-Interstate & Interstate*

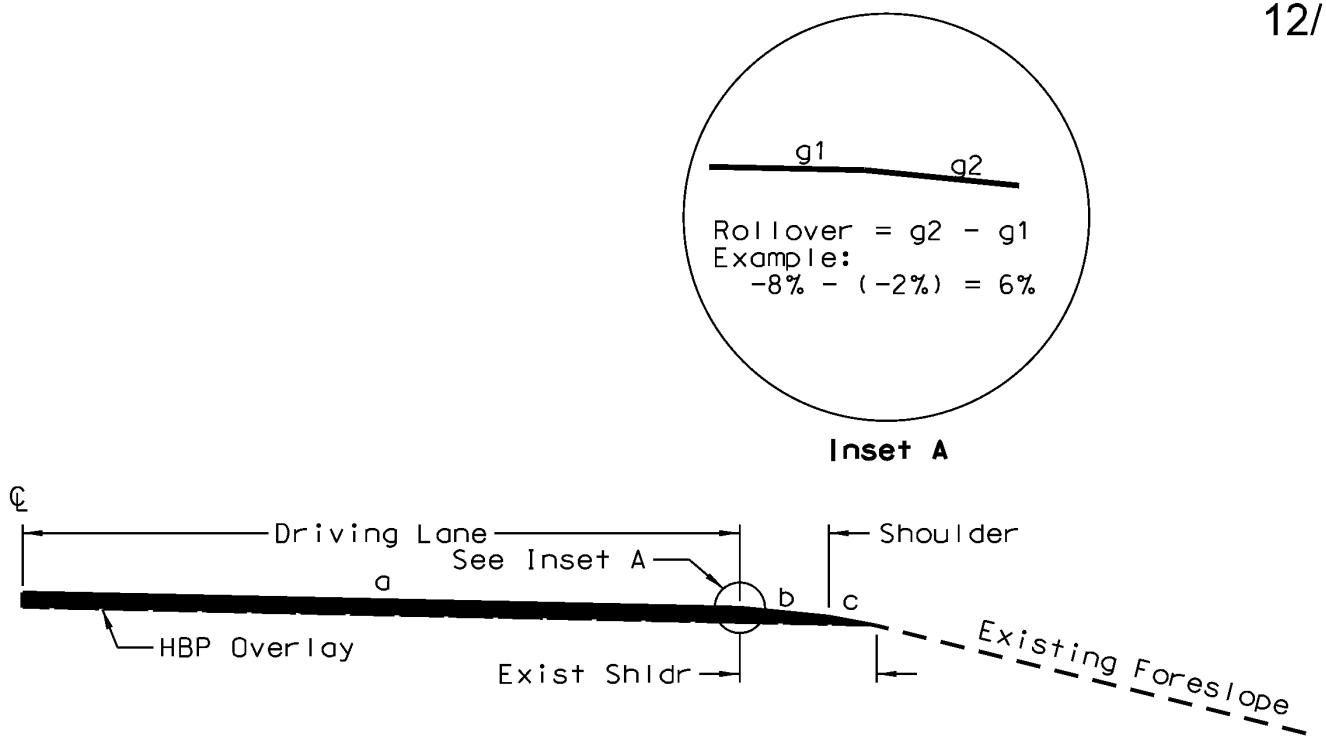
12/15/09



Existing Foreslope	Slough (c)
4:1 or flatter	4:1 max
< 4:1 to 3:1	match existing

SLOUGH TREATMENT
METHOD C
No Paved Shoulder
Non-Interstate

12/15/09



1. a = Driving lane cross-slope

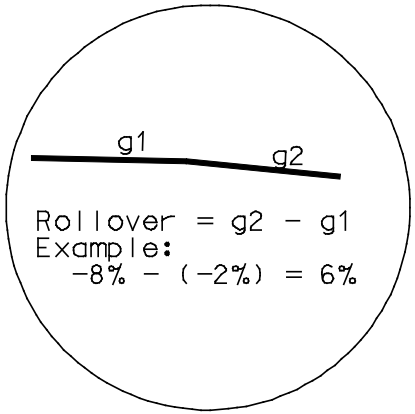
2. b = PM, Mir, SI: Non-Interstate: 8% max, with 6% max rollover
   Mar: 6% max, with 5% max rollover
   Interstate: 6% max, with 5% max rollover

3. If final shoulder < 2',
   then use driving lane cross-slope

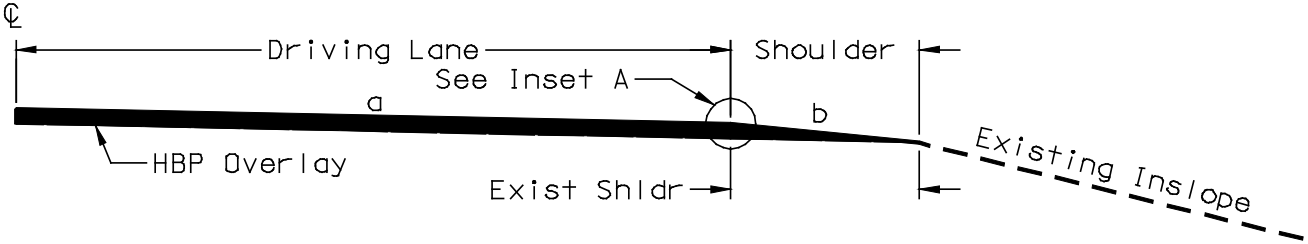
Existing Foreslope	c = Non-Interstate	c = Interstate
4:1 or flatter	4:1 max	4:1 max
< 4:1 to 3:1	match existing	N/A

SHOULDER TREATMENT
METHOD 1
PM, MiR, SI, MaR
Non-Interstate & Interstate

3/9/07



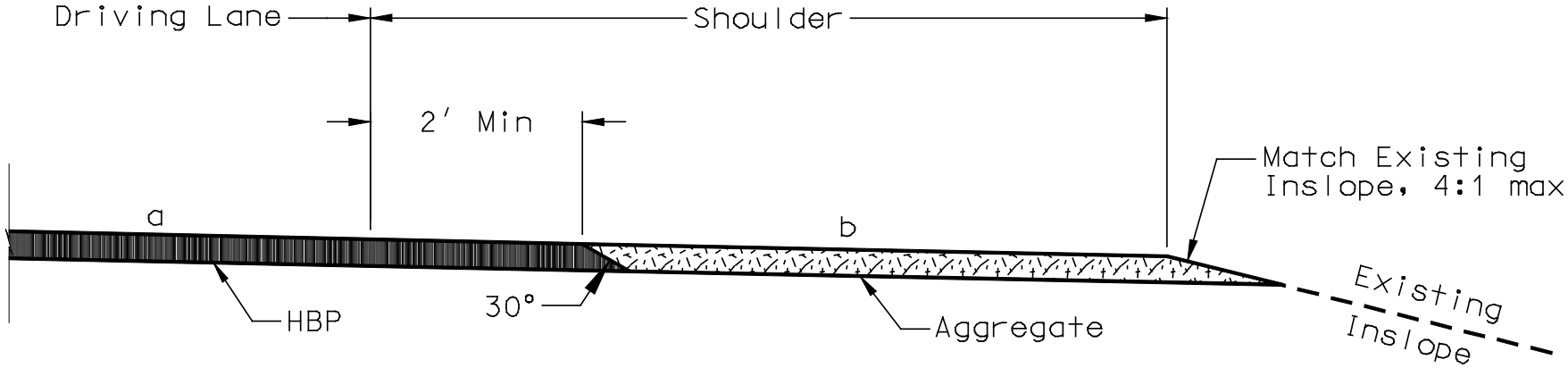
Inset A



1. a = Driving lane cross-slope
2. b = Non-Interstate: 8% max, with 6% max rollover
   Interstate: 6% max, with 5% max rollover

SHOULDER TREATMENT
METHOD 2a
PM, MiR, SI
Non-Interstate & Interstate

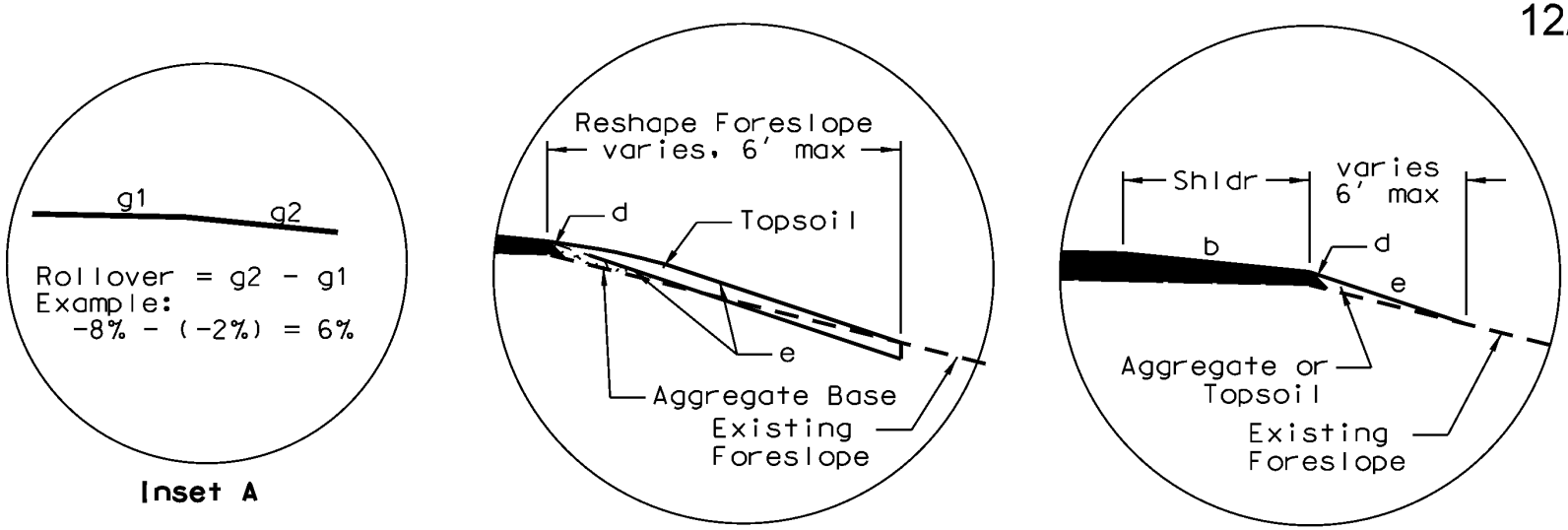
3/9/07

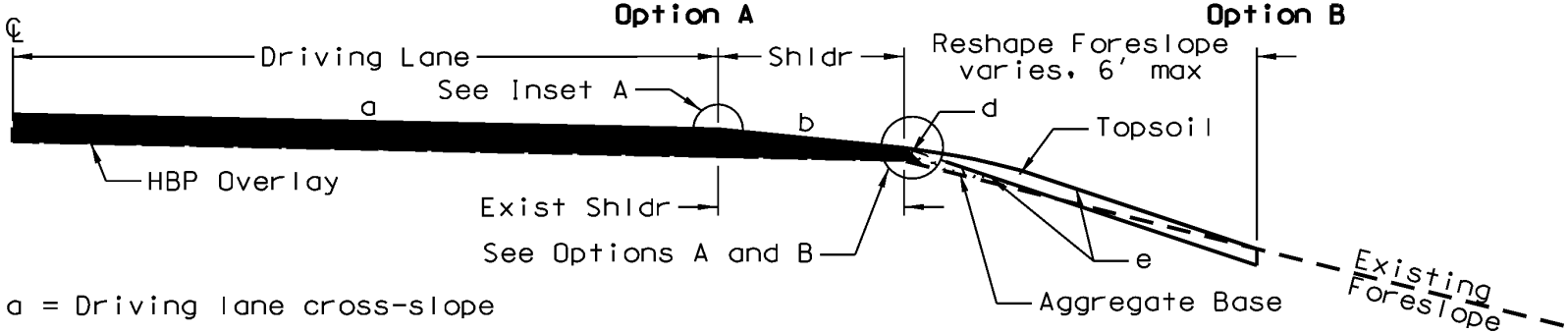


1. a = Driving lane cross-slope
2. b = PM, Mir, SI: Non-Interstate: 8% max, with 6% max rollover
   Mar: 6% max, with 5% max rollover

SHOULDER TREATMENT
METHOD 2b
SI, MaR
Aggregate Shoulders
Non-Interstate

12/15/09

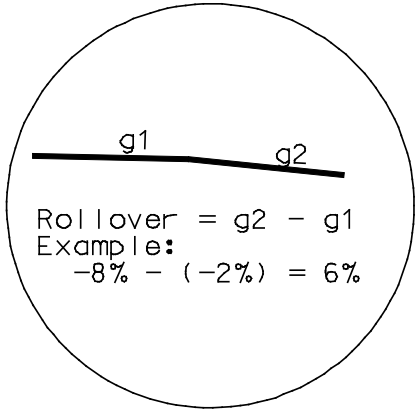




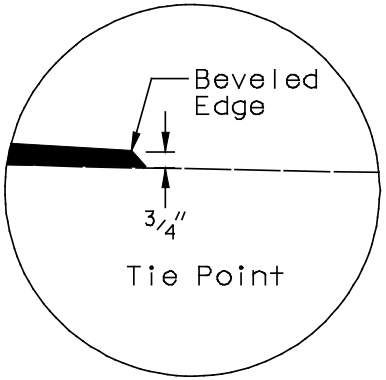
1. a = Driving lane cross-slope
2. b = Non-Interstate: 8% max, with 6% max rollover
   Interstate: 6% max, with 5% max rollover
3. If final shoulder < 2',
   then use driving lane cross-slope
4. d = 30°
5. e = Non-Interstate: 4:1 max
   Interstate: 4:1 max

SHOULDER TREATMENT
METHOD 3
PM, MiR, SI
Non-Interstate & Interstate
Original Overlay
Existing shoulder is flush

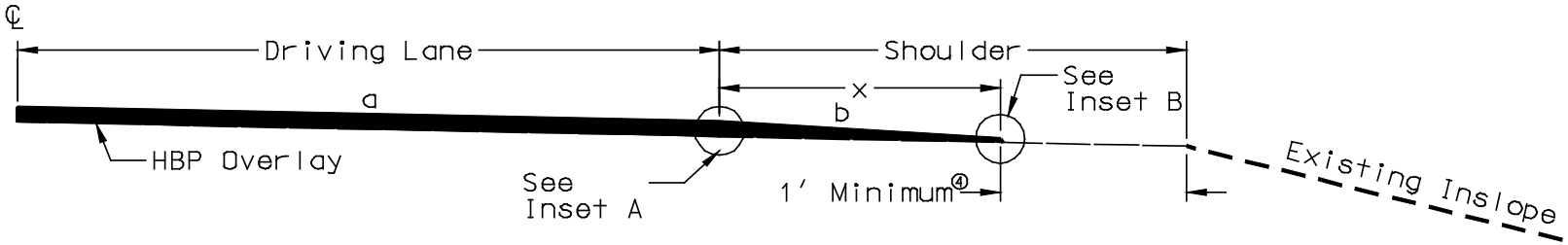
3/9/07



Inset A



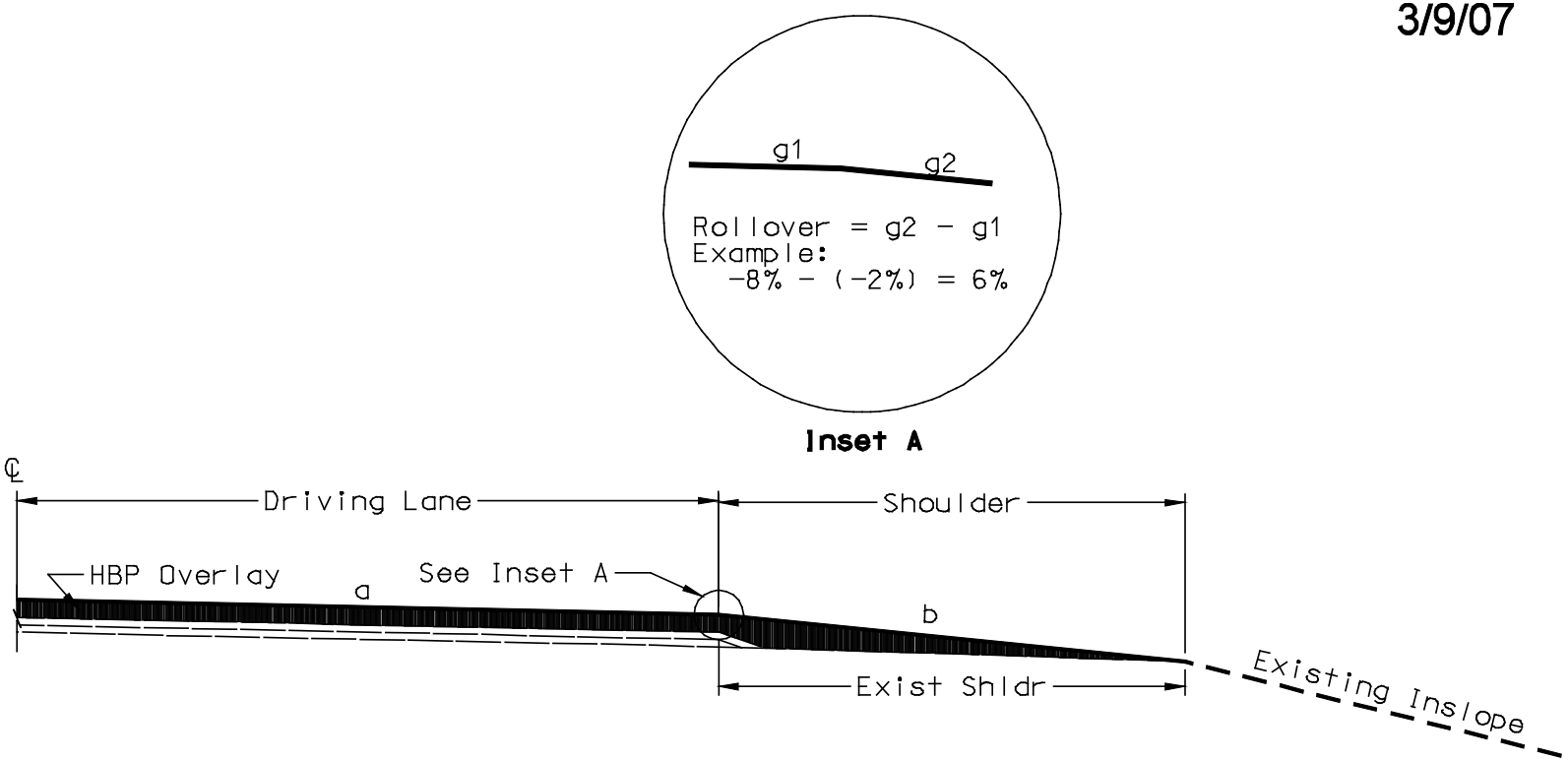
Inset B



1. a = Driving lane cross-slope
2. b = Proposed shoulder cross-slope
3. $x = x(ft) = \frac{\text{overlay thickness (ft)} - (3/4'' \times 1'/12'')}{\text{"b" ('/') - slope of existing shoulder ('/')}}$
4. If the distance from the edge of the overlay to the pavement is less than 1' then consider a different Shoulder Treatment.

SHOULDER TREATMENT
METHOD 4
PM, MiR
Non-Interstate & Interstate

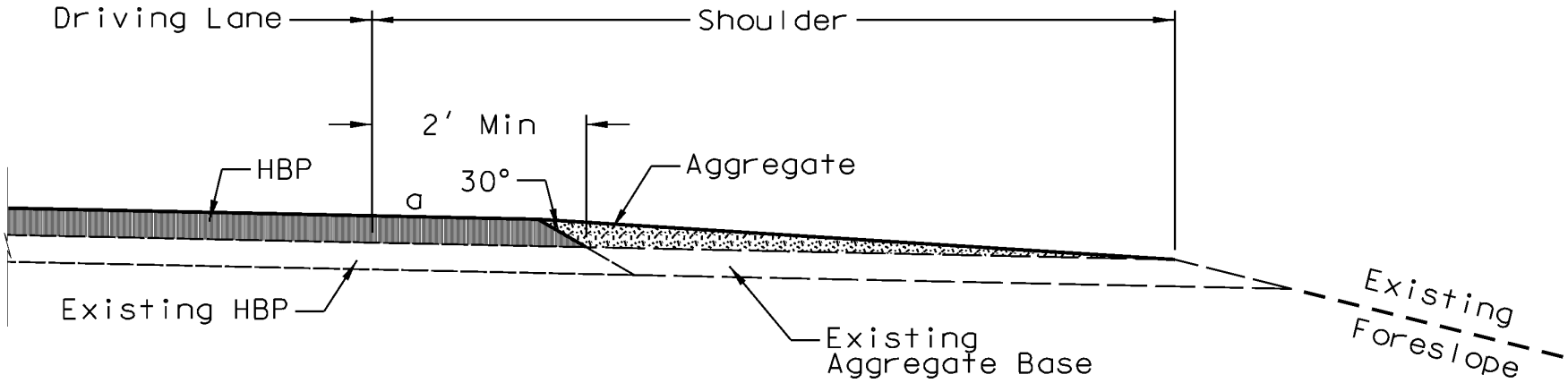
3/9/07



1. a = Driving lane cross-slope
2. b = PM, MiR, SI: 8% max, with 6% max rollover
   MaR: 6% max. with 5% max rollover

SHOULDER TREATMENT
METHOD 6a
PM, MiR, SI, MaR
Non-Interstate

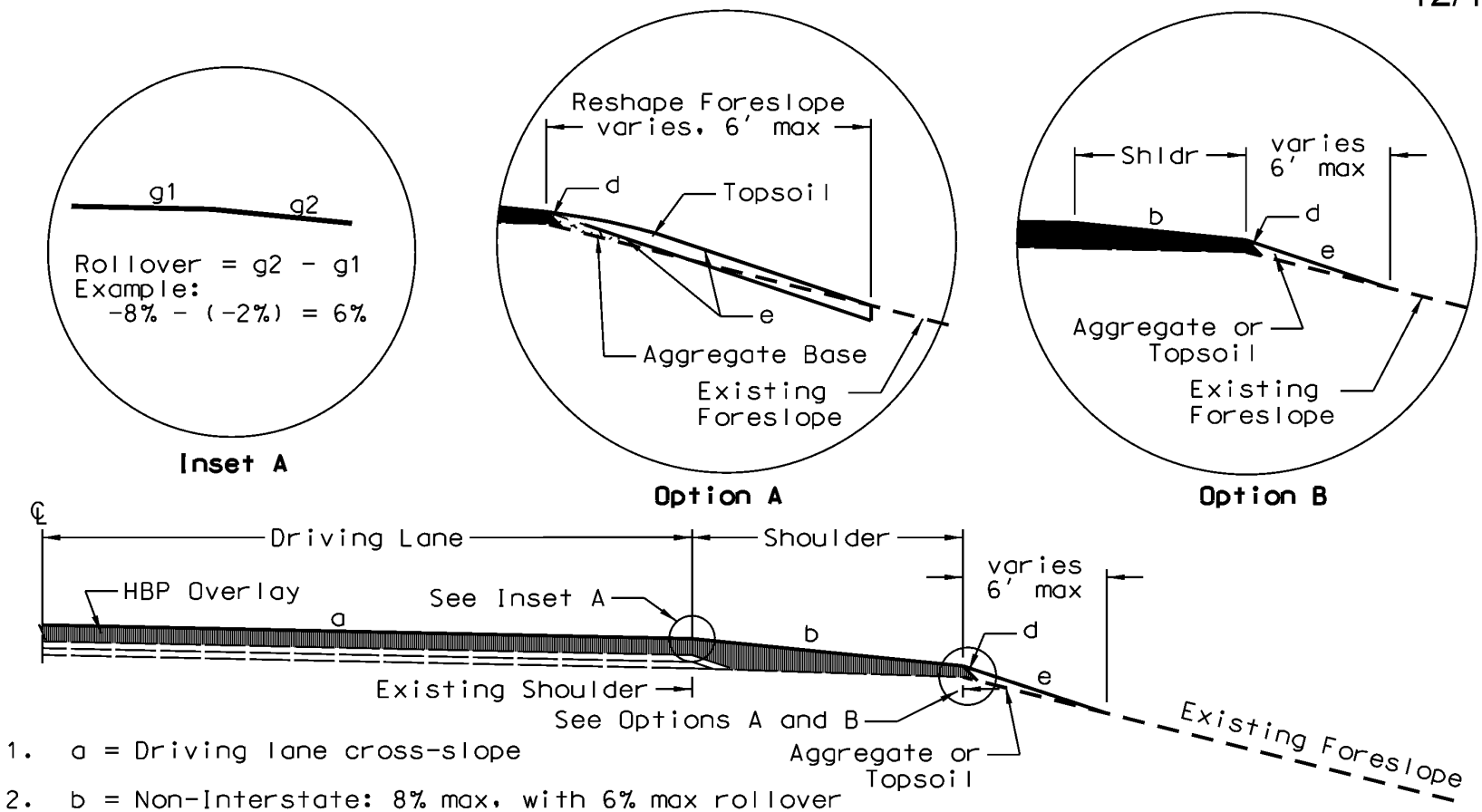
12/15/09



1. a = Driving lane cross-slope

SHOULDER TREATMENT
METHOD 6b
PM, MiR, SI, MaR
Aggregate Shoulders
Non-Interstate

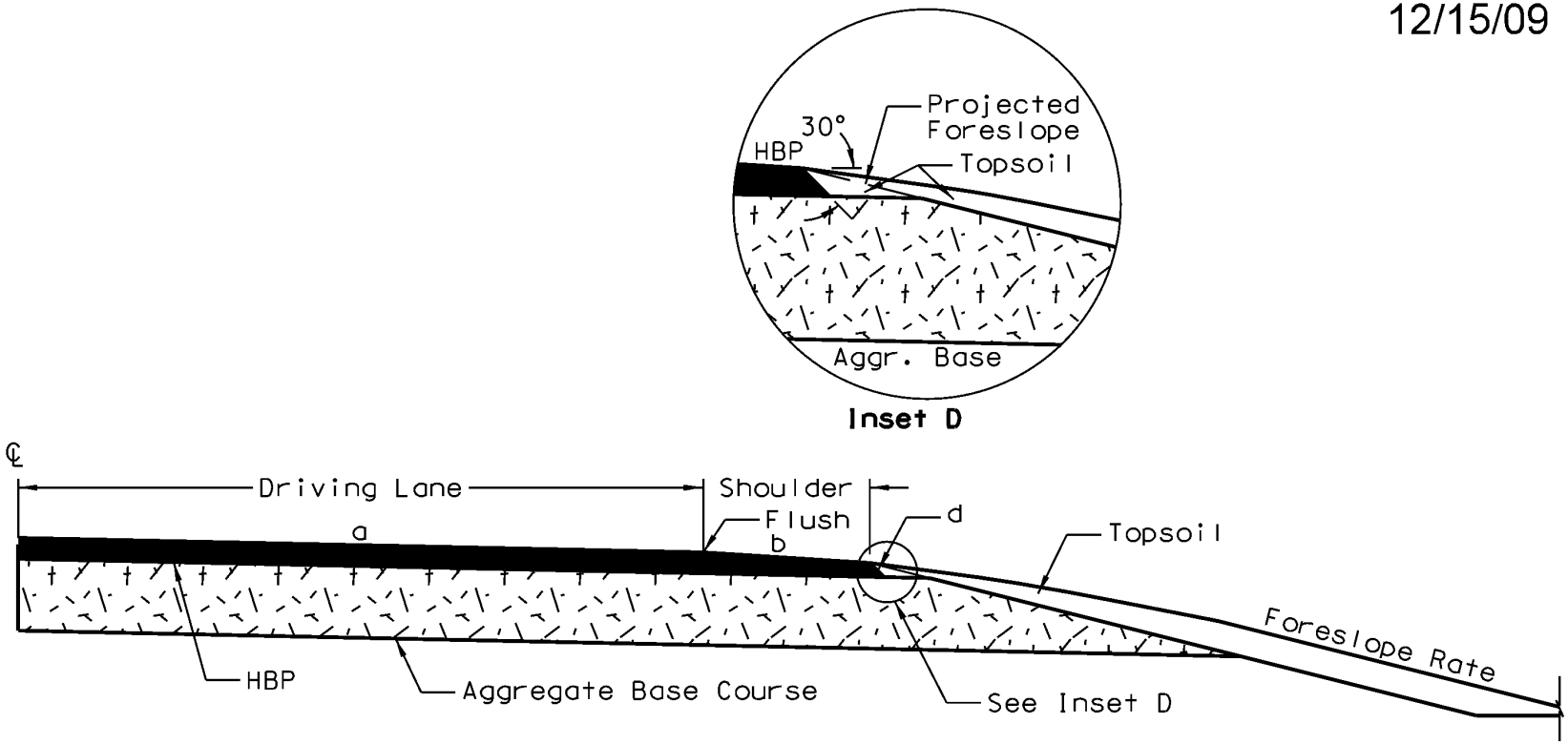
12/15/09



1. a = Driving lane cross-slope
2. b = Non-Interstate: 8% max, with 6% max rollover
   Interstate: 6% max, with 5% max rollover
3. If final shoulder < 2',
   then use driving lane cross-slope
4. d = 30°
5. e = Non-Interstate: 4:1 max
   Interstate: 4:1 max

SHOULDER TREATMENT
METHOD 7
PM, MiR, SI
Non-Interstate & Interstate
Multiple Overlays
Existing shoulder not flush

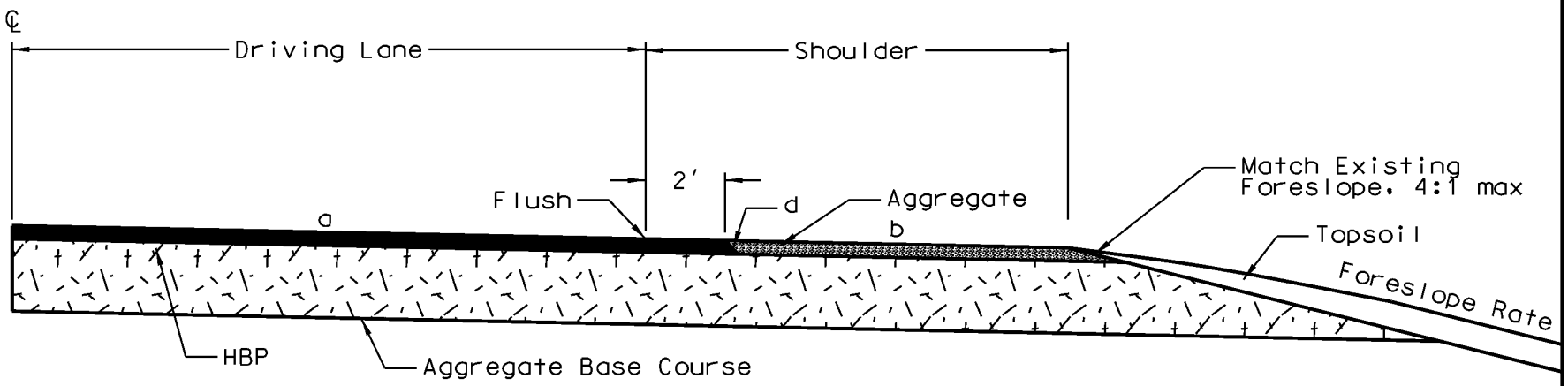
12/15/09



1. a = 1.5% to 2.5% Driving lane cross-slope
2. b = Recommend 3%, 6% max, with 5% max rollover
3. d = 30°

SHOULDER TREATMENT
METHOD 8a
NR
Non-Interstate

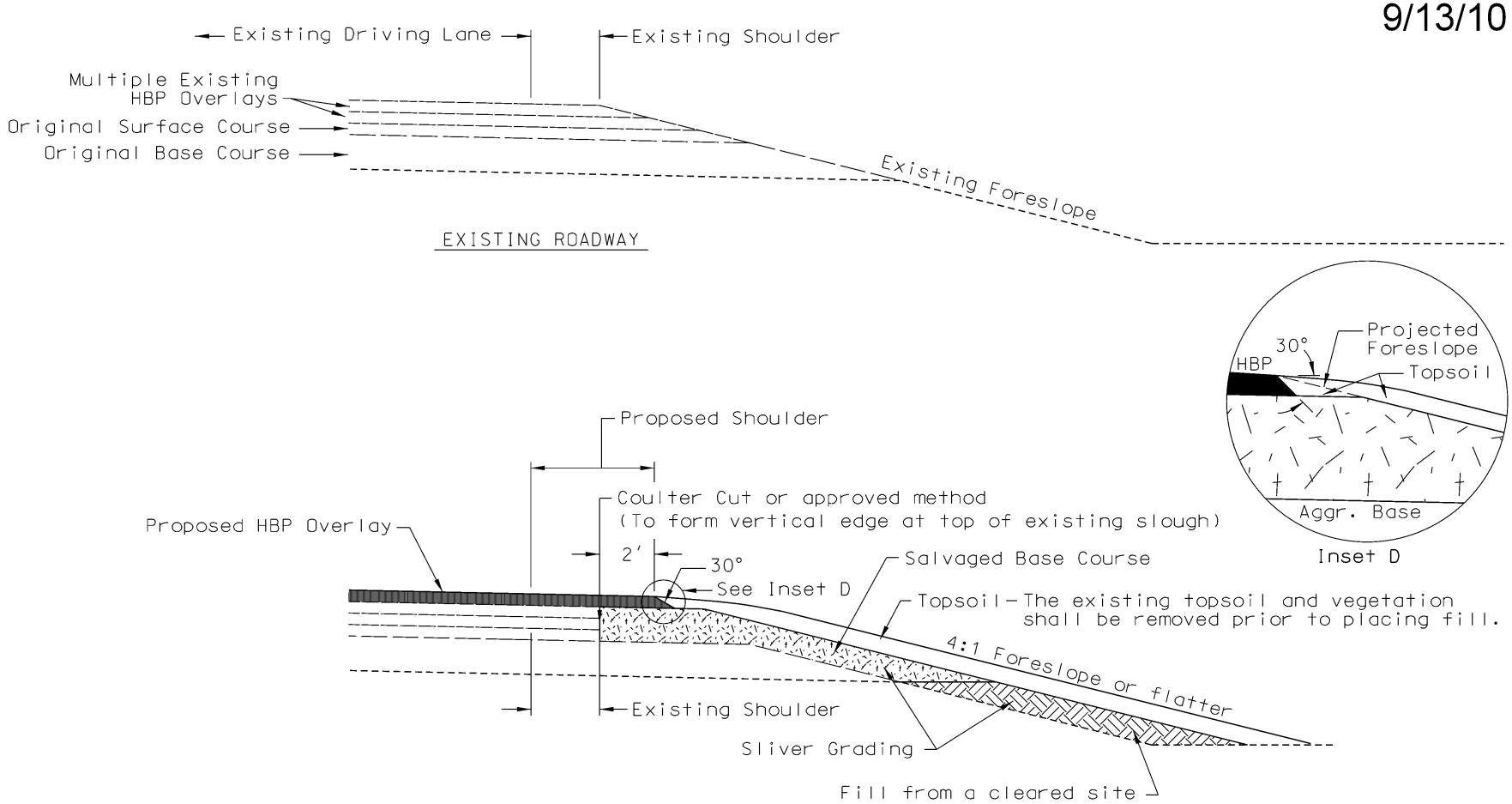
12/15/09



1. a = 1.5% to 2.5% Driving lane cross-slope
2. b = 4%-6%
3. d = 30°

SHOULDER TREATMENT
METHOD 8b
NR
Non-Interstate
Aggregate Shoulders

9/13/10



Sliver Grading is defined as minor grading to correct foreslope, or re-establish the original traveled-way-plus-shoulders width.

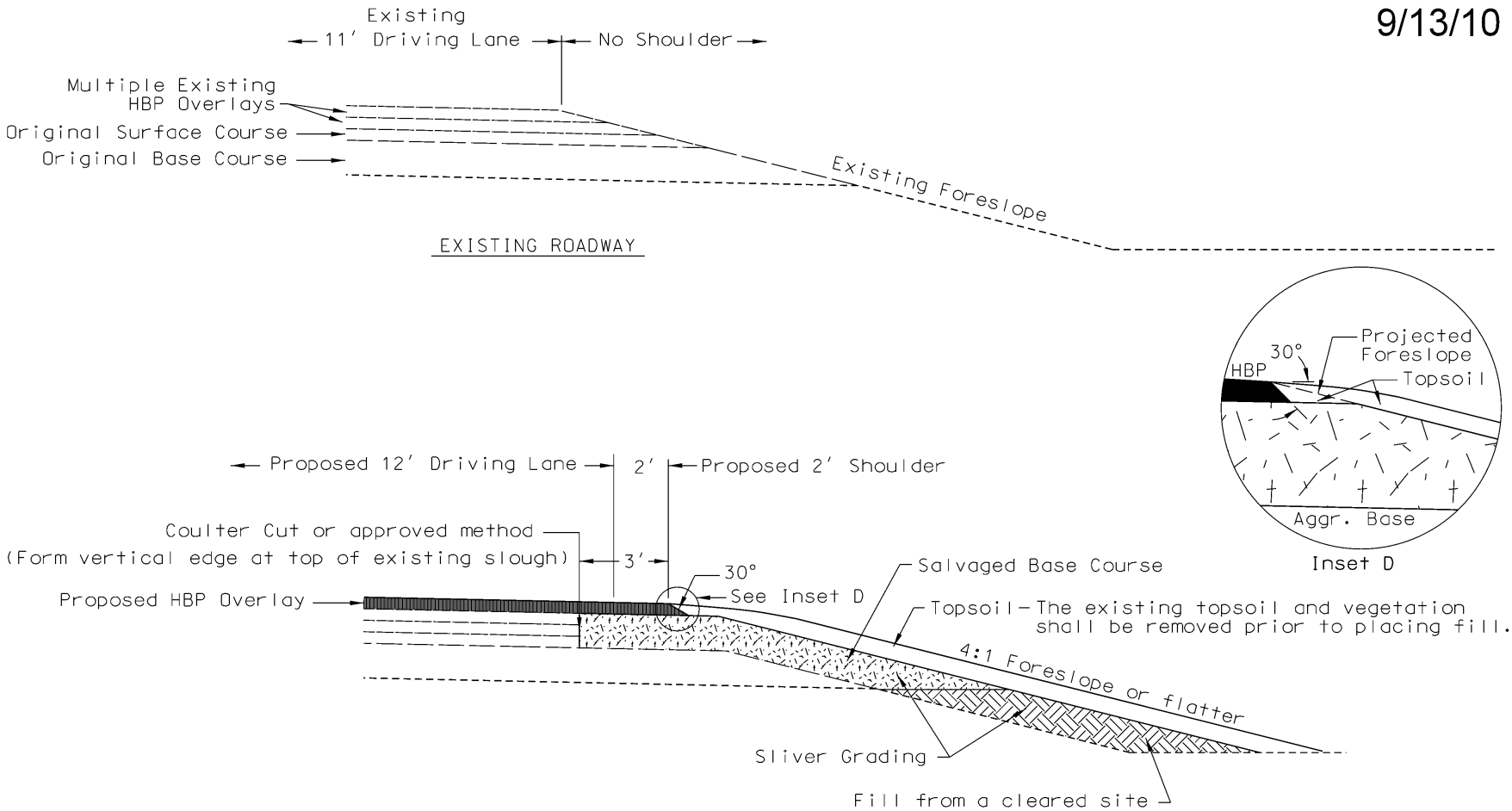
Sliver Grading may include up to 2' of widening on each side of the roadway, even if the total resulting width exceeds the original roadway width.

Sliver Grading is required to provide 4:1 foreslopes or flatter within the clear zone, and the installation of rumble strips.

SLIVER GRADING
METHOD 9a

MiR
Non-Interstate & Interstate

9/13/10



Sliver Grading is defined as minor grading to correct foreslope, or re-establish the original traveled-way-plus-shoulders width.

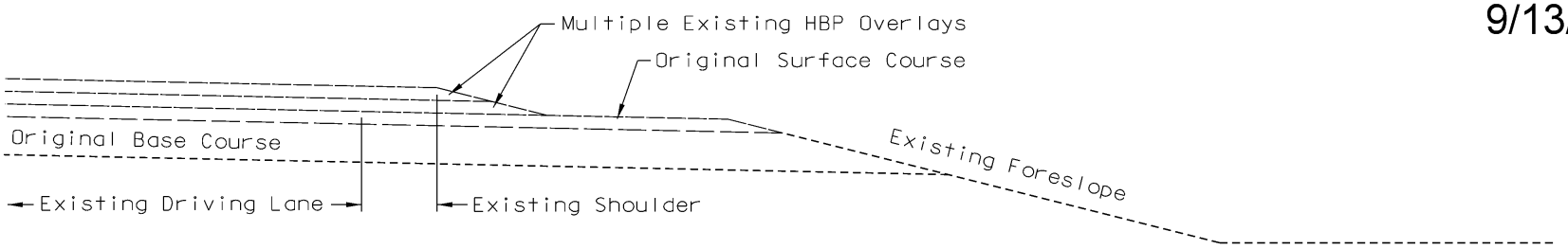
Sliver Grading may include widening to provide 12′ driving lanes with 2′ shoulders on each side of narrow roadways, even if the total resulting width exceeds the original roadway width.

Sliver Grading is required to provide 4:1 foreslopes or flatter within the clear zone, and the installation of rumble strips.

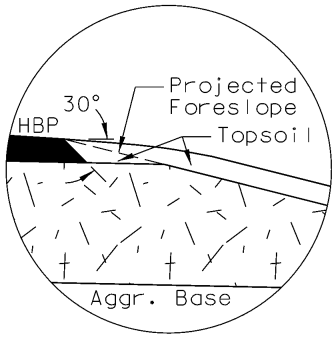
SLIVER GRADING
METHOD 9b

MiR
Non-Interstate & Interstate

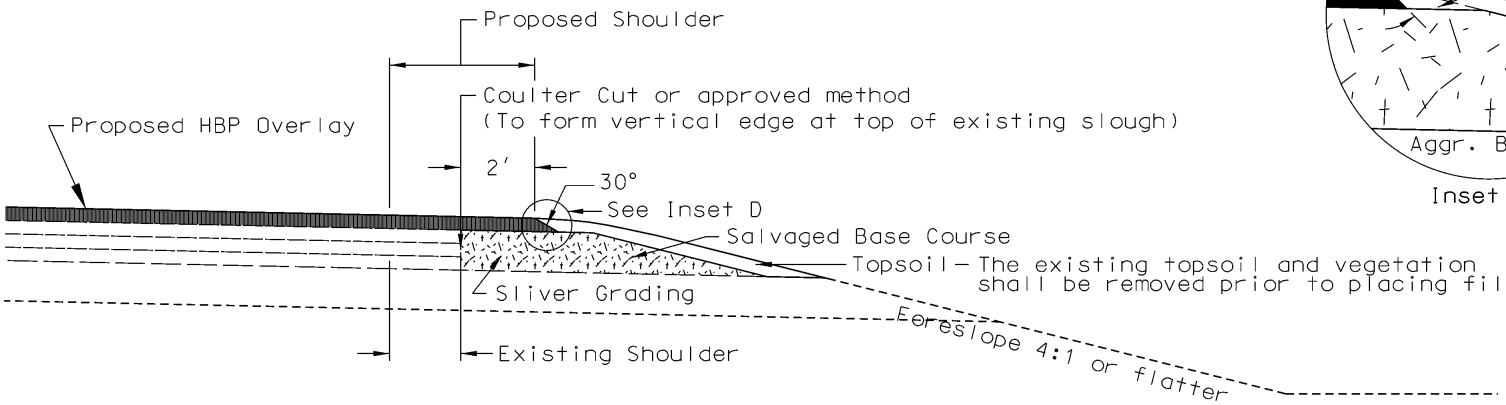
9/13/10



EXISTING ROADWAY



Inset D



SLIVER GRADING

Sliver Grading is defined as minor grading to correct foreslope, or re-establish the original traveled-way-plus-shoulders width.

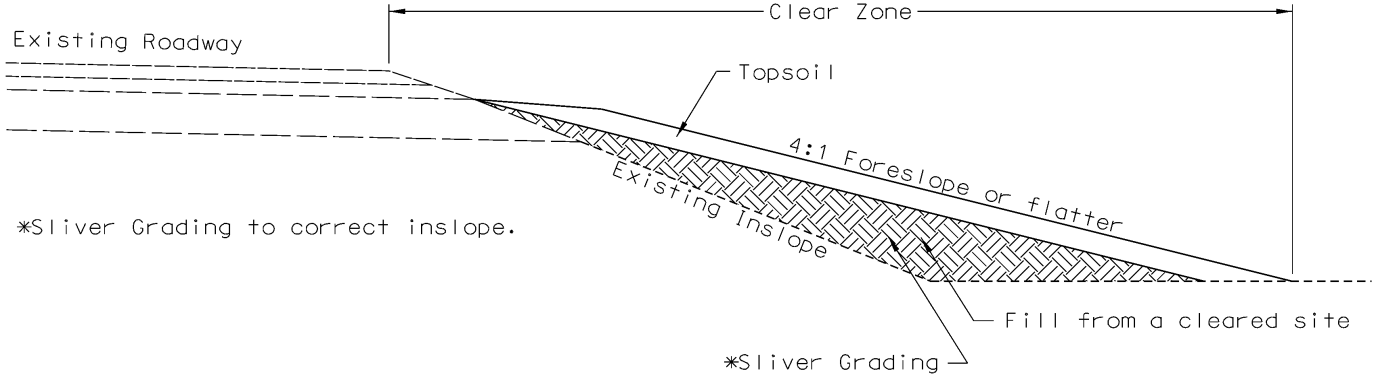
Sliver Grading may include up to 2' of widening on each side of the roadway, even if the total resulting width exceeds the original roadway width.

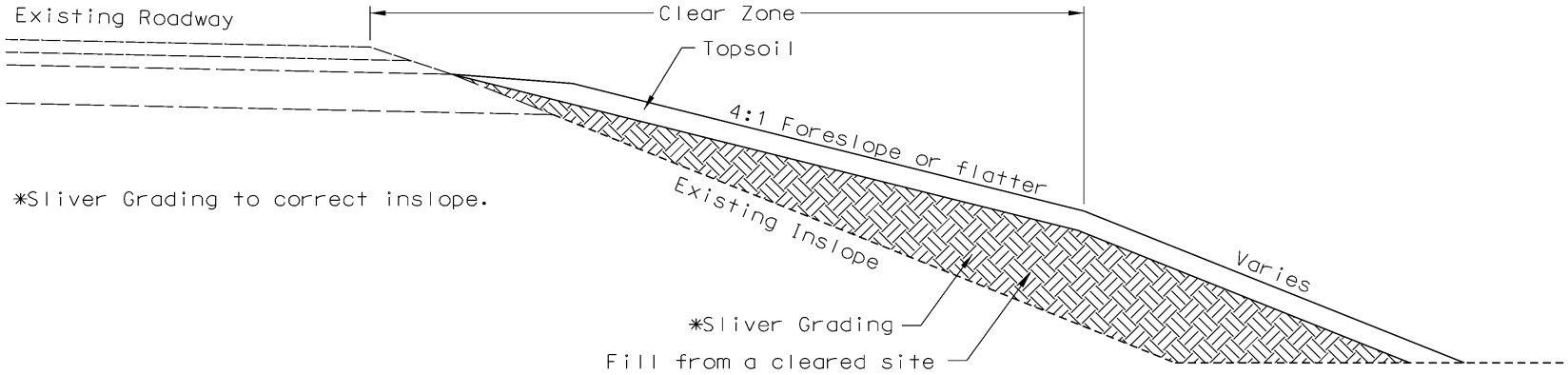
Sliver Grading is required to provide 4:1 foreslopes or flatter within the clear zone, and the installation of rumble strips.

SLIVER GRADING
METHOD 9c

MiR
Non-Interstate & Interstate

9/13/10





SLIVER GRADING

Sliver Grading is required to provide 4:1 foreslopes or flatter within the clear zone, and the installation of rumble strips.

SLIVER GRADING
METHOD 9d

MiR
Non-Interstate & Interstate

I-06.04 Design Exceptions

Designers contemplating the need for the use of design values, on a specific project, which are not in compliance with the accepted *DESIGN GUIDELINES* listed earlier in this chapter, must document and obtain approval of a formal design exception.

The Design Exception will be a standalone document, and will not be included within the environmental document. However, Design Exceptions will typically be submitted to the DDE for approval at the same time as the environmental document. Design Exceptions will only be submitted to FHWA for approval if required by a PODI plan.

Design exceptions are not required on Interstate projects utilizing a Major Rehabilitation strategy or less for horizontal or vertical alignments, widths of median, traveled way, and shoulders provided these features met standards when they were built and are not reduced by the project. The remaining design criteria, including traffic barriers, must meet current standards or undergo the design exception process. Where the type of work is reconstruction, current standards are to be applied throughout the project including bridges to remain in place.

Design Exceptions shall be written and presented in the format shown in the Design Exception Form found on the web at http://www.dot.nd.gov/manuals/design/designmanual/designmanual.htm under Design Manual Reference and Forms in the "Design Exception Form" table.

A Design Exception must be written for each design element that does not meet standards. Multiple design elements cannot be combined in a single Design Exception.

Supplemental items to consider when evaluating a design exception:

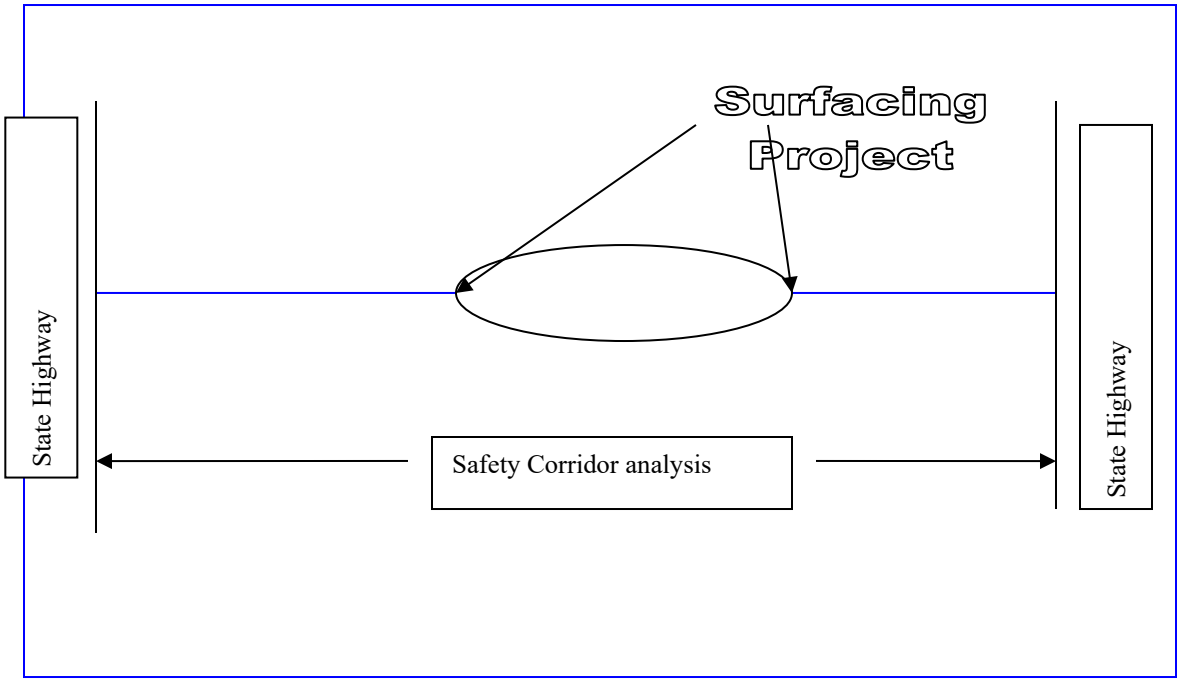
- Crash history to determine any history of operational problems.
- Functional classification of the roadway.
- Effect of the variance from the design standard on safety and operations.
- The degree of the variance from the standard.
- Compatibility with adjacent sections of roadway.
- Should not degrade the relative safety of the roadway.
- Amount and character of the traffic.
- Posted and actual speed on the route.
- Type of project contemplated.
- Cost of attaining full standards (including environmental impacts).
- Cost-effective means of mitigating the reduction in standard.
- Program of future projects, in particular, whether future improvements may more be economically correct the design feature at a later date.
- Engineering discretion

I-06.05 Statewide Safety Program

STATEWIDE SAFETY PROGRAM

ANALYSIS STRATEGIES

The Statewide Safety program will consist of four different types of analysis. Safety projects will be based on corridor improvements. A corridor is defined as the intersection of State Highway to State Highway as shown in the figure below.



1. Critical Rate Analysis

The NDDOT will review the entire state highway system on a yearly basis in an effort to identify the sections of roadway corridor that exhibit the highest crash rates. Those corridors of highways that exhibit a crash rate higher than the critical rate for their particular Highway Performance Classification System (HPCS) will be reviewed in greater detail to determine if there are cost effective measures that can be made or if engineering judgment determines that improvements should be made.

The Concept of “Critical Crash Rate” suggests that any sample or category of intersections or roadway corridors can be divided into three basic parts:

- Locations with a crash rate below the average will be eliminated from further review.
- Locations with a crash rate above the average, but below the critical rate are locations where there is a very high probability (90-95%) that the higher than average crash rate is due to the random nature of crashes.

- Locations with a crash rate above the critical rate will be reviewed because there is a high probability (90-95%) that conditions at the site are contributing to the higher crash rate

Critical crash rate is calculated: $R_c = R_a + K(R_a/m)^{1/2} – 0.5/m$
(Critical crash rate is based on MnDOT Methodologies)

R_c = Critical Crash Rate for:
Intersections: crashes per MEV
Corridors: crashes per MVM

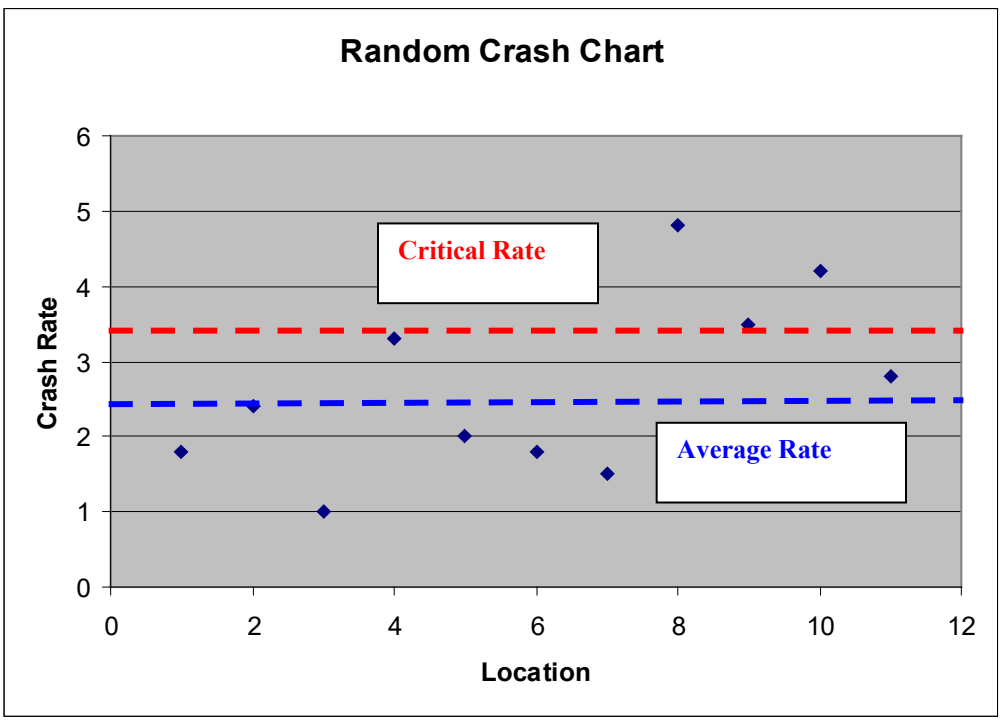
R_a = HPCS Average Crash Rate by intersection or HPCS type.

M = Vehicle Exposure During Study Period for:
Intersections: ADT ($365/10^6$)
Corridors: ADT ($365/10^6$) length

K = Constant based on Level of Confidence

Level of Confidence	0.995	0.950	0.900
K	2.576	1.645	1.282

Sample Graph



2. High Crash Analysis

The High Crash Analysis will be done on a yearly basis for the entire state highway system. Those intersections or sections of roadway that are identified in this report will be reviewed in greater detail to determine if there are cost effective measures that can be made or if engineering judgment determines that improvements should be made.

3. Project level Analysis

On Structural Improvement, major rehabilitation and new construction projects, each project will be reviewed to determine if there are cost effective measures that can be made or if engineering judgment determines that improvements should be made.

4. Strategic Highway Safety Plan (SHSP)

On Structural Improvement, major rehabilitation and new construction projects, each project will be reviewed to determine if there are cost effective measures that can be made that are related to the emphasis areas identified in the SHSP.

COUNTER MEASURES

Appendix A provides examples of how identified “Areas of Concerns” and “Alternative Safety Measures” can be developed. The Alternative Safety Measures would be those measures that would be evaluated for cost effective improvements.

IMPLEMENTATION MEASURES

Cost effective measures will be implemented one of two ways.

1. If the improvement is an improvement that should be made throughout the corridor, a safety project will be scheduled and included in the STIP. The goal would be to make the necessary improvements within three years of the highway improvement project or when safety funds are available.

2. If the improvement is specific to a feature that is contained within the limits of the project. The cost effective measure will be included with that project.

   Example: If the superelevation on a curve is identified as a hazard, a cost effective measure as identified in Appendix A will be used to correct the hazard during construction of the project.

COUNTER MEASURES

Crash Type	Possible Cause	Possible Study	Possible Safety Enhancement
Run-Off-Road	Slippery pavement/ ponded water	Check skid resistance Check for adequate drainage Perform spot speed study	Reduce speed limit if justified by spot speed study Provide “SLIPPERY WHEN WET” signs Provide adequate drainage Groove existing pavement Overlay existing pavement
	Roadway design inadequate for traffic conditions	Check roadside shoulders and road maintenance Check superelevations Perform ball-bank study	Install/improve traffic barriers Close curb lane Flatten slopes/ditches Relocate islands Improve alignment/grade Provide proper superelevations Provide escape ramp Widen lanes/shoulders
	Poor delineation	Review pavement markings Review signs and placement	Install roadside delineators Install advance warning signs Improve/install pavement markings
	Poor visibility	Check roadway illumination	Increase sign size Improve roadway lighting
	Improper channelization	Review channelization	Improve channelization
Collision at driveways	Left-turning vehicles	Perform turning counts	Install median divider Install two-way left-turn lanes
	Improperly located driveway	Review driveway placement	Regulate minimum spacing of driveways Regulate minimum corner clearance Move driveway to side street Install curbing to define driveway location Consolidate adjacent driveways
	Right-turning vehicles	Perform turning counts Review Parking Check driveway and lane width Check curb radii	Restrict parking near driveways Increase the width of the driveway Increase curb radii Provide right-turn lanes Widen through lanes
	Large volume of through	Perform volume count	Move driveway to side street

Crash Type	Possible Cause	Possible Study	Possible Safety Enhancement
	traffic	for thru traffic	Construct a local service road Reroute through traffic
	Large volume of driveway traffic	Perform volume count for driveway traffic Perform gap study	Signalize driveway Provide acceleration and deceleration lanes Channelize driveway
	Restricted sight distance	Field observation for sight obstructions Review parking Check roadway illumination Perform spot speed study	Restrict parking near driveways Reduce speed limit if justified by spot speed study Install/improve street lighting Remove sight obstruction
Sideswipe or head-on	Inadequate road design and/or maintenance	Review lane width Check alignment Perform no passing study Check road surface for proper maintenance	Perform necessary road surface repairs Sign and mark unsafe passing areas Provide roadside delineators Improve alignment/grade Provide wider lanes Provide passing lanes
	Inadequate shoulders	Review road shoulders	Improve shoulders
	Excessive vehicle speed	Perform spot speed study	Reduce speed limit if justified by spot speed study Install median devices
	Inadequate pavement markings	Review pavement markings	Install/improve centerlines, lane lines, and edgelines Install reflectorized markers Install centerline rumble strips
	Inadequate channelization	Review channelization	Install/improve channelization Install acceleration and deceleration lanes Provide turning bays
	Inadequate signing	Review signing and placement	Provide advance direction and warning signs Add illuminated name signs
Pedestrian/ bicycle	Limited sight distance	Check sight distance	Remove sight obstruction Install/improve pedestrian crossing signs and markings Reroute pedestrian paths
	Inadequate protection	Check existing	Add pedestrian refuge islands

Crash Type	Possible Cause	Possible Study	Possible Safety Enhancement
		protection	
	Inadequate signal/signs	Review signal/signs	Install/upgrade signals/signs
	Inadequate signal phasing	Review signal phasing	Change timing of pedestrian phase Add pedestrian “Walk” phase
	Inadequate pavement markings	Review pavement markings	Supplement markings with signing Upgrade pavement markings
	Inadequate lighting	Check roadway illumination	Improve lighting
	Driver has inadequate warning of frequent mid-block crossing	Review existing parking Perform spot speed study	Prohibit parking Install warning signs Reduce speed limit if justified by spot speed study Install pedestrian barriers
	Lack of crossing opportunity	Perform gap study	Install traffic/pedestrian signals Install pedestrian crosswalk and signs
	Excessive vehicle speed	Perform spot speed study	Reduce speed limits Install proper warning signs
	Pedestrians/bicycles on roadways	Review existence of sidewalks	Eliminate roadside obstructions Install curb ramps with detectable warning panels Install sidewalks Install bike lanes/paths
	Long distance to nearest crosswalk	Check distance and travel time to nearest crosswalk	Install pedestrian crosswalk Install pedestrian actuated signals
	Sidewalk too close to traveled way	Review existing sidewalks	Move sidewalk laterally away from roadway
	School crossing area	Check pedestrian crossing time and available gaps Check school’s safe route to and from school program Check school’s student awareness program	Establish save route and awareness program Use school crossing guards Install crosswalks and traffic signal

Crash Type	Possible Cause	Possible Study	Possible Safety Enhancement
Bridges	Alignment	Check alignment	Install advance warning sings Improve delineation/markings Realign bridge/roadway
	Narrow roadway	Review lane width Review signing	Improve delineation/markings Install signing/signals Widen structure
	Visibility	Field observation for site obstruction	Improve delineation/markings Install advance warning sings Remove obstruction
	Vertical clearance	Check clearance	Improve delineation/markings Install advance warning sings Provide height restrictor/warning device Rebuild structure/adjust roadway grade
	Slippery surface (wet/icy)	Check skid resistance Check for adequate drainage	Provide special signing Provide adequate drainage Improve skid resistance Resurface deck
	Rough surface		Rehabilitate joints Resurface deck Regrade approaches
	Inadequate barrier system	Field observation and checks against established barrier standards	Improve delineation/markings Remove hazardous curb Upgrade bridge rail Upgrade bridge approach rail connections Upgrade approach rail/terminals
Collisions at railroad crossings	Restricted sight distance	Review sight distance	Install advance warning signs Remove sight obstructions Install train actuated signals Install gates Reduce grades
	Poor visibility	Check roadway illumination Review signing	Increase size of signs Improve roadway lighting
	Inadequate pavement	Review pavement	Install advance markings to supplement signs

Crash Type	Possible Cause	Possible Study	Possible Safety Enhancement
	marking	markings	Install stop bars Install/improve pavement markings
	Rough crossing surface	Check crossing surface	Improve crossing surface
	Sharp crossing angle	Check crossing angle	Rebuild crossing with proper angle
	Improper pre-emption timing of traffic signals, railroad signals, or gates	Review traffic signal timing Review railroad signal and gate timing	Retime traffic signals Retime railroad signals and gates
Nighttime	Poor visibility or lighting	Check roadway illumination	Install/improve warning sings Install/improve delineation/markings Install/improve street lighting
	Poor sign quality	Review signing	Upgrade signing Provide illuminated reflectorized signs
	Inadequate channelization of delineation	Review channelization/delination	Install pavement markings Improve channelization/delination
Wet pavement	Slippery pavement	Check skid resistance Check for adequate drainage Perform spot speed study	Provide “SLIPPERY WHEN WET” signs Reduce speed limit if justified by spot speed study Provide adequate drainage Groove existing pavement Overlay existing pavement
	Inadequate pavement marking	Review pavement markings	Install raised/reflectorized pavement markings
Rear-end collisions at unsignalized intersections	Pedestrian crossing	Review pedestrian signing and crosswalk marking	Install/improve signing or marking for pedestrian crosswalks Relocate crosswalk
	Driver not aware of intersection	Review signing	Install/improve warning signs
	Slippery surface	Check skid resistance Check for adequate drainage Perform spot speed study	Provide “SLIPPERY WHEN WET” signs Reduce speed limit if justified by spot speed study Groove existing pavement Overlay existing pavement

Crash Type	Possible Cause	Possible Study	Possible Safety Enhancement
	Large number of turning vehicles	Perform turning counts Perform volume count for thru traffic	Prohibit turns Increase curb radii Create left-of-right-turn lanes
Collisions with parked cars or cars being parked	Inadequate road design	Check lane width Review parking angle	Change from angle to parallel parking Prohibit parking Widen lanes/shoulders
	Large parking turnover	Perform paring turnover study	Prohibit parking Change from angle to parallel parking Create one-way streets Create off-street parking
	Improper pavement markings	Review pavement markings	Correct pavement markings
	Illegal parking	Law observance study	Enforcement
Overturn	Roadside features	Determine sideslope Investigate recovery zone	Provide traversable culvert end treatments Extend culverts Install/improve traffic barriers Flatten slopes and ditches Relocate drainage facilities
	Inadequate shoulder	Determine shoulder dimensions and composition Check for shoulder drop offs	Upgrade shoulder surface Remove curbing obstruction Widen lane/shoulder
	Pavement feature	Check for potholes Check for water ponding	Eliminate edge drop off Improve superelevation/crown
Fixed object	Obstruction in or too close to roadway	Field observation to locate obstruction	Delineation/reflectorize safety hardware Remove/relocate obstacles Install breakaway features to light poles, signposts, etc. Protect objects with guardrail Install crash cushions
	Inadequate lighting	Check illumination	Improve roadway lighting
	Inadequate pavement	Review pavement	Install reflectorized pavement lines/raised markers

Crash Type	Possible Cause	Possible Study	Possible Safety Enhancement
	marking	markings	
	Inadequate signs, delineators and guardrail	Review signs, delineators and guardrails	Install reflectorized paint, and/or reflectors on the fixed object Add special signing Upgrade barrier system
	Inadequate road design	Check roadside shoulders and maintenance Check superelevation Perform ball-bank study	Install Warning signs/delineators Improve alignment/grade Provide proper superelevation Provide wider lanes
	Slippery surface	Check skid resistance Check for adequate drainage	Reduce speed limit if justified by spot speed study Provide adequate drainage
Right-angle collisions at unsignalized intersections	Restricted sight distance	Filed observations for sight obstructions Check roadway illumination Perform spot speed study	Install warning signs Install stop signs Install yield signs Restrict parking near corners Reduce speed limit if justified by spot speed study Remove sign obstructions Install signals Install/improve street lighting Channelize intersection
	Large total intersection volume	Volume count on all approaches	Install signals
	High approach speed	Perform spot speed study	Reduce speed limit if justified by spot speed study Install rumble strips
Right-angle collisions at signalized intersections	Poor visibility of signals	Review existing signals and placement Field observation for sight obstructions Perform spot speed study	Install advanced warning devices Install visors Install back plats Reduce speed limit if justified by spot speed study Remove sight obstructions Add additional signal heads Install 12-inch signal lenses Improve location of signal heads

Crash Type	Possible Cause	Possible Study	Possible Safety Enhancement
			Install overhead signals
	Inadequate signal timing	Volume count on all approaches Review signal timing	Adjust amber phase Provide all-red clearance phases Add multi-dial controller Install signal actuation Retime signals Provide progression through a set of signalized intersections

I-07.01 Plan Reviews

All major highway construction projects will normally undergo three plan reviews from the outset of the preliminary design stage to completion of the final plans. These reviews are:

-Preliminary Plan Review
-Plans, Specifications, and Estimates (PS&E) Plan Review
-Final Office Review

Preliminary Plan and PS&E Reviews may be conducted either formally or informally:

- Informal reviews consist of interested parties submitting comments via email and no formal meeting is held.

- Formal reviews have a meeting time and place set aside for discussion and comments can be made either electronically beforehand or at the meeting itself. There are two methods of conducting a formal plan reviews:

    1. The first and preferred way is to set up VNNDOT (video conferencing network) meeting between the Central Office and the applicable District.

    2. The second option is to conduct an onsite review either near the project location, at the applicable District, or at the Central Office. This alternative should only be used for complex projects or projects in which site visits may be necessary. The designer should coordinate appropriate transportation to allow for proper input from the various members of the review team.

All projects, except for Preventive Maintenance Projects, should have a minimum of one plan review prior to the Final Office Review. This review typically would be a PS&E review.

For Preventive Maintenance and smaller scale projects, the requirements for plan reviews should be made on a case-by-case basis.

I-07.02 Preliminary Plan Review

This review should be conducted at a time when the plans have progressed sufficiently, 25% to 50% complete, to allow for proper review of the following design features by the designer and the accompanying members of the review team. The intent of the Preliminary Plan Review is to insure all major changes are made at this stage.

- Horizontal and Vertical Alignments: The preliminary alignments should be established and a preliminary earthwork summary is available to allow the evaluation of the geometry, drainage, borrow requirements, etc. The earthwork summary should indicate end areas, volumes, and limits or tie points of the cut and fill slopes.

- Borrow: Special emphasis should be given to evaluating borrow requirements, identifying possible locations for sources of borrow, and optimizing utilization of material from the existing highway right of way.

- Access: The existing and future access needs should be evaluated. Access points should be established to the fullest extent possible, subject to concurrence by the Design Engineer and by the landowner, when contacted by a representative from the ETS Division - Right of Way Services.

- Right of Way: The existing right of way and need for new right of way, permanent sight easements, permanent drainage easements, temporary construction easements, etc. should be evaluated.

- Utilities: An effort should be made to identify and locate those utilities within the project area prior to conducting this review. The type and location of the utilities should be evaluated and recommendations for the necessary adjustments determined. The designer should note any utilities not identified on the survey. If utilities are found in the field, the designer should coordinate additional surveying to update plans as necessary.

- Safety Improvements: The safety review should be evaluated to determine or verify any special conditions that may need to be addressed in the final design.

- Drainage Improvements: The drainage features should be evaluated to determine or verify any special conditions that may need to be addressed in the final design.

- The Bridge Division or lead structural designer will normally conduct a Type, Size, and Location (TS&L) inspection for the proposed structures located within the project limits. The TS&L review is discussed in Section V-02.06 of this manual.

- Constructability Issues: The design should be evaluated for any constructability issues or special conditions that may need to be addressed in the design, construction phasing, schedule, etc.

Coordination

A Preliminary Plan Review Checklist is provided in Section III-02.

The Designer or Technical Support Contact assigned to the project will be responsible for all coordination required in scheduling, transportation, and notification of participants.

Review participants should be identified from the Plan Review Distribution List located at: http://www.dot.nd.gov/manuals/design/designmanual/designmanual.htm

The plans should be made available to all review participants a minimum of 7 calendar days prior to the date of the review. The plans shall be placed on the public ftp site following the procedure below:

1. Create a black and white .pdf file of the plans.
2. Launch Internet Explorer, or Windows Explorer, and type "ftp://ftp.state.nd.us/public/PPR" in the address bar and press Enter.
3. The "Log On As" dialog box will appear after you press Enter. If the dialog box doesn't open, try typing in the ftp address again.
4. Contact the CADD Support Specialist or NDDOT Technical Support Contact for questions or password needed for the ftp site.
5. Create a new folder using the project number as the folder name, and place the .pdf file inside.
6. Email a link to the plans to the reviewers identified in the Plan Review Distribution List.

For consultant designed projects, the plans shall be placed on their assigned consultant ftp site, and the NDDOT Technical Support Contact will follow the procedure above.

The Designer will be responsible to record all comments, questions, and/or items requiring further study or resolution by preparing a Preliminary Plan Review comments memorandum. The Preliminary Plan Review comments memo will be placed in FileNet, and the FileNet link will be sent to everyone invited to the review as shown on the Plan Review Distribution List. All comments shall be responded to, and resolved to the fullest extent possible within the memo. Any issues not resolved between any division and/or district, or any issues that are considered a change in scope of work, or increased cost compared to the approved environmental document will be referred to the Director - Office of Project Development and Deputy Director for Engineering.

I-07.03 Plans, Specifications, and Estimates (PS&E) Plan Review

This review should be conducted when the plans are 90% to 100% complete. This normally occurs approximately one month prior to the scheduled plan completion date, but can take place earlier if the plans are sufficiently complete. This review should provide for proper review of the design features and plan sheets by the designer and the accompanying members of the review team, and allow sufficient time for the Designer to make the necessary plan revisions.

All projects should have a PS&E Plan Review. Generally, all grading, urban, and non-preventive maintenance projects will have formal review. Preventive maintenance projects would normally have an informal review. If there is any doubt as to the need for a formal or informal review, the Designer should contact the District Engineer for their recommendation.

A follow-up review will be conducted if more than one year has passed due to changes in the bid opening schedule.

This review is very important and should include all the major components of the plan sheets and project proposal as follows:

- Title Sheet
- Note Sheets
- Quantity Sheets
- Detail Sheets
- Typical Section Sheets
- Plan and Profile Sheets
- Work Zone Traffic Control Sheets
- Signing, Marking, Guardrail, Lighting, and Signal Sheets
- Structural Sheets
- Cross Section Sheets
- Special Provisions
- Cost Estimates
- Recommendations for contract completion date or guaranteed number of working days.

Coordination

A PS&E Plan Review Checklist is provided in Section III-02.

The Designer or Technical Support Contact assigned to the project will be responsible for all coordination required in scheduling, transportation, and notification of participants.

Review participants should be identified from the Plan Review Distribution List located at: http://www.dot.nd.gov/manuals/design/designmanual/designmanual.htm

The plans should be made available to all review participants a minimum of 14 calendar days prior to the date of the review. The plans shall be placed on the public ftp site following the procedure below:

1. Create a black and white .pdf file of the plans.
2. Launch Internet Explorer, or Windows Explorer, and type "ftp://ftp.state.nd.us/public/PS&E" in the address bar and press Enter.
3. The "Log On As" dialog box will appear after you press Enter. If the dialog box doesn't open, try typing in the ftp address again.
4. Contact the CADD Support Specialist or NDDOT Technical Support Contact for questions or Password needed for the ftp site.
5. Create a new folder using the project number as the folder name, and place the .pdf file inside.
6. Email a link to the plans to the reviewers identified in Appendix I-10A.

For consultant designed projects, the plans shall be placed on their assigned consultant ftp site, and the NDDOT Technical Support Contact will follow the procedure above.

The Designer will be responsible to record all comments, questions, and/or items requiring further study or resolution by preparing a PS&E comments memorandum. The PS&E comments memo will be placed in filenet, and the filenet link will be sent to everyone invited to the PS&E review as shown on the Plan Review Distribution List. All comments shall be responded to, and resolved to the fullest extent possible within the memo. Any issues not resolved between any division and/or district, or any issues that are considered a change in scope of work, or increased cost compared to the approved environmental document will be referred to the Director - Office of Project Development and Deputy Director for Engineering.

I-07.04 Final Office Plan Review

The Final Office Plan Review should be conducted when the plans are 100% complete. A copy of the plans should be submitted 7 calendar days prior to the Final Office Plan Review date to provide for advance review of the plans. The final original sealed paper hard copy plans shall be brought to the Final Office Plan Review for signature, approval, and processing.

The Final Office Plan Review is conducted by the Design Program Manager and/or Design Engineer for all projects, except for Local Government and Preventive Maintenance projects. The Final Office Plan Review shall be conducted with the Director – Office of Project Development for all strategic projects. Review participants should be identified from the Plan Review Distribution List located at:
http://www.dot.nd.gov/manuals/design/designmanual/designmanual.htm

The Final Office Plan Review will not be conducted for Preventive Maintenance projects.

- The lead Designer and/or their supervisor shall schedule and attend the Final Office Plan Review for Design Division projects.
- The Technical Support Contact and Consultant shall schedule and attend the Final Office Plan Review for Consultant projects.
- The Technical Support Contact shall schedule and attend the Final Office Plan Review for District projects. The District shall attend if possible.

For Local Government projects, the Final Office Plan Review is conducted by the Director – Office of Project Development.

- The Technical Support Contact(s) and Consultant shall schedule and attend the Final Office Plan Review for Local Government projects.

The Final Office Plan Review Checklist shall be completed as much as possible by the designer prior to this meeting, and required to be brought to the Final Office Plan Review meeting for completion. The Final Office Plan Review Checklist is provided in Appendix III-01 C, or found on the Reference and Forms page of the Design Manual.

Special emphasis will be given, but not limited to, the following considerations:
- Review of PS&E Comments
- Plan Development Checklist
- Review of Project Concept Report
- Conformance to NDDOT Specifications and Standards
- Quality of Construction
- Suggested Improvements to Design Features

The Final Office Plan Review may be followed up with a memorandum providing any findings of significance from the review. This report will be submitted to the Design Engineer and Director - Office of Project Development when the project plans are submitted for signature.

I-07.05 Plan Review and Design Development Checklists

The following checklists are provided in Section III-02:

- Plan Design and Development Checklist - General
- Plan Design and Development Checklist - Traffic Control Design (Signing, Pavement Marking, Guardrail, Lighting, Traffic Signals)
- Preliminary Plan Review Checklist
- PS&E Plan Review Checklist
- Final Office Plan Review Checklist – Required, bring to the Final Office Plan Review.

I-08.01 CADD Procedures

Design and plan preparation for Department construction projects is done with computer-aided design and drafting (CADD) procedures. The CADD Manual presents details on design and drafting procedures utilized by the department. The CADD Manual is available in electronic form on the web at http://www.dot.nd.gov/manuals/design/designmanual/designmanual.htm, click "Chapter VI: CADD Manual". Parties outside the Department doing design work and plan preparation for NDDOT, should familiarize themselves with the procedures specified in the CADD Manual. The use of Microstation and Geopak systems is mandatory.

I-08.02 Reproduction Procedures

Design sections routinely require copies of plans and documents for field reviews and PS&E inspections. If a nominal number of copies are needed, they are made on the copy machine located in the Design or Bridge Division. If higher numbers of copies are necessary, or if the plans have a large number of sheets, or if special printing methods are necessary, the copies generally are ordered from the Printing Section of the Information Technology Division.

The District offices will sometimes require larger sized prints of project cross sections, etc. These normally are printed on the plotters located in each District office.

I-08.03 Final Plans Submittal

Final plans are typically generated by the Central Office, Districts, or Consultants. The lead divisions for Central Office plans are typically Design Division, Local Government Division, and Bridge Division. Sometimes other Divisions such as Materials and Research, ETS, and Maintenance are the lead.

I-08.03.01 Central Office Plans

The lead designer is responsible for obtaining all sections of the plans including traffic safety, traffic control, roadway design, structural, etc. The lead designer will coordinate the plan preparation and will be responsible for assembling the final plans.

Original Hard Copy (Central Office)
The original paper hard copy shall be sealed, signed, and dated by the lead designer or their direct supervisor with either the rubber stamp or crimp type. The signature and date shall be with blue ink to help distinguish the original from copies. All of the plan sheets shall be sealed, signed, and dated except for cross sections, table of contents, pit plats, and quantity sheets.

The title sheet of the plans will be sealed, signed, and dated by the respective Program Manager as the overall coordinator. The title sheet of the structural plans will be sealed, signed, and dated by the Bridge Engineer or the Assistant Bridge Engineer as the overall coordinator. In addition, the title sheet will also need to be signed by the Director of Office of Project Development (OPD) for Core projects, or signed by the respective Division Engineer for the OPD Director on non-Core projects. Core project plans also need to be signed by the District within the District Review box.

The cross sections for the original hard copy set should:

- Be included with the plans in one volume, if cross section are less than 25 sheets
- Be a separate volume, if cross sections are greater than 25 sheets

The original paper hard copy of the final plans shall be submitted to the Programming Division by the lead designer as outlined below:

1. The lead designer shall 3-hole punch the original hard copy plans, attach them to folders with hardware, include the final Mainframe cost estimate, and place the highway number, beginning reference point, and project number/description sticker labels on the outside of the folders. The lead designer shall request the project number/description label to be made from their respective administrative assistant.

2. The lead designer shall then deliver the original hard copy plan set to Programming Division.

   - If a job is withdrawn from the bid opening, the lead designer will be responsible to obtain the plans back from Programming.

   - If a future bid opening is assigned, the lead designer shall retain the plans. The lead designer shall re-submit the plans to Programming near the time of the future bid opening.

   - If a future bid opening is not assigned, the lead designer shall give the plans to their respective administrative assistant. The administrative assistant shall file the plans with the Records Center. Once a future bid opening is assigned to the plans, the lead designer shall request the plans back from their administrative assistant. The lead designer shall re-submit the plans to Programming near the time of the future bid opening.

3. Programming will deliver the original hard copy plans that are bid to the Records Center to be permanently stored at the NDDOT Central Office.

<u>Electronic Plans (Central Office)</u>
In addition to the original paper hard copy, the final plans shall be submitted electronically in the form of a .pdf file. The lead designer shall submit the electronic plans to Programming as follows:

1. When Programming creates the bid opening list, Programming will also create a bid opening folder within **O:\81 Special Projects\DIP PLANS.** The lead designer shall place the electronic plans in **O:\81 Special Projects\DIP PLANS** by creating a "Job # Project #" folder within the existing bid opening folder created by Programming above. The lead designer shall email **-Grp-DOT Bids Addenda** when the electronic plans have been placed in the **O:\81 Special Projects\DIP PLANS** bid opening folder. This will notify Programming and Construction Services that the electronic plans have been submitted. Other Divisions may place documents within the folder such as soil data, SPs, Right-of-Way certifications, Utility certifications, environmental permits and plans, etc...

- If the bid opening list has not yet been prepared by Programming, a bid opening folder will not exist within **O:\81 Special Projects\DIP PLANS.** The lead designer shall then instead place the electronic plans within **O:\81 Special Projects\DIP PLANS\000 Plans Holding** by creating a "PCN #" folder. If projects are tied, the folder name shall list the parent PCN first, and all tied PCNs after, separating by a coma. This folder will be used as a staging area for information needed to submit plans. The "PCN #" folder may be created by anyone needing to place documents by PCN.

- If a job is withdrawn from the bid opening, Programming will be responsible to rename the folder to the "PCN #", and move the folder and all its contents to **O:\81 Special Projects\DIP PLANS\000 Plans Holding**.

- Once a future bid opening list is prepared by Programming, Programming will create a bid opening folder within **O:\81 Special Projects\DIP PLANS.** The lead designer shall then be responsible to move the "PCN #" folder and all its contents from **O:\81 Special Projects\ DIP PLANS\000 Plans Holding** to the appropriate bid opening folder within **O:\81 Special Projects\DIP PLANS** and rename the "PCN #"folder to the appropriate "Job # Project #". This will ensure that all the documents move with the project to the new bid opening**.**

- Plan changes can be done at any time while the plans are in the folders described above**.** The designer shall email **-Grp-DOT Bids Addenda** if any plan changes have been done. This will notify Programming and Construction Services that plan changes have been made.

2. When Programming prepares the project for bid opening, Programming will move the "Job # Project #" folder and all its contents from **O:\81 Special Projects\DIP PLANS** to the **O:\81 Special Projects\DIP PLANS-Final**. This folder is read-only access and plan changes cannot be made. If plan changes need to be made by the lead designer after the plans are read-only access, the lead designer needs to contact Programming to determine if the change can be made, or if an addendum will need to be submitted. See Section I-09.01 of this manual for more information on plan addendums.

3. Programming places the electronic plans on the Bid Opening Plans and Proposals website for bidding.

The Electronic Plan Sheet Submittal Checklist shall be completed, signed, and placed in Filenet by the lead designer before the final electronic plans are placed in **O:\81 Special Projects\DIP PLANS.** The Electronic Plan Sheet Submittal Checklist is explained in more detail in Section I-08.04 of this section.

The electronic plan set shall have the seal, signature, and date replaced with the electronic distribution statement, "This document was originally issued and sealed by _____, Registration Number PE-_____, on _____ and the original document is stored at the North Dakota Department of Transportation."

A copy of the plans may be distributed in two methods:

1. All paper or hard copy reproductions of the plans that are distributed shall contain a reproduction of the seal, signature and date.
2. The plans may also be distributed electronically. If the plans are to be distributed electronically, the plans must contain the electronic distribution statement as described above.

Proposal Package and Supplemental Information (Central Office)

In addition to the electronic plans, there are other electronic files that need to be submitted to Programming Division to build the Proposal Package and Supplemental Information links on the Bid Opening Plans and Proposals website for potential bidders:

1. Proposal Package items: The following items shall be placed in **O:\81 Special Projects\DIP PLANS** by the responsible party to be included with the proposal package.

Electronic File	Responsible Party
SFN 18878 Determination and Approval for CATEX	Design or Bridge Division
Pit Lists	Programming Division and Materials & Research Division
SP's	ETS and/or Design Division
Permits	ETS Division
SFN 9683 Borrow Area Lists with COA's attached	Design Division

2. Supplemental Information items: The following items shall be placed in **O:\81 Special Projects\DIP PLANS** by the responsible party to be included with the supplemental information. All file names must have the prefix of the "Project #" and a suffix of "-zz".

Electronic File	Responsible Party	File Name
Design Data*	Design Division	Project # Design Data-zz.pdf
Linear Soils Report	Materials & Research Division	Project # Linear Soils Report-zz.pdf
Borrow Investigation Report	Materials & Research Division	Project # Borrow Investigation Report-zz.pdf
Existing Structure Plans	Bridge Division	Project # Existing Structure Plans-zz.pdf
Utility Conflict Plans	Design Division - Utility Engineer	Project # Utility Conflict Plans-zz.pdf

*See section 4.7.7 of CADD Manual for additional details.

I-08.03.02 District Plans

The District lead project designer is responsible for obtaining all sections of the plans including traffic safety, traffic control, roadway design, structural, etc. The District lead designer will coordinate the plan preparation and will be responsible for assembling the final plans.

Original Hard Copy (District)
The original paper hard copy shall be sealed, signed, and dated by the lead designer or their direct supervisor with either the rubber stamp or crimp type. The signature and date shall be with blue ink to help distinguish the original from copies. All of the plan sheets shall be sealed, signed, and dated except cross sections, table of contents, pit plats, and quantity sheets.

The title sheet of the plans will be sealed, signed, and dated by the District Engineer or Assistant District Engineer as the overall coordinator. In addition, the title sheet will also need to be signed by the Director of Office of Project Development (OPD) for Core projects, or signed by the Design Engineer for the OPD Director on non-Core projects. For Preventive Maintenance projects, the District Engineer will assume responsibility and sign the plans in place of the Design Engineer.

The cross sections for the original hard copy set should:

- Be included with the plans in one volume, if cross section are less than 25 sheets
- Be a separate volume, if cross sections are greater than 25 sheets

The original paper hard copy of the final plans shall be submitted to the Technical Support Contact for review and processing two weeks prior to the plan completion date.
The original paper hard copy final plans are submitted to the Programming Division by the Technical Support Contact. The Technical Support Contact shall follow the lead designer procedures in Section I-08.03.01 above.

Electronic Plans (District)
In addition to the original paper hard copy, the final plans shall be submitted electronically in the form of a .pdf file and placed in **O:\81 Special Projects\DIP PLANS\DISTRICT PLANS** by the District designer. The District designer shall email the Technical Support Contact that the electronic plans have been submitted. The Technical Support Contact shall submit the electronic plans to Programming, and follow the lead designer procedures in Section I-08.03.01 above.

The Electronic Plan Sheet Submittal Checklist shall be completed, signed, and placed in Filenet by the District designer before the final electronic plans are submitted to the Technical Support Contact and placed in O:\81 Special Projects\DIP PLANS\DISTRICT PLANS. The Electronic Plan Sheet Submittal Checklist is explained in more detail in Section I-08.04.

The electronic plan set shall have the seal, signature, and date replaced with the electronic distribution statement, "This document was originally issued and sealed by _____, Registration Number PE-_____, on _____ and the original document is stored at the North Dakota Department of Transportation."

A copy of the plans may be distributed in two methods:

1. All paper or hard copy reproductions of the plans that are distributed shall contain a reproduction of the seal, signature and date.
2. The plans may also be distributed electronically. If the plans are to be distributed electronically, the plans must contain the electronic distribution statement as described above.

Proposal Package and Supplemental Information (District)

In addition to the electronic plans, there are other electronic files that need to be submitted to Programming Division to build the Proposal Package and Supplemental Information links on the Bid Opening Plans and Proposals website for potential bidders:

1. Proposal Package items: The following items shall be placed in **O:\81 Special Projects\DIP PLANS** by the responsible party to be included with the proposal package. The District is responsible for placing files in the appropriate folder in **O:\81 Special Projects\DIP PLANS\DISTRICT PLANS** where "Technical Support" is listed as the responsible party.

Electronic File	Responsible Party
SFN 18878 Determination and Approval for CATEX	Technical Support
Pit Lists	Programming Division and Materials & Research Division
SP's	ETS and/or Technical Support
Permits	ETS Division
Borrow Area Lists with COA's	Technical Support

2. Supplemental Information items: The following items shall be placed in **O:\81 Special Projects\DIP PLANS** by the responsible party to be included with the supplemental information. All file names must have the prefix of the "Project #" and a suffix of "-zz". The District is responsible for placing files in the appropriate folder in **O:\81 Special Projects\DIP PLANS\DISTRICT PLANS** where "Technical Support" is listed as the responsible party.

Electronic File	Responsible Party	File Name
Design Data*	Technical Support	Project # Design Data-zz.pdf
Linear Soils Report	Technical Support	Project # Linear Soils Report-zz.pdf
Borrow Investigation Report	Technical Support	Project # Borrow Investigation Report-zz.pdf
Existing Structure Plans	Technical Support	Project # Existing Structure Plans-zz.pdf
Utility Conflict Plans	Design Division	Project # Utility Conflict Plans-zz.pdf

*See section 4.7.7 of CADD Manual for additional details.

I-08.03.03 Consultant Plans

The Consultant will coordinate and assemble the final plans. This may require getting sections of the plans that are not included in their contract, such as structure plans or guardrail plans, from the Technical Support Contact and assembling all the sections into one plan set.

***Consultant plans may only have the Consultant company/firm name located on the Title Sheet of the plans as follows:**

- **Located in the lower right portion of the title sheet, outside of the sheet border.**
- **Title Sheet of plans only, not to be displayed on other plan sheets.**
- **Text of company/firm name to be displayed only, no company logos.**

Original Hard Copy (Consultant)
The original paper hard copy shall be sealed, signed, and dated by the Consultant lead designer or their direct supervisor with either the rubber stamp or crimp type. The signature and date shall be with blue ink to help distinguish the original from copies. All plan sheets shall be sealed, signed, and dated by the Consultant except for the cross sections, table of contents, pit plats, quantity sheets, environmental commitments, and plans prepared by the NDDOT.

The title sheet of the plans will be sealed, signed, and dated by the Consultant as the overall coordinator. In addition, the title sheet will also need to be signed by the Director of Office of Project Development (OPD) for Local Government Division or strategic projects, or signed by the respective Division Engineer for the OPD Director on non-strategic projects. Strategic plans also need to be signed by the District within the District Review box.

If the plan set contains cross sections the original hard set should:

- Be placed in the plans if less than 25 sheets
- Be a separate volume if greater than 25 sheets

The Consultant shall submit the original paper hard copy final plans to the Technical Support Contact. The original paper hard copy final plans are submitted to the Programming Division by the Technical Support Contact. The Technical Support Contact shall follow the lead designer procedures in Section I-08.03.01 above.

Electronic Plans (Consultant)
In addition to the original paper hard copy, the Consultant shall submit the final plans electronically to the Technical Support Contact in the form of a .pdf file. The Technical Support Contact shall submit the electronic plans to Programming, and follow the lead designer procedures in Section I-08.03.01 above.

The Electronic Plan Sheet Submittal Checklist shall be completed and signed by the Consultant and sent to the Technical Support Contact with the final electronic plans. The Technical Support Contact will place the Electronic Plan Sheet Submittal Checklist in filenet. The Electronic Plan Sheet Submittal Checklist is explained in more detail in Section I-08.04.

The electronic plan set shall have the seal, signature, and date replaced with the electronic distribution statement, "This document was originally issued and sealed by _____, Registration Number PE-_____, on _____ and the original document is stored at the North Dakota Department of Transportation."

A copy of the plans may be distributed in two methods:
1. All paper or hard copy reproductions of the plans that are distributed shall contain a reproduction of the seal, signature and date.
2. The plans may also be distributed electronically. If the plans are to be distributed electronically, the plans must contain the electronic distribution statement as described above.

Proposal Package and Supplemental Information (Consultant)
In addition to the electronic plans, there are other electronic files that need to be submitted to Programming Division to build the Proposal Package and Supplemental Information links on the Bid Opening Plans and Proposals website for potential bidders:

1. Proposal Package items: The following items shall be placed in **O:\81 Special Projects\DIP PLANS** by the responsible party to be included with the proposal package. The Consultant is responsible for supplying the Technical Support contact with files where "Technical Support" is listed as the responsible party.

Electronic File	Responsible Party
SFN 18878 Determination and Approval for CATEX	Technical Support
Pit Lists	Programming Division and Materials & Research Division
SP's	ETS and/or Technical Support
Permits	ETS Division
SFN 9683 Borrow Area Lists with COA's attached	Technical Support

2. Supplemental Information items: The following items shall be placed in **O:\81 Special Projects\DIP PLANS** by the responsible party to be included with the supplemental information. All file names must have the prefix of the "Project #" and a suffix of "-zz". The Consultant is responsible for supplying the Technical Support contact with files where "Technical Support" is listed as the responsible party.

Electronic File	Responsible Party	File Name
Design Data*	Technical Support	Project # Design Data-zz.pdf
Linear Soils Report	Technical Support	Project # Linear Soils Report-zz.pdf
Borrow Investigation Report	Technical Support	Project # Borrow Investigation Report-zz.pdf
Existing Structure Plans	Technical Support	Project # Existing Structure Plans-zz.pdf
Utility Conflict Plans	Technical Support	Project # Utility Conflict Plans-zz.pdf

*See section 4.7.7 of CADD Manual for additional details for Supplemental Design Data.

I-08.04 Electronic Plan Sheet Submittal Checklist

An Electronic Plan Sheet Submittal Checklist is required to ensure consistency with electronic plans. The Electronic Plan Sheet Submittal Checklist is located on the web at: http://www.dot.nd.gov/manuals/design/designmanual/designmanual.htm within the "Reference and Forms" page under the "Miscellaneous Sheets" table.

The Electronic Plan Sheet Submittal Checklist shall be completed and placed in FileNet before the final electronic plans are placed in the proper Bid Opening Folder on the O:\81 Special Projects\DIP PLANS.

The Electronic Plan Sheet Submittal Checklist shall be completed as follows:

- **Designer**

  The Designer shall first review the final electronic plan sheets accordingly with the Electronic Plan Sheet Submittal Checklist. The Designer shall check all items on the checklist and sign on the Designer signature line.

- **Supervisor**

  After the Designer has completed and signed the checklist, the Designer shall submit the Electronic Plan Sheet Submittal Checklist to their supervisor. The supervisor will then review the final electronic plan sheets accordingly with the Electronic Plan Sheet Submittal Checklist. The supervisor shall check all items on the checklist and sign on the Supervisor signature line.

I-08.05 Standard Drawings

The Standard Drawings are an approved set of drawings showing standard details and materials of construction. The Design Division has the responsibility to monitor and maintain the department's standard drawings. The initiating Division Engineer (either Bridge, Design, or Materials and Research) will approve and sign the standard drawing.

The Standard Drawings[1] are located on the web at: http://www.dot.nd.gov/manuals/designmanual/designmanual.htm under Standard Drawings. The standard drawings located on the department's website have the electronic distribution statement as described in section I-08.03 of the Design Manual.

[1] The original hard copy of all standard drawings are sealed, signed and dated by the Design, Bridge, or Materials and Research Engineer, and are stored in the Traffic Safety Section of the Design Division.

- **Usage in Project Plan Sheets**

  A "List of Standard Drawings" which identifies the Standard Drawing number and description shall be placed in the Table of Contents. The designer should utilize the standard drawings from the website or users within the NDDOT can access them from R:\SUPPORT\DESSTD. These standard drawings should be added to the back of the plans prior to submitting the plans to the Programming Division or to the Technical Support Contact.

- **Revisions to Standard Drawings**

  Standard Drawing revisions must be approved and signed by the appropriate Division Engineer (either Bridge, Design, or Materials and Research). The Standard Drawings are then updated on the web. The latest revision made to any Standard Drawings is noted in the drawing's title block with a revision date and short description of the revision. All revisions to the Standard Drawings shall be documented in a cover memorandum and stored in FileNet.

I-08.06 Electronic Plan Files and Working Files Distribution

The final electronic plan set is assembled and submitted as described above. Individual electronic plan files and working files shall be created, stored, or submitted as follows:

- **Central Office and District**

  Individual electronic plan files and working files used to create and assemble plans shall be created and stored on the NDDOT network R: Drive in the "Project" folder under the folder with the corresponding project number. District plan files that are created and stored outside of the network R: Drive must be copied/moved to the R: Drive no later than when the plans are approved and signed.

- **Consultants**

  All individual electronic plan files and working files that are created outside of the NDDOT shall be submitted to the Technical Support Contact on a CD or through the consultant's designated ftp site. The Technical Support Contact will copy and place the files in the corresponding folders on the network R: Drive of the NDDOT. The CD will be stored in Records and Retention.

I-08.07 Plan Files and Retention Policy

The original signed and sealed plan sheets are sent to the Records Center and microfilmed. When as-built drawings are received from the Districts responsible for constructing the projects, the as-built sheets are microfilmed and incorporated into the plans.

I-09.01 Plan Revisions Prior To Bid Opening

1. Plan Revisions (prior to authorization) – Revisions to plans after originals have been sent to Programming Division should be reviewed by the Design Engineer, appropriate Program Manager, Bridge Engineer, or District Engineer. The intent of this requirement is to provide a process which generates final plans by the plan completion date with an absolute minimum of changes. An emphasis on checking plans by designers and supervisors is therefore required.

2. Plan Revisions (after authorization - prior to bid opening) – Addendums to plans that have been submitted to contractors should be approved as in the paragraph below. It is the intention here that only necessary addendums are developed. Plan revisions that can be delayed should not be processed until after the bid opening date and should then be processed as ordinary change orders (see Section I-09.02). Procedures for developing an approved addendum are as follows:

   a. The designer shall complete the "Plan Addendum Summary and Approval" form, and shall be submitted for signature. The "Plan Addendum Summary and Approval" form is located on the web on the Reference and Forms Page of the Design Manual at: http://www.dot.nd.gov/manuals/design/designmanual/reference-forms.htm

   b. All plan sheets being revised should be annotated with the revision date and sealed, signed, and dated by the engineer who is in responsible charge.

   c. The original sealed hard copy of the revised plan sheets and "Plan Addendum Summary and Approval" form go to Programming Division, as well as a revised cost estimate if there are any changes in the quantities or costs.

   d. The revised plan sheets, cost estimate, and "Plan Addendum Summary and Approval" form shall also be submitted electronically in the form of .pdf files. The revised plan sheets .pdf file and cost estimate .pdf file shall both be placed separately under the appropriate bid opening folder in the O:\81 Special Projects\DIP PLANS by the designer. The designer shall email **-Grp-DOT Bids Addenda** the "Plan Addendum Summary and Approval" form to notify that the revised plan sheets and cost estimate have been placed in the respective O:\81 Special Projects\DIP PLANS bid opening folder. This will notify Programming and Construction Services that the electronic addendum has been completed.

   e. If required by a PODI plan, the designer should obtain verbal approval from FHWA for all addenda that are functional or major changes. Minor changes such as typos would not need approval from FHWA.

   f. All efforts shall be made to coordinate addendums with Construction Services Division (and any other Division) prior to posting addendums, so that multiple plan revisions can be processed together, potentially reducing the number subsequent addendums for a project.

3. Consultants shall complete the "Plan Addendum Summary and Approval" form for consultant projects. The "Plan Addendum Summary and Approval" form, original sealed hard copy plan sheets, cost estimates, as well as the electronic copies shall be submitted to the Technical Support Contact. The Technical Support Contact will follow procedures described above.

I-09.02 Construction Phase Revision after Bid Opening (Change Orders)

1. Construction phase revisions after the bid opening that are required as a result of plan error, plan omissions, changes in field conditions, contractor requests, etc. are typically handled through the change order process. These changes will be processed in three different manners, which are: (1) construction phase revisions that do not need to be sealed, signed and dated; (2) construction phase revisions that would be sealed, signed and dated by the project engineer; and (3) construction phase revisions that would need to be sealed, signed and dated by the original registrant. These construction phase revisions need to be evaluated to determine if they affect the functional design or are within the inherent variability from design in normal construction practices. The project engineer will work with the Bridge, Design, or Materials and Research Division, and the District Engineer to determine which revisions will require sealing, signing and dating and who's seal would be required.

   At a minimum, the change orders should include a description of why the change is being made and supporting data (i.e. pictures, sealed and signed plan sheet(s) or memorandum that has been sealed and signed).

   a. Construction phase revisions that do not need to be sealed, signed or dated:

      Some construction phase revisions that are administrative changes that do not affect either the design or physical features of the project do not need to be sealed, signed or dated. Examples of these changes would include changes regarding contract time, changes concerning partnering, changes resulting from differing funding sources, etc. These changes would be processed by the project engineer and would not need to be sealed, signed or dated.

   b. Construction phase revisions that would be sealed, signed and dated by the project engineer:

      Construction phase revisions that are within the inherent variability of normal construction practices and do not affect the functional design requirement, need to be sealed, signed and dated by the project engineer or their direct supervisor. Examples of these types of changes include changes in widths to bike paths or sidewalks, minor changes to pipe grades, minor changes to ditch width, minor changes to inslopes, etc. These revisions are sealed, signed and dated by the project engineer and included in the change order. The project engineer needs to revise the project "as built" drawings to ensure that all the project changes are reflected on the final "as built" plans.

   c. Construction phase revisions that would need to be sealed, signed and dated by the original registrant:

Construction phase revisions that are outside of inherent variability or result in a functional design change need to be sealed, signed and dated by the original registrant, unless the original registrant is "not able." The original registrant is defined as being "not able" if they were a consultant who designed the project but their contractual responsibility has expired or if the original registrant is no longer employed with the DOT or the original registrant is temporarily unavailable. In either case, the DOT may authorize another duly registered individual to make the revisions to sealed documents and to seal, sign and date the revisions. A duly registered individual making changes to final sealed documents must assume responsible charge and reseal the directly related final documents. Examples of these types of revisions include structural changes, lane width, shoulder width, specification changes, stopping sight distance, guardrail, superelevation, horizontal and vertical alignments, etc. The project engineer will prepare the change order and include the sealed, signed and dated revisions from the original registrant. The project engineer needs to also revise the project "as built" drawings to ensure that all the project changes are reflected on the final "as built" plans.

2. Plan revisions produced in Design or Bridge Division, or received from Materials and Research Division (plan revisions produced in Materials and Research are forwarded to the Design Division), should follow the procedure below:

   a. Follow Chapter 7.4 (Change Orders) of the CADD Standards Manual.

   b. Prepare a memo describing the changes for each sheet, including any changes in quantities (with estimated change in costs based on contract bid prices) to the Design or Bridge Engineer to review and initial.

   c. Send an electronic copy of the revised plan sheets and memo to the District Office.

   d. Send the original memo and the original sealed hard copy of the plan sheets to the Records Center as follows:

      i. Staple and 3-hole punch the memo and plan sheets.
      ii. Deliver to the Records Center (do not fold or bend).
      iii. Records center will log the revisions and place the sheets with the original plans. When the Records Center is notified that the project has been finaled, the originals will be filmed.

3. Plan revisions that are produced by consultants should follow the procedure below:

   a. Prepare a memo describing the changes for each sheet, including any changes in quantities (with estimated change in costs based on contract bid prices) for the Design or Bridge Engineer to review and initial.

   b. The memo and original sealed hard copy plan sheets, as well as the electronic copies shall be submitted to the Technical Support Contact.

   c. Technical Support Contact will follow the procedures outlined in above.

There are two types of notes used in each set of plans, Standard Notes and Plan Notes (also referred to as P-Notes). The Standard Notes and sample Plan Notes can be found on the web at http://www.ugpti.org/dotsc/prepguide/index.php.

All notes shall be written in the active voice, and also make use of the imperative mood. The active voice and imperative mood are described in more detail within section 101.01 of the Standard Specifications.

All notes within Section 6 of the plans shall be listed in chronological order by the preceding specification number. Standard Notes shall be listed before Plan Notes within the same specification section.

I-10.01 Standard Notes

Standard Notes are general in nature and apply to multiple projects. Standard Notes are fixed notes, approved as written, and shall not be modified. The Standard Notes are identified in the following manner:

100-001 STANDARD NOTE: This is an example of a standard note format.

Where: 100 – designates the applicable section of the Standard Specifications.
001 – designates the assigned standard note number.

If a Standard Note must be modified for a specific reason, the note number shall be changed to represent a Plan Note.

I-10.02 Plan Notes

Plan Notes are specific in nature, and would apply primarily to a single project. Plan notes are identified in the following manner:

100-P01 PLAN NOTE: This is an example of a plan note format.

Where: 100 – designates the applicable section of the Standard Specifications.
P – designates the note as a plan note.
01 – designates the note number.

Plan Notes should be numbered consecutively for all notes within a section of the Standard Specifications, and shall be placed after the Standard Notes within the section.

I-10.03 Special Provisions

Special Provisions are additions and revisions to the Standard and Supplemental Specifications covering special conditions on an individual project. Special provisions address work items or project requirements that either vary significantly from, or are not addressed by, the Standard Specifications or Supplemental Specifications. A special provision should be used if the description of the work item is lengthy, complex, or requires research and approval from other divisions, districts, and/or agencies.

***Special Provisions that contain an engineering related work product must be PE stamped by a ND registered professional engineer on the first page.**

Commonly used Special Provisions are listed on the PPG website under "Special Provisions." http://www.ugpti.org/dotsc/prepguide/specprov/ The designer should determine which special provisions are applicable and necessary for the project.

The Special Provisions shall be listed on the Table of Contents plan sheet of the plans. The actual special provisions are not placed in the plans; rather, they are inserted into the Bidders Proposal by the Programming Division.

If the special provision is new, the designer will contact the Environmental & Transportation Services (ETS) for assistance in developing and researching the provision. ETS will assist the designer in the coordination, any necessary research, and with the preparation of a draft special provision. ETS will prepare the final draft of the special provision, coordinate FHWA approval, and assign a special provision number. *Each time a completed special provision is used, a new number must be assigned.*

Written requests for special provisions from ETS are to be made no later than

- Two months before the PS&E meeting for TERO special provisions, and
- One month before the PS&E meeting for other special provisions,
- When requesting Intelligent Transportation Systems special provisions, include contacting the Maintenance Division.

Written requests for special provisions need to include the following:

- Project number;
- PCN;
- A brief description of the project;
- Plan completion date; and
- Bid opening date.

The designer will also address any conditions required in the special provision to complete the project as designed.

If the special provision is controversial, ETS will work with FHWA, NDDOT Specifications Committee, designer, appropriate divisions, and districts to resolve any differences.

When special provisions are new or controversial, requests should be submitted to ETS as early as possible during the project development to allow time for research, review, resolution, and approval by NDDOT and FHWA if applicable.

Special Provisions must be completed by ETS and submitted to the Programming Division by the plan completion date.

ETS will make distribution of the special provision to Contractors, FHWA, Districts, and Divisions.

I-10.03.01 Tribal Employment Rights Ordinance (TERO) Special Provision

If the project is on, or partially on an Indian Reservation the designer should request a TERO Special Provision. On all North Dakota highway projects, including federal aid, state aid, and maintenance contracts, a Tribal Employment Rights Tax will be applied to the portions of the highway projects that are within the boundaries of the Indian Reservation. Additionally, hiring preference requirements apply to the entire project and all tied projects.

1. If TERO provisions apply, the designer will request in writing, a TERO Special Provision from ETS a minimum of 2 months prior to the PS&E meeting. Written requests for TERO provisions need to include the following:

    a. Project number;
    b. PCN;
    c. A detailed description of the project;
    d. Bid opening date;
    e. Plan completion date;
    f. Project location;
    g. Project length;
    h. Length on reservation; and
    i. Total estimated project cost.

2. If TERO provisions apply, the designer should request in writing, approval from the Office of Project Development or the District Engineer prior to tying the project to other local projects.

INDIAN RESERVATION BOUNDARIES

Spirit Lake Nation				
Highway	**District**	**Reference Points**		**Length (Miles)**
		Start	**End**	
15	3	60.400	63.413	3.013
20	3	68.668	96.734	28.066
57	3	0.000	12.264	12.264
281	3	139.633	156.345	16.712

Standing Rock				
Highway	**District**	**Reference Points**		**Length (Miles)**
		Start	**End**	
49	5	0.000	7.354	7.354
6	1	0.000	35.187	35.187
24	1	0.000	45.046	45.046
31	1	0.000	10.380	10.380
1806	1	31.190	33.966	2.776

Fort Berthold				
Highway	District	Reference Points		Length (Miles)
		Start	End	
22	5	126.141	141.099	14.958
8	5	124.209	132.121	7.912
23	4	56.405	80.310	23.905
37	4	0.000	29.785	29.785
1804	4	192.158	213.688	21.530
8	7	132.121	133.661	1.540
22	7	141.099	156.051	14.952
23	7	35.6	56.405	20.805
73	7	7.31	11.332	4.022
1804	7	247.145	248.63	1.485

Turtle Mountain				
Highway	District	Reference Points		Length (Miles)
		Start	End	
281	3	234.422	247.177	12.755

I-10.04 Incidental Work

Generally, all work and materials should be paid for separately; however, at times it may better suit the project to include some work and materials in the cost of associated items. Refer to Section I-11.09 of the Design Manual for guidance to determine when work items should be included as an indirect cost.

The designer must provide a plan note describing the items that are included in the indirect cost and list the specific contract item(s) in which to include the indirect costs. Include the following language when writing these types of plan notes: "Include the cost of [indirect items and work] in the contract unit price for [items included in the bid item list]."

I-10.05 Salvaged Items

A goal of the North Dakota Department of Transportation is to incorporate existing resources into new projects whenever practicable. Resources that cannot be reincorporated into the new facility will be considered excess items. If, during project development, it is learned that excess items may have value to a participating agency for public use, then these excess materials, appurtenances, or equipment may be designated for salvage. A Plan Note describing the items to be salvaged is typically written. Examples include, but are not limited to traffic signals, signs, light standards, reclaimed pavement and attenuation devices.

Cities and Counties may take ownership of salvaged items provided they have signed a cost participation agreement. Priority of the receipt of salvaged items will be in the order of funding participation. If no participating agency requests a specific excess item for salvage the item shall

become the property of the Contractor so any inherent value of the excess item can be reflected in the Contractor's bid.

Salvage that is designated for haul to a location outside of the project should be analyzed for cost effectiveness if the distance is greater than 25 miles from the exit of the project. The analysis should be submitted to the Engineer approving the plans. If salvage is to be specified, careful attention should be given to the contract provisions to ensure that the cost of the operation (i.e., removal or haul) is in the public interest and is a prudent expenditure of funds. This policy replaces the standard federal salvage credit policy as allowed by 49 CFR 18.36.

I-10.06 Sole Source Items

Sole sources items are individual products that are specifically required within the plans. Sole source items are permitted through one of the following ways:

- Public Interest Finding: This is used when the DOT wants to justify one product over multiple products.

- Certification: This is used when there is only one known product available.

- Certification through synchronization: Although there are multiple products available, one product is desired for reasons such as maintenance inventory. For example, a city may use a certain product exclusively and maintain an inventory of parts for that product, even though there are other products that do the same function.

I-11.01 General

Cost estimates will be required during the various development phases of a project. These phases would typically be scoping, documented CatEx, preliminary design, and final design or engineer's estimate. On larger or complex projects it may be necessary to develop some intermediate estimates.

Internal cost estimates are completed using the Roadway Inventory Management System – Highway Projects (RIMS#HP) program within the NDDOT Mainframe.

Consultants cost estimates (in excel format) shall be submitted to their Technical Support contact. For final engineer's estimates, the Technical Support contact will enter the consultant cost estimate into mainframe "RIMS#HP". All consultant cost estimates need to be free of spreadsheet rounding errors, and the bid items shall match the exact spec, code, and spelling (using all uppercase letters) of NDDOT bid items. The Spec and Code List available on the NDDOT website at: http://www.dot.nd.gov/business/consultants.htm#resources

If new bid items are needed, the consultant shall make a request to the Technical Support contact early as possible so that the Technical Support contact can coordinate the potential new bid item creation within mainframe "RIMS#HP".

The lead designer should coordinate or combine the cost estimates of each Design Section and Division or District into one overall final design cost estimate. The total estimated cost must also be summarized by project number and funding source (federal, state, and local participation).

The final design cost estimate should be a separate attachment to the project plans. The estimate must include the item specification and code, description, unit, quantity, unit price, and total unit cost for each item. The total estimated project cost must be tabulated and shown on the bottom of the page.

Early and preliminary cost estimates are a matter of open record, and it is often desirable to give the public a good handle of proposed project costs. However, the PS&E and final design engineer's cost estimate should be kept confidential until the contract has been bid.

I-11.02 Existing Bid Items

The Spec, Code, Description, Unit, and Unit Prices for existing bid items can be identified from the following sources or references:

- "Spec and Code List"
- NDDOT Historical Fact Sheet Inquiry
- NDDOT Project Listing Fact Sheet Inquiry

The "Spec and Code List" can be found on the web in spreadsheet format at:
http://www.dot.nd.gov/business/consultants.htm#resources

The NDDOT Historical Fact Sheet Inquiry and Project Listing Fact Sheet Inquiry are only available through the mainframe "RIMS#HP" program.

I-11.03 Temporary Bid Items

Temporary Bid Items should only be used on conceptual estimates. Temporary bid items are intended to simplify and generalize groups of bid items or other items that are not directly bid; such as, intersection improvements or right of way acquisition. When using a temporary bid item, the appropriate spec number should be based on the type of work or product and the code number is usually "9999"; for example, 720-9999 - RIGHT OF WAY - L SUM.

I-11.04 New Bid Items

The Design Division – Traffic Section is responsible for maintaining the bid item data within Mainframe. If a new bid item is required, the designer should contact the Design Division – Traffic Section as early as possible to create the new bid item.

I-11.05 Development of Unit Prices

The designer should review the unit prices for existing bid items, and shall develop a unit cost based on past similar type projects bid within similar regional areas and similar quantities.

- Past bid opening plans and proposals are available on the NDDOT website at: https://www.dot.nd.gov/business/bidinfo.htm

- Past abstracts of bids received are available on the NDDOT website at: https://www.dot.nd.gov/pacer/bidopenrptIndex.html

For new bid items, the designer should develop a unit cost based on estimated material, equipment, and labor costs.

I-11.06 Contract Bond

The designer may have the mainframe "RIMS#HP" program automatically calculate the amount of contract bond based on a percentage of the contract amount. If the designer is preparing an estimate by hand, the following guidelines may be used to determine the amount of contract bond:

Total Contract Amount	Contract Bond Amount by % of Total Contract Amount
0 to 100,000	2.0%
100, 000 to 500,000	1.5%
500,000 to 1,000,000	1.0%
Over 1,000,000	0.75%

I-11.07 Mobilization

The designer may have the mainframe "RIMS#HP" program automatically calculate the amount of mobilization based on a percentage of the contract amount. The designer may also estimate the amount of mobilization by hand based on the types of work operations such as structural, bituminous paving, concrete paving, etc.

I-11.08 Escrow of Bid Documentation

Consideration should be given to utilizing the Escrow of Bid Documentation for all projects greater than $10 million, or for other projects with unique factors.

If the project exceeds $10 million, the designer and District will discuss and decide at the PS&E meeting on whether or not to utilize the Escrow of Bid Documentation bid item within the plans.

I-11.09 Incidental Work

Generally, all work and materials should be paid for as separate bid items; however, some work and materials may be better suited to be made incidental to the bid item they are associated with. Typically, an incidental work item will have a very short time of completion and cost compared to the pay item it is attached to. Although incidental work items are allowed, the following guidelines should be used to determine when work items should NOT be incidental:

- The work item is not a specific component of another item that is estimated to exceed two thousand dollars.
- The work item quantity is variable and difficult to measure or determine by the contractor.
- When bid items and prices require evaluation.
- When the bid item is approved by the Director of Project Development.

The designer shall identify all incidental work within the plan notes, unless otherwise described with the Standard Specifications. The following guidelines should generally be followed regarding incidental items:

- Blotter Sand: Will be included in the price bid for other items on Seal Coat projects and on projects where the blotter material quantity is less than 300 tons (approximately). Blotter will be a pay item on all other projects.
- Tack Coat: Will be included in the price bid for HBP on projects where the HBP quantity is less than 1000 tons (approximately) or on urban concrete projects with HBP tie in. Tack will be a pay item on all other projects.
- Dowel Bars: Will be included in the price bid for the concrete on Reconstruction projects.
- Dowel Bars: Will be a pay item on CPR and Dowel Bar Retrofit projects.
- Sawing and Sealing: Will be included in the price bid for concrete on Reconstruction Projects.
- Sawing and Sealing: Will be a pay item on CPR and Dowel Bar Retrofit Projects.
- Prime: Will be included in the price bid for HBP on projects where the HBP quantity is less than 1000 tons (approximately). Prime will be a pay item on all other projects.
- Testing: On QC/QA and HBP Superpave projects will be included in the price for the HBP.
- Asphalt Cement: Will be included in the price bid for the HBP on projects where the HBP quantity is less than 1000 tons (approximately). Asphalt Cement will be a pay item on all other projects.
- Flagging and Pilot Car: Will be included incidental for Chip Seal Coat projects only.
- Flagging and Pilot Car: Will be a separate pay item for Slurry Seals, Micro-Surfacing, and all paving projects.

I-11.10 Engineering Cost

The designer should use 10% engineering plus 5% contingency (total of 15%) for documented CatEx and other preliminary reports.

The designer should use 10% engineering for final plan estimates.

I-11.11 Project Prefixes

The project number typically begins with a prefix which categorizes the highway system, type of work, and NDDOT/FHWA interaction or involvement. Projects often have more than one prefix and project number. These prefixes may be used in conjunction as one project number, or they may be used separately as entirely different project numbers. Additionally, each project may have several funding sources (federal, state, and local participation) and different participation rates based on the prefixes and items of work. Examples of multiple project prefixes or numbers include: NH funds for a paving project combined with TE funds for a bikeway. Examples of multiple participation rates would include mainline paving versus service road paving and city funded only items.

The Programming Division or Local Government Division will determine the appropriate funding prefix and participation ratios based on NDDOT policy and guidelines. The designer should discuss and coordinate the project numbers, participation rates, and pay items with the respective Divisions for incorporation into the documented CatEx report, final plans, and cost participation and maintenance agreements (CPM).

I-11.12 Sub Projects

Sub projects are created within "RIMS#HP" to be used when different funding and cost sharing splits occur. The quantities are entered into sub projects separately for bidding and cost sharing purposes. NDDOT Designers and Technical Support contacts shall request and coordinate sub projects for "RIMS#HP" cost estimates by contacting the Programming Division.

I-11.13 Tied Projects

There are additional requirements that must be followed when two or more projects are tied together as a single job for bidding purposes:

- Any bid items common to two or more tied projects shall have the same unit costs.

- Contract Bond and Mobilization shall be split between all applicable projects on a pro-rated basis. For example, if the largest project contains 80% of the total project cost and there are two additional smaller tied projects, each worth 10%, the Contract Bond and Mobilization will be split between the three projects as 0.80 L Sum, 0.10 L Sum and 0.10 L Sum.

    - The above splitting requirement will be waived for any job where the child project(s) percentage is less than 5%, and those percentages will be added to the largest percentage project. For example, three tied projects with an 80%, 16% and a 4% split, the contract bond and mobilization for the child project less than 5% shall be added to the parent project numbers as 0.84 L Sum and 0.16 L Sum.

- Tied projects should be coordinated on a case by case basis to determine if any other bid items such as field labs, field offices, traffic control, etc. should be allocated between the projects.

I-11.14 Alternates and Options

Some projects will require the use of bidding alternates or options for specific items. It is important to know the difference between alternates and options, so projects can be bid appropriately:

- **Alternates**: Alternates indicate that the Contractor does not have to bid all alternatives. The Contractor is able to bid only on the alternate they choose. Alternates should be labeled alphabetically (Alternate A, Alternate B, Alternate C). A common example would be bidding alternates for Interstate reconstruction outside shoulder pavement material (HBP Alternate or Concrete Alternate). However, inside interstate shoulders are not candidates for shoulder alternates.

- **Options**: Options indicate that the Contractor must bid all options so the Owner can consider the price when deciding to select an option that was bid. Options should be labeled with numbers (Option 1, Option 2, Option 3). A common example may be bidding pipe material options for storm sewer.

I-11.15 Cost Estimate Review Team

Approximately one month prior to the Plan Complete Date for a given bid opening, the internal NDDOT Cost Estimate Review Team will meet and review the upcoming project's cost estimates. The Team will make recommendations on unit prices for various items on a project by project basis.

I-11.16 Vertical Clearance "RIMS#HP"

When creating a new cost estimate for a project within mainframe "RIMS#HP", the designer or Technical Support contact must input any structures within the limits of the project into the "Edit Vertical Clearance" within the mainframe "RIMS#HP" cost estimate program. All structures must be entered using the corresponding Structure ID's that are available within "RIMS#HP". This will identify structures that need to have the vertical clearance surveyed during construction for actual structure vertical clearance when the project is completed.

To comply with the North Dakota Century Code 43-19.1 and the North Dakota State Board of Registration for Professional Engineers and Land Surveyors relating to the regulation of professional engineers and professional land surveyors, all work products must follow:

I-12.01 Final Engineering and Land Surveyor Work Products

Final engineering drawings, plans, specifications, maps, plats, reports, or other engineering or land surveying papers or documents involving the practice of professional engineering or land surveying, when presented to a client, contractor, subconsultant, any public agency, must be dated and bear the seals and signatures of the professional engineers or land surveyors by whom or under whose responsible charge they were prepared.

The original paper hard copy shall be sealed, signed, and dated by the lead designer or their direct supervisor with either the rubber stamp or crimp type. The signature and date shall be with blue ink to help distinguish the original from copies. All of the plan sheets shall be sealed, signed, and dated except for cross sections, table of contents, pit plats, quantity sheets, and environmental commitments. See Section I-08 for more information on final plans.

If distributed electronically, documents must contain the following electronic distribution statement:

- Professional Engineers:

This document was originally issued and sealed by pe_name, Registration Number PE- pe_# , on mm/dd/yy and the original document is stored at the North Dakota Department of Transportation

"This document was originally issued and sealed by _____, Registration Number PE-_____, on _____ and the original document is stored at the North Dakota Department of Transportation."

- Professional Land Surveyors:

This document was originally issued and sealed by LS_name, Registration Number LS LS_#, on mm/dd/yy and the original document is stored at the County Recorder's Office

"This document was originally issued and sealed by _____, Registration Number LS _____, on _____ and the original document is stored at the County Recorder's Office."

I-12.02 Preliminary or Unfinished Engineering and Land Surveyor Work Products

Working or unfinished engineering drawings, plans, specification, maps, plats, reports, or other engineering or land surveying papers or documents involving the practice of professional engineering or land surveying must contain a statement to the effect that the work product is preliminary and not for construction, recording purposes, or implementation:

- Professional Engineers:

This document is preliminary and not for construction or implementation purposes.

PRELIMINARY

"This document is preliminary and not for construction or implementation purposes."

- Professional Land Surveyors:

This document is preliminary and not for recording or implementation purposes.

PRELIMINARY

"This document is preliminary and not for recording or implementation purposes."

GUIDELINES FOR USE OF THE 409 FILE STAMP
23 U.S.C. Section 409
November 7, 1999

I-13.01 What is Section 409?

In 1987, Congress determined that Federal record keeping requirements were subjecting state transportation agencies to inappropriate litigation and stifling the open discussion of safety issues. Congress enacted 23 United States Code (U.S.C.) Section 409 to remedy these problems. Section 409 protects from discovery four broad categories of information collected or compiled for safety-related purposes.

Three programs created by 23 U.S.C. are specifically covered by section 409:

a. Railroad Crossings- Section 130

b. Bridge Replacement and rehabilitation- Section 144

c. Hazard elimination- Section152

All records related to these programs are protected from disclosure.

The fourth category involves information collected Afor the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds. It is not necessary that the project actually be completed with Federal funds merely that the use of federal funds was a reasonable possibility at the time the records were created. This category requires the record keeper to carefully exercise her or his judgment.

I-13.02 Why are we using a 409 stamp?

Until the state lost sovereign immunity the department did not have the current concerns about disclosure of these records since no one could bring action against us. Now that we are no longer protected by sovereign immunity records are subject to discovery in litigation. It is important for the department to identify records that are protected by 23 U.S.C. Section 409.

Section 409 is not intended to prevent the release of all information about a project. Information about when, where, and how a project was constructed, commonly called as-built or as -planned documents can usually be released unless it is related to section 130, 144, or 152. However, information as to why it was built a certain way, why it was not built other ways, and safety studies of that project or other projects is protected. As a general rule the more general the project, the less likely it would be 409 protected.
The optimum time to determine if a document is 409 protected is at the time of creation and original filing. The DOT employee creating the records is the one most qualified to determine if the document is 409 protected. This is necessary due to the fact that persons creating the file may not be available years later, when the copies of the file are requested.

I-13.03 Guidelines on when to use stamp

1. If the fundamental purpose for a project is safety improvement, the entire file and all documents related to the project are subject to section 409 and should be appropriately marked.

2. If identifiable portions of a project are developed solely for safety improvement, the corresponding portions of the file and all documents related to those portions are subject to section 409 and should be appropriately marked.

3. If safety is an important motivator for the project or portions of the project, records must be categorized within the project file. Those records concerning safety concerns and the reasons why the department chose certain methods to improve safety are subject to section 409 and should be appropriately marked. Records as to what work is performed, by whom, where, when, how, and at what cost remain open for such projects.

4. Following are records that we currently know will be protected and will require the 409 stamp.

    a. Safety reviews
    b. Safety improvement program or project
    c. HES project
    d. 90-1 surveys
    e. Project concept reports
    f. Railroad, grade crossing, and related safety information
    g. Traffic signal inventories and inspections
    h. Skid testing program
    i. High crash location analysis.
    j. Crash analysis
    k. Crash reports
    l. Crash report database
    m. Traffic operations studies
    n. Data involving litigation
    o. Executive summaries
    p. Guardrail projects
    q. Slope flattening
    r. Pipe extensions
    s. Bridge inventory
    t. Guardrail inventory
    u. Implementation of safety projects
    v. BR projects and design documents
    w. Drive slopes if used for future planning
    x. Incident reports-if planning some safety project
    y. Bridge plans, every sheet
    z. Railroad plans

I-13.04 How do I use it?

Divisions and districts are to identify records falling in the protected category. Such records must be stamped with the following stamp:

23 U.S.C. 409
NDDOT Reserves all Objections

Every division and district should have at least one 409 stamp for use. The stamp was designed to continue to protect the records even if they have been released. By identifying 409 documents at the point of creation with this stamp we have reserved the right to object to having those documents entered as evidence in litigation.

The purple color was chosen to make it distinctive on the paper document and also still microfilm.

We also realize some documents do not have a lot of extra white space so this stamp may be placed in a right or left margin if that is the only place there is room.

- Place the stamp on the top of document below the green stamp if room allows.
- If there is no room, place it in the right margin, if possible.
- Place it on every page of the plan or document that is protected under 409.
- If the entire document is protected, place on every page of the document. Once the documents are unbound for filming, each page needs to be identified to ensure protection.
- If only select pages are 409 protected, place the stamp on the first page or title page of a document and handwrite below it which pages are protected. This will ensure that if a report is requested, the person copying the entire report will know there are selected pages to protect.

I-13.05 Guidelines on When to Release Records

Follow procedures outlined in Department Policy Memorandum Section V 2-1 and 2-1.1, Request for Records

Why do they want it? What is it going to be used for?

- Engineering purposes-outside consultant - 409 records can be released.
- Newspaper or political purpose - 409 records can be released.
- Court action or actions for damages - 409 records cannot be released.

If there are questions about releasing 409 documents, you should contact your division or district records coordinator first, and then the Records Management Manager in the Information Technology Division.

I-13.06 Releasing 409 Documents to Other State Agencies

Non-department entities such as political subdivisions or consulting engineers may request our 409 material. If the actions of the non-department entities are furthering a department goal or objective, the information should be provided. Under some circumstances it may be appropriate to obtain an agreement from the requesting party to maintain the 409 protection. Under some circumstances, however, the information may need to be disclosed, in which case the department should pay special attention to limiting the information to that which is absolutely essential for the purposes for which it is compiled or obtained.

It is important that when 409 documents are released to other state or federal agencies, such as the Highway Patrol or the Federal Highway Administration, that they are aware of 23 U.S.C. 409 and continue to protect the record as we would.

Following is an example of a statement that should accompany any 409 records released:

NDDOT gathers and maintains___(type of record) for purposes of safety improvement. As such, it is exempt from discovery and introduction into evidence pursuant to 23 United States Code, Section 409. Therefore, NDDOT entrusts this information to the _____(name of agency) with the understanding that it be used only for the requested purposes, and not distributed or released outside of the _____(name of agency), unless required by law after thorough research."

I-14.01 Manual Revisions

Click on link below for:

CHANGES TO DESIGN MANUAL

CHANGES TO DESIGN MANUAL REFERENCE AND FORMS

CHANGES TO DESIGN MANUAL - 2020

Date	Chapter	Section	Description
4-29-2020	2	03	Added process information to allow for Virtual Public Involvement and Input Meetings
7-8-2020	-	-	Updated Preliminary Engineering Distribution List and Plan Review Distribution List

CHANGES TO DESIGN MANUAL - 2019

Date	Chapter	Section	Description
7-31-2019	1	3	Added clarification for PODI process
7-31-2019	1	5	Updated reference publications for both roadway design and structural design sections. Deleted duplicate publications that were under the structure section that were already listed under roadway design.
7-31-2019	1	6	Added full depth reclamation to Structural Improvement
7-31-2019	1	6	Changed “Accident” to “Crash”

CHANGES TO DESIGN MANUAL - 2018

Date	Chapter	Section	Description
1/25/2018	1	2	Added milestone activity and description for Endangered Species Act Consultation (ESACO). Revised milestone activity description for Biological Assessment (BIOAS).
1/25/2018	2	4 (Section 1)	-Added direction to clip wetlands off of the existing inslope when determining wetland impacts -Removed Stream order Systems -Minor edits that expanded or clarified existing text.
1/25/2018	2	4 (Section 2)	Minor edits that expanded or clarified existing text.
1/25/2018	2	4 (Section 3)	-Added what is expected in a conceptual mitigation plan -Added culvert sinking criteria based on 2017 revised 404 Nation Wide Permit Regional Conditions -Added 408 Permission and Outgrant information. -Minor edits that expanded or clarified existing text.
1/25/2018	2	4 (Section 4)	Minor edits that expanded or clarified existing text.
1/25/2018	2	4 (Section 5)	-Added detail to what is needed in conduction annual mitigation bank monitoring. -Minor edits that expanded or clarified existing text.
1/25/2018	2	4 (Section 6)	-Added detail to what is needed in conduction annual onsite mitigation monitoring. -Minor edits that expanded or clarified existing text.
1/25/2018	2	4 (Section 7)	-Deleted section 7 Mitigation Tracking -Added more detail to Section 9 Woody Vegetation Mitigation

CHANGES TO DESIGN MANUAL - 2017

Date	Chapter	Section	Description
9/22/2017	4	2	Removed 5' embankment depth requirement and added minimum pre-drilled hole diameters for each typically used H-pile size. Added bentonite as backfill material. Removed 500 year flood event. Added design philosophy for pile foundations. Added maximum beam/girder spacing. Replaced the New Jersey barrier with the single slope barrier in order to meet the latest MASH requirements. Added “Load Distribution to Substructures” design policy. Removed outdated box culvert length determination instructions and diagrams. Added “Pedestrian & Shared-Use” policy on opening for pedestrian boxes. Added policy of using concrete slope protection in urban areas and aggregate slope protection in rural areas.
9/22/2017	4	3	Added “Pile Driving Formula”.
9/22/2017	4	4	Revised the method of calculation of pre-stressed losses from using refined method prior to 2005 interim AASHTO specifications to approximate method in current AASHTO specifications. Added “Pile Driving Formula.” Changed from using no horizontal earth pressure to minimum load factors for horizontal earth pressure. Added 1.50 factor for active horizontal earth pressure. Removed crash wall requirements and added reference to AREMA. Replaced New Jersey barrier with single slope barrier in order to meet latest MASH requirements.
9/22/2017	4	6	Changed from Standard design to LRFD abutment design example. Removed outdated abutment underdrain and excavation details. Added single slope barrier details.
8/11/2017	3	3	Approaches to meet Standard Drawings D-203-6 and D-203-8 for Minor Rehabilitation Sliver Grading projects.
4/5/2017	1	6	The Design Guidelines have been updated to include MASH criteria. The MASH criteria in this section will be required for projects construction in 2018 and beyond. Projects constructed in 2017 may utilize prior version of Design Guidelines. See links on the Design Manual webpage.
3/6/2017	ALL	ALL	Eliminated drop down menus from Design Manual and reorganized numerous sections from Chapter 3 and Chapter 1.
3/6/2017	1	3	Added new section “FHWA Project of Division Interest” (PODI).
3/6/2017	1	4	Added new section “Project Status Report” (PSR).
3/6/2017	1	5	Added “Sign Calculator Program” to list of references. New version of Sign Calculator Program available on web.
3/6/2017	2	5	Added new section “Cultural Resources”.

CHANGES TO DESIGN MANUAL - 2016

Date	Chapter	Section	Description
7/7/2016	2	3	Added internal guidance for posting public meeting advertisements to the NDDOT Calendar.
6/6/2016	5	2	Updated to reference HEC 18 5th Edition (2012) requirements in which the 200-year discharge is now acceptable for use as the scour design check flood frequency. Also added reference to USGS Bulletin 17B.
1/26/2016	1	2	Revised the Utility Coordination and Utility Engineering descriptions.
1/26/2016	3	4	Revised the replacement of approach and centerline culverts for projects. Also, minor revisions to sliver grading and grade raises.
1/26/2016	3	11	All new lighting installations to be LED systems.
1/26/2016	3	14B	Clarified that Design ADT is the total for both directions. Also, updated Table 1 and Table 1 to be consistent with the 2011 AASHTO Roadside Design Guide.
1/26/2016	5	1	Revised to include the most recent 2015 USGS Regression Equations. Also, additional guidance added for determination of Ruggedness Number.
1/26/2016	5	5	Guidance added when to allow Polypropylene Pipe (Type S) as a plastic pipe alternative under paved roadways.
1/26/2016	5	5A	Added backfill height table for Polypropylene Pipe (Type S).

CHANGES TO DESIGN MANUAL - 2015

Date	Chapter	Section	Description
12/2/2015	1	10A	Added Bridge Design Section and M&R Geotech Section.
6/24/2015	N/A	N/A	Updated preliminary engineering distribution list to include FHWA circulation of draft DCE for PODI only.
6/24/2015	1	2	Changed flagging value for railroad flagging and updated Design Right of Way Limits submittals for internal design
6/24/2015	3	1C	Added SP information and RIMS vertical clearance to Final Office Plan Review checklist
5/13/2015	5	1,2,3,4	Sections 1 through 4 and related appendixes have been re-written and completely revised. Many items have changed. *(Sections 5 & 6 remain unchanged with no revisions.)*
5/13/2015	1	15	Updated to newer version of reference publications for "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" & "AASHTO LRFD Bridge Design Specifications".
5/6/2015	1	2	Added FHWA to be invited to Management Presentation for PODI projects.
5/6/2015	1	7	Deleted most of this section about plan sheet order, as it is covered in detail within Chapter 6 CADD Manual.
5/6/2015	1	8	Added guidance for displaying consultant company firm name on the title sheet of plans.
5/6/2015	3	3	Revised spiral curve policy to be consistent with AASHTO. Added guidance for Flared Intersections (D-203-7) and Rural Approaches (D-203-8).
5/6/2015	3	11	Deleted the old lighting warrants and reference the new lighting warrants available on NDDOT website.
5/6/2015	3	12	Removed span length table from Standard Drawing D-772-6&7 and added them to this section.
5/6/2015	3	20	Added guidance that SP's must be PE stamped if they contain an engineering related work product.
1/30/2015	1	8	Added descriptions and process for supplemental data with project plans.
1/30/2015	3	5	Added clarification of when to use salvaged base vs. aggregate base course CL 5 with projects.

CHANGES TO DESIGN MANUAL - 2014

Date	Chapter	Section	Description
7/28/2014	2	3	Added descriptions and process for new SOV Letter #8.
7/28/2014	3	3	Revised left turn lane minimum storage lengths. Also added section to provide guidance concerning geometrics of truck acceleration/deceleration lanes at railroad crossings.
7/28/2014	3	10A	Updated the pavement marking goal tables.
5/12/2014	2	4	Added new section, “Wetlands, Vegetation, & Environmental Permitting”
4/16/2014	1	10A	Updated distribution list for FHWA Projects of Division Interest (PODI), which essentially replaced Full Involvement.
4/16/2014	5	5A	Added more description for measurement of cover or pipe
4/16/2014	3	1C	Revised the Final Office Plan Checklist
4/16/2014	3	21	Added sections to describe Alternates, Options, Tied Projects, Sub-Projects, and other minor updates
3/11/2014	5	5	Revised to permit local governing entity to select pipe materials for off state system projects.
3/11/2014	5	5A	Added pipe backfill height tables for 5” x 1” corrugated pipe.
3/11/2014	1	6	Revised to correctly reference 2011 AASHTO Green Book.

CHANGES TO DESIGN MANUAL - 2013

Date	Chapter	Section	Description
12/31/2013	-	-	Added Construction Services – Environmental Review Section to the Distribution Lists.
12/27/2013	3	19A	Added this section for maintaining traffic for work zones.
11/27/2013	1	1, 2	Combined these two sections both into Chapter 1 Section 1.
11/27/2013	1	2	Revised this section to the Milestone Program.
11/27/2013	1	2A	Add this section to contain the Milestone Flowcharts.
11/27/2013	2	1	Revised this section due to new DCE documents and environmental reference updates.
11/27/2013	2	2	Moved the Milestone Program to Chapter 1 Section 2, and revised this section to now be Environmental Documentation to detail new DCE process and other updated environmental information.
11/27/2013	2	2A	Moved the Milestone Flow Charts to Chapter 1 Section 2A. Revised this section to Cultural Resource Procedures Outline
11/27/2013	2	3	Revised this section to now be Public Involvement and Coordination due to new DCE process.
11/27/2013	2	4,5,6,7	Deleted these sections and appendixes.
10/23/2013	3	13B	New section added for guardrail length of need details.
8/21/2013	3	9	The section was updated (last page of section) to now require Type IV and Type XI retro-reflective sheeting.
8/21/2013	3	9A	The signing detail figures were revised to be compliant with 2011 MUTCD.
8/21/2013	3	10B	The marking detail figure has been revised to be consistent with current practice of using message arrows in lieu of “ONLY” pavement marking for turn lanes.
3/28/2013	1	4	The map of the NHS system was updated.
1/31/2013	3	15	This section has been replaced by new section to describe: fills over 7’, foreslope flattening, and flattening at culverts.
1/31/2013	3	15A	This section has been deleted.
1/31/2013	3	15B	This section has been deleted.
1/31/2013	3	14	Minor revision guardrail section which added text to be consistent with the *DESIGN GUIDELINES*.

CHANGES TO DESIGN MANUAL – 2013 (Continued)

Date	Chapter	Section	Description
1/16/2013	1	8	The section was revised to reflect internal submission of electronic and hard copy plans. O: drive, plan holding folder, DIP, etc…
1/16/2013	2	3C	Civil Rights was added to the distribution table to be invited to public meetings.
1/16/2013	3	4	The section was revised to incorporate guidance for sliver grading, borrow, waste, grade raises, and culvert guidance.

CHANGES TO DESIGN MANUAL - 2012

Date	Chapter	Section	Description
12/5/2012	3	3	Updated the turn lane design criteria for length, storage, etc..
12/5/2012	3	14	Updated section to clarify Safety Reviews for Minor Rehab, Structural Improvement, and Major Rehab types of projects.
9/20/2012	2	2	Updated section to incorporate numerous new milestone items.
9/20/2012	2	2A	Replaced section to display flow charts for specific milestone items.
7/23/2012	2	4	Updated public meeting process to include SFN forms for sign in sheets and participation survey. Also revised Local Gov't process.
5/31/2012	1	15	The reference publications were updated. Revised to use the 2011 AASHTO Green Book.
4/10/2012	1	4	The HPCS and NHS maps were updated.
4/10/2012	1	15	The reference publications were updated.
4/9/2012	1	10A	Revised the distribution list for plan reviews.
4/9/2012	2	3C	Revised the distribution list for environmental documents.
2/3/2012	5	5	This section was revised to incorporate the updated revisions to the NDDOT Alternate Pipe Materials Policy.
2/3/2012	5	5A	The backfill tables were revised to clarify where minimum cover is measured from for paved and unpaved roadways.

CHANGES TO DESIGN MANUAL - 2011

Date	Chapter	Section	Description
12/7/2011	N/A	N/A	The Master Table of Contents was updated.
12/7/2011	3	1C	Added new items to the Final Office Plan Review Checklist.
12/7/2011	2	4	Removed requirements for floodplain/wetland info on advertisements for public meetings
7/25/2011	4	All Sections	Chapter IV “Structural Design” was re-written to update Bridge Division policies, procedures, and incorporate the LRFD manual into the Design Manual.
2/1/2011	3	3	Revision to reflect turn lane length table is for non-controlled approaches.
2/1/2011	1	10A	Revised distribution list. Planning Division was taken off list and now only shows Programming Division for plan reviews.
2/1/2011	2	3C	Revised distribution list. Planning and Programming Divisions are now separate Divisions.

CHANGES TO DESIGN MANUAL - 2010

Date	Chapter	Section	Description
11/12/2010	1	15	Updated to reflect the most current reference publications in use by NDDOT, as well as adopted manuals.
11/12/2010	2	2	Added new utility and ETS PCR review milestone items.
11/12/2010	2	3	Revised the attendee requirements for management presentations.
11/12/2010	3	8	Revised this section to be consistent with the *"Coordination and Notification for Utility Relocation, Adjustments, and Reimbursement"* Policies and Procedures on the website.
10/7/2010	2	5	Revised the ECL description and procedures.
9/22/2010	1	6	Minor Rehabilitation sliver grading methods and descriptions of the *DESIGN GUIDELINES* have been revised.
9/16/2010	3	11, 12	Revised to add lighting and traffic signal foundation size table
6/17/2010	2	3	Revised the Wetland Delineation and Wetland Jurisdictional Request information.
5/20/2010	2	4	Added information to SOV section that talks about how Local Government Entities such as cities or counties are to fill out SOV Letters #2 and 5.
5/6/2010	2	5	Revised ECL correspondence with ND State Water Commission via SOV Letter #6.
4/20/2010	3	20	Special provision request timelines were revised, including TERO and ITS special provisions.
3/25/2010	3	14B	The backslope rates were revised to be consistent with the AASHTO Roadside Design Guide.
3/25/2010	1	4	Shoulder guidance was added for Interregional highways, maps updated, and the urban maps were removed and included as reference to the NDDOT website.
3/2/2010	3	6	This section had multiple revisions including: rumble strips, approach surfacing policy, and asphalt surfacing descriptions.
2/4/2010	1	6	Preventive Maintenance subcut repair work was added to the *DESIGN GUIDELINES.*
1/8/2010	1	6	The slough/shoulder treatment methods of the *DESIGN GUIDELINES* have been revised.

CHANGES TO DESIGN MANUAL - 2009

Date	Chapter	Section	Description
12/31/2009	1	11	The "Plan Addendum Summary and Approval" form was incorporated into this section.
10/30/2009	3	5	This section was revised regarding permeable bases and other items.
10/30/2009	1	7	New plan sections were added, including Section 075 Wetlands, Erosion Control, and Seeding.
9/25/2009	3	2	The section was revised to describe the regulation of work products of Professional Engineers and Surveyors.
9/24/2009	1	6	The *DESIGN GUIDELINES* were revised regarding Minor Rehab overlays and Sliver Grading.
9/24/2009	4	2	Design Memo 02-2005 was incorporated regarding box culvert length determination.
7/30/2009	2	3	The wetland delineation, jurisdictional request information was updated. The safety review, traffic ops, and pavement information was also updated.
6/17/2009	5	3	This section was revised to be consistent with the Alternative Pipe Selection criteria. Other minor revisions were done.
6/8/2009	3	3	Incorporated the new turn lane dimensions table. Also moved small sub-section on Driveway and Access Management to Section III-16.
6/8/2009	3	13	Moved Driveway and Access Management from III-03 to this section.
6/2/2009	1	8	The Standard Drawing sub-section was updated.
6/2/2009	1	10	The distribution information and descriptions for plan reviews were updated.
6/2/2009	3	1A	The Plan Design and Development Checklist was updated to be consistent with plan standards.
6/2/2009	3	1B	The Plan Review Checklist was updated to be consistent with plan revew process.
5/12/209	1	8A	Updated the Electronic Plan Sheet Submittal Checklist to require test printing of electronic .pdf plans.
5/12/2009	3	4	The procedures for State Optioned Borrow were updated, as well as other multiple minor revisions.
5/12/2009	3	9	The section was updated to require Clearview Highway Font for all Variable Message Signs (Guide Signs).
5/12/2009	3	18	The Salvaged Credit Policy was incorporated into this section.
4/21/2009	2	4	Added SOV letter #6 description.
4/16/2009	2	3C	Added Traffic Ops Section to PCR distribution list.
4/8/2009	2	2	Multiple milestone activities and descriptions were revised.
4/8/2009	2	2A	Multiple Milestone activities and responsible Divisions were revised.
4/8/2009	TOC	TOC	Table of Contents was revised.
2/26/2009	1	11	Updated the electronic submittal and descriptions for plan addendums and change orders.

CHANGES TO DESIGN MANUAL – 2009 (Continued)

Date	Chapter	Section	Description
2/11/2009	2	3C	Updated the preliminary engineering Distribution List Appendix II-03A.
2/11/2009	1	8A	Updated the Electronic Plan Sheet Submittal Checklist Appendix I-08A to distinguish max file size of 40 MB.
2/3/2009	1	6	The *DESIGN GUIDELINES* were revised to distinguish that design exceptions are not needed for roadway width on Preventive Maintenance projects, except for thin lift overlays projects they are still required.
1/23/2009	1	8	Updated the submittal, distribution, and requirements of final electronic plans.
1/23/2009	2	5	Updated the submittal, distribution, and requirements for the ECL.
1/8/2009	1	6	The *DESIGN GUIDELINES* were revised to clarify sliver grading for Minor Rehabilitation projects, including additional slough treatment details. Design Exception information was also revised.
1/8/2009	3	10A	Updated the pavement marking life/expectancy table.

CHANGES TO DESIGN MANUAL - 2008

Date	Chapter	Section	Description
12/23/2008	5	5A	15" and 18" pipe sizes were added to the Pipe Culvert Backfill Height Tables on page 6 & 7.
12/23/2008	5	5	The Pipe Material Selection process was revised concerning pipe extensions.
12/17/2008	1	10A	Updated Appendix 1-10A Plan Review Notification, Distribution, and Attendance List regarding PM projects and FHWA involvement
12/16/2008	1	8A	Updated Appendix I-08A Electronic Plan Sheet Submittal Checklist to included D-20 Standard Drawings in the back of the plans.
12/4/2008	5	5A	Created new Appendix V-05A for Pipe Culvert Backfill Height Tables.
12/4/2008	5	5	The Pipe Material Selection process was placed in Section V-05 of the Design Manual.
11/26/2008	1	4	Updated the Design Characteristics to be consistent with the *DESIGN GUIDELINES* for all highway classifications.
11/14/2008	1	6	Updated the *DESIGN GUIDELINES* regarding the guardrail and rail system for roadway and bridge projects.
9/29/2008	4	2	Updated Section IV-02.02.07 Pedstrian Facilities, regarding pedestrian requirements for structures.
9/29/2008	4	4	Added Appendix IV-04 I, regarding pedestrian details for structures.
8/20/2008	2	5	Updated Project Concept Report (PCR) environmental documentation including current PCR policy, format, and consistency with PCR Template.
8/20/2008	2	5C	Updated Appendix C Project Concept Report Outline.
8/13/2008	1	8	Updated for Final Plan Submittal Process for hard copy and electronic plans, and Electronic Plan Sheet Submittal Checklist policy.
8/13/2008	1	8A	Added Appendix A for Electronic Plan Sheet Submittal Checklist.
6/16/2008	1	6	The *DESIGN GUIDELINES for Preventive Maintenance, Minor Rehabilitation, Structural Improvement, Major Rehabilitation, and New/Reconstruction Projects* were incorporated into this section.
6/16/2008	1	4	The State Highway Performance Classification was moved from Section I-06 to Section I-04, which includes the State Highway Performance Classification map and descriptions.
4/22/2008	1	15	Updated Reference Publications list.
2/27/2008	2	4	Updated section concerning Public Involvement.

CHANGES TO DESIGN MANUAL - 2007

Date	Chapter	Section	Description
12/31/2007	3	1C	Added item for projects with painting.
12/17/2007	2	5	Revised App.C from PCR checklist for maintenance to PCR outline
12/17/2007	2	5	Deleted Appendix D, Appendix E and Appendix F
12/10/2007	1	10	Minor update
10/23/2007	3	13	Revised link for Traversable End Sections in Section III-13.05.04
10/12/2007	2	5H	Updated Project Cost History
10/12/2007	2	7	Major update
10/12/2007	3	7	Major update, incorporated material from Design Memo No. 03-2004
10/1/2007	2	3	Minor update
8/24/2007	3	8	Minor update, Revised cost for audit requirement
8/24/2007	3	17	Minor udate
8/24/2007	3	18	Minor update
8/24/2007	3	23	Minor update
8/10/2007	1	10	Major update
8/10/2007	2	4	Major update
8/10/2007	3	1	Major update
8/10/2007	3	3	Major update
8/10/2007	3	13	Major update
8/10/2007	3	13A	Major update
8/10/2007	3	14	Major update
8/10/2007	3	14A	Major update
8/10/2007	3	15B	New section added
8/10/2007	3	20	Major update
6/11/2007	3	17	Update
6/11/2007	3	8	Update
5/29/2007	2	3C	Minor Changes
5/26/2007	3	2	Update
5/25/2007	2	2	Added Scoping Report
5/21/2007	1	12A	Posted
5/21/2007	3	1B	Minor update
5/9/2007	3	2	Update
5/4/2007	3	1B	Made Blanks able to be filled electronically
5/2/2007	2	4A	Deleted this Appendix
5/1/2007	2	3A, 3B, 3C	Minor update
5/1/2007	3	1A, 1B, 1C	Developed Appendix A, B, and C Plan Review Checklists
3/31/2007	3	21	Incorporated Design Memo 02-2004 Incidental Items, 0.75% bond for projects over $1,000,000, and misc.
3/27/2007	2	3A, 3B, 3C	Added Appendix A, B and C
2/3/2007	2	5H	Update
1/31/2007	1	6	Page 22, removed "requires a design exception" for shoulders. See Appendix I-06 C.
1/16/2007	2	4	Update to SOV section
1/11/2007	1	11	Major update

CHANGES TO DESIGN MANUAL - 2006

Date	Chapter	Section	Description
11/7/2006	1	6	Major update
10/25/2006	1	13B	Update
10/24/2006	1	13A	Update
10/23/2006	1	6E	Replaced with new form
10/17/2006	1	13	Added Appendix A and B
9/1/2006	1	10	Plan Reviews

CHANGES TO DESIGN MANUAL REFERENCE AND FORMS

Date	Description
Design Exception Form	
7/31/2015	Updated form to be consistent with Stewardship agreement.
11/7/2012	Modified for to be DOT form. Changed footer.
2/27/2008	Added Minor Rehabilitation to the note at the bottom of the first page.
11/14/2007	Revised threshold for full FHWA involvement from $3 million to $5 million.
5/10/2007	Added electronic distribution statement.
3/29/2007	Updated Work Type on first page. Added Basis for Recommendation on last page.
12/7/2006	Corrected typo on page 2, note 4, bride to bridge.
Legal Display Advertisements and Press Releases	
12/3/2015	Updated all Press Releases and also Public Hearing Advertisement.
12/10/2014	Updated the Public Participation Survey and Instructions.
3/11/2013	Updated the Public Participation Survey and Instructions.
12/5/2012	Updated the Instructions for Public Participation Surveys.
11/7/2012	Add link for Stormwater Poster.
7/23/2012	Updated all public meeting advertisments and press releases. Added sign in sheet, participation survey, instructions, and codes.
4/18/2011	Revised the Public Meeting Sign-In Sheet
1/28/2011	Revised the TTY number on all documents.
9/28/2010	Revised the accessible accomodations paragraph for all documents.
8/11/2010	Replaced the TTY number on all Press Releases and Legal Display Adverisements and replaced with 711.
4/17/2009	Added standard NDDOT public meeting Sign-In Sheet
4/17/2009	Updated all advertisements and press releases contact person information
6/19/2007	Minor revisions to instructions for Press Releases and Legal Display Adervti
3/27/2007	Added Press Releases
2/9/2007	Consultants to use NDDOT TTY number as noted
1/12/2007	Updated all advertisements
Miscellaneous Sheets	
6/24/2015	Updated 3-01C Final Plan Checklist
5/5/2015	Updated Electronic Plan Submittal Checklist with various items.
4/16/2014	Updated 3-01 C Final Plan Checklist
11/27/2013	Moved the Railroad Crossing Review form here from the Design Manual.
9/18/2012	Added new Borrow Site Report excel document.
12/7/2011	Added new items to the Final Office Plan Review Checklist 3-01C.
12/29/2009	Added the Plan Addendum Summary and Approval form.
6/2/2009	City Utility Disposition Letter was revised to make contact person more clear.

Date	Description
NDDOT Environmental Document Covers	
11/12/2014	Added USFS Biological Evaluation doucment.
11/15/2013	Added Document Cover Color Codes.
7/1/2013	Replaced all PCR templates with new Documented CATEX template, and moved to NEPA Documentation table.
7/1/2013	Added the Environmental Impact Checklist.
Noise Information	
6/24/2015	Added Noise Analysis Template
8/21/2013	Revised Type 1 Project Determination.
11/7/2012	Added Type 1 Project Determination link.
4/10/2012	The 2011 noise policy was updated. The Noise Abatement Criteria Table, Activity Category E, was changed from 52 Leq(h) for interiors to an 72 Leq(h) for exterior locations only.
8/19/2011	Created table to post the NDDOT Noise Policy.
NEPA Documentation	
12/31/2015	Revised ECL. Added PM Subcut, removed Dec. Doc. for ITS items, and other minor edits.
12/3/2015	Section 7 ESA Guidance was updated due to species removed from USFWS list for the Greater Sage Grouse.
9/21/2015	Added FHWA & USFWS Programmatic BA for NLEB.
5/5/2015	DCE Enviro Impact Checklist was expanded for numerous items.
5/5/2015	Section 7 ESA Guidance was updated due to new species listing for NLEB.
1/30/2015	Updated Section 7 ESA Guidance
11/12/2014	Added Northern Long-Eared Bat (NLEB) Guidance
4/16/2014	Revised the ECL. Changed Decision Document items, added airport question, and added Surveillance Camera.
11/27/2013	Revised the ECL. Added additional work items and NDDOT signatures.
7/1/2013	Replaced all PCR templates with new Documented CATEX template, and moved to NEPA Documentation table.
7/1/2013	Added the Environmental Impact Checklist.
5/13/2013	Added/Revised documents for Nationwide Section 4(f) for Bridges, Historic Sites, and Recreation Areas.
12/6/2012	Revised ECL/Decision Document title page to read "INTERIM DIRECTOR Grant Levi, P.E.
12/7/2011	Added the Nationwide Section 4(f) Evaluation for Historic Bridges
4/27/2011	Revised the ECL to show the new cost per mile of a PM Overlay
4/27/2011	Posted the revised Cost History Sheet
10/7/2010	Revised the ECL, Added Worksheet C.
5/6/2010	Revised ECL correspondence with ND State Water Commission via SOV Letter #6.
Solicitation of Veiws Resources	
7/7/2016	Updated Master SOV.
6/6/2016	Updated Master SOV. Also added Transit and Railroad contacts.
12/31/2015	Updated SOV Letter #2 - USACE.
12/31/2015	Updated Master SOV
12/2/2015	Updated Master SOV
6/24/2015	Updated Master SOV
5/5/2015	Updated Master SOV and Letter #7
7/24/2014	Added new SOV Letter #8. Also revised contact person for letters 1,3,4,6,7
4/16/2014	Revised Letter #2 US Corps of Engineers

Date	Description
Utility Coordination	
12/31/2015	Added new forms for Utility Coordination and Utility Engineering.
11/16/2010	Added various utility coordination templates/letters.
Environmental Information	
9/21/2015	Added Appendix F5 and Appendix F6.
7/31/2015	Updated Appendix A5
1/30/2015	Updated Appendix A5, D1, D2, D4
11/12/2014	Updated Appendix A3
7/8/2014	Updated Appendix A1, A3, A4, A5, F1, F2
5/12/2014	Added numerous links for templates/forms that are referenced in the appendix of Chapter 2 Section 4 of the Design Manual.
4/16/2014	Revised Section 7 ESA Guidance.
3/11/2014	Updated Wetland Tables and Wetland Info and 404 Permit Guidance for Consultants
12/27/2013	Added new documents for Floodway Authorization Guidance, Sovereign Lands Permit, and USFWA General Special Use Permit.
12/27/2013	Revised Floodplain Permit Guidance and Wetland Information Guidance.
8/21/2013	Revised Section 7 ESA Guidance.
2/14/2013	Added new link for the Floodplain Permit Application Form
2/14/2013	Added new link for the Regional Service Area-RSA
2/14/2013	Revised the Wetland Tables and the Wetland and Deep Water Impacts Example
2/14/2013	Revised the Wetland Information Guidance for both NDDOT and consultants
11/7/2012	Updated Additional Info for Wetland JR. Deleted Instructions, now on Info link.
9/17/2012	Updated the Wetland Tables.
4/10/2012	Added example typical section for wetland and deep water impacts.
11/4/2010	Added links for Floodplain, Permit, and Wetland Guidance for Consultants and NDDOT Designers.
5/6/2010	Added links for Example Wetland Delineation Reports, for both Field and Office delineations
5/6/2010	Updated the Wetland Tables.
7/29/2009	Addtitional Information for Wetland Jurisdictional Requests, with Instructions was added.
6/2/2009	Wetland Tables were updated for office/field delineations, and for environmental documentation and permitting purposes.
Safety Reviews	
3/11/2014	Minor typos and edits to Safety Review Templates for MaR, MaR widening, & SI
12/4/2012	Added new "Safety Reviews" area with links for safety review templates and spreadsheets.