INDOT Project Development Process

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Project Development Process

This Manual documents the basic approach used by INDOT in its project development process. It provides flow charts for each project category, each of which graphically illustrate the development of a typical project. The project manager and development team need to be mindful of the associated milestones and activities of each project category when dealing with contract bundles that contain multiple work types that span across these categories.

1-1.0 TYPES OF PROJECTS

The project scope of work and work type will reflect the basic intent of the highway project and will determine the overall level of highway improvement. Reference should be made to Chapter 40-6.0 in the Indiana Design Manual that spells out definitions for 4R, 3R, and Preventive Maintenance (Partial 3R) terminology.

1-1.01 Capital Program Preservation

The vast majority of INDOT projects are preservation type projects that are intended to enhance and preserve existing assets throughout the State. The following project types make up the bulk of the Capital Program and are typically managed out of the District office where the project resides.

1. **Preservation (3R)** –
Covers projects that typically include right of way acquisition, utility involvement, and/or environmental permits. Typical work types include:

a. Minor roadway realignment
b. Bridge replacement or replacement of small structure with new bridge
c. New small structure or small structure replacement
d. Road rehabilitation/pavement replacement
e. Intersection improvement with minor geometric changes
f. Slide correction/erosion control
g. Added turn lanes
h. Pipe replacement/lining with additional right of way
i. Drainage correction

2. **Bridge rehabilitation** –
Covers projects that repair/rehabilitate an existing bridge not covered in the Preventive Maintenance category. If any part of the existing structure remains in place, the project remains a bridge rehab.

Typical projects include:

a. Superstructure replacement
b. Deck replacement
c. Substructure replacement
d. Bridge repair and rehabilitation
e. Bridge widening
f. Rigid deck overlay (with rail or coping replacement)

3. Preventive Maintenance –
Covers preventive maintenance worktypes and maintenance contracts. These projects should be within existing right of way and have limited utility involvement, typically with no permits.

Bridge Preventive Maintenance projects are classified under the conditions as set forth in Chapter 412-1.02 of the Indiana Design Manual.

Some typical Preventive Maintenance project types are shown below:

a. Roadway resurface
b. Bridge painting
c. Bridge thin deck overlay
d. Bridge rigid deck overlay (without rail or coping replacement)
e. Mowing/Herbicide
f. Traffic Signal modifications
g. Signing plans

1-1.02 Capital Program New Construction and Reconstruction

1. New Construction (4R) –
New Construction projects consist of roadway and bridge construction along new terrain. These project types may or may not be managed out of the Central Office Major Projects section depending on project financial, economical, or political impacts. These projects follow a development process similar to the Preservation (3R) category with the addition of a more involved environmental document process.

2. Reconstruction (4R) –
Reconstruction normally involves work that changes the fundamental character of the roadway (e.g., converting a two-lane highway to a multi-lane divided arterial), adding adjacent travel lanes to the existing alignment, or reconfiguring intersections and interchanges or other major operational modifications. These projects follow the same

development process as the Preservation (3R) category and are typically managed out of the District office where the project resides.

Typical project types are shown below:

a. Added travel lanes
b. Intersection improvement with major geometric changes
c. Sight distance corrections with significant revisions to existing horizontal and vertical alignment

3. Major Projects –

Major projects are projects of significant financial, economical, and political impact to the department that are managed or co-managed through the Central Office Major Projects division of Capital Program Management. These projects can follow a development process similar to that of 3R/4R Preservation and Reconstruction if delivered as Design/Bid/Build projects. Due to their political and financial significance, however, these project types tend to be fast tracked and may need to employ Alternative Delivery methods to achieve desired stakeholder timelines. These projects are typically managed out of the Central Office Major Project Delivery section.

2-1.0 ALTERNATE DELIVERY METHODS

The majority of INDOT projects are developed through the traditional Design/Bid/Build process. There are times, however, when alternative delivery methods can provide both time and financial benefits depending on the desired project outcomes. Future chapters of this manual will cover these procurement methods in greater detail.

1. Design/Build Low Bid
2. Design/Build Best Value
3. IDIQ – Indefinite Delivery/Indefinite Quantity

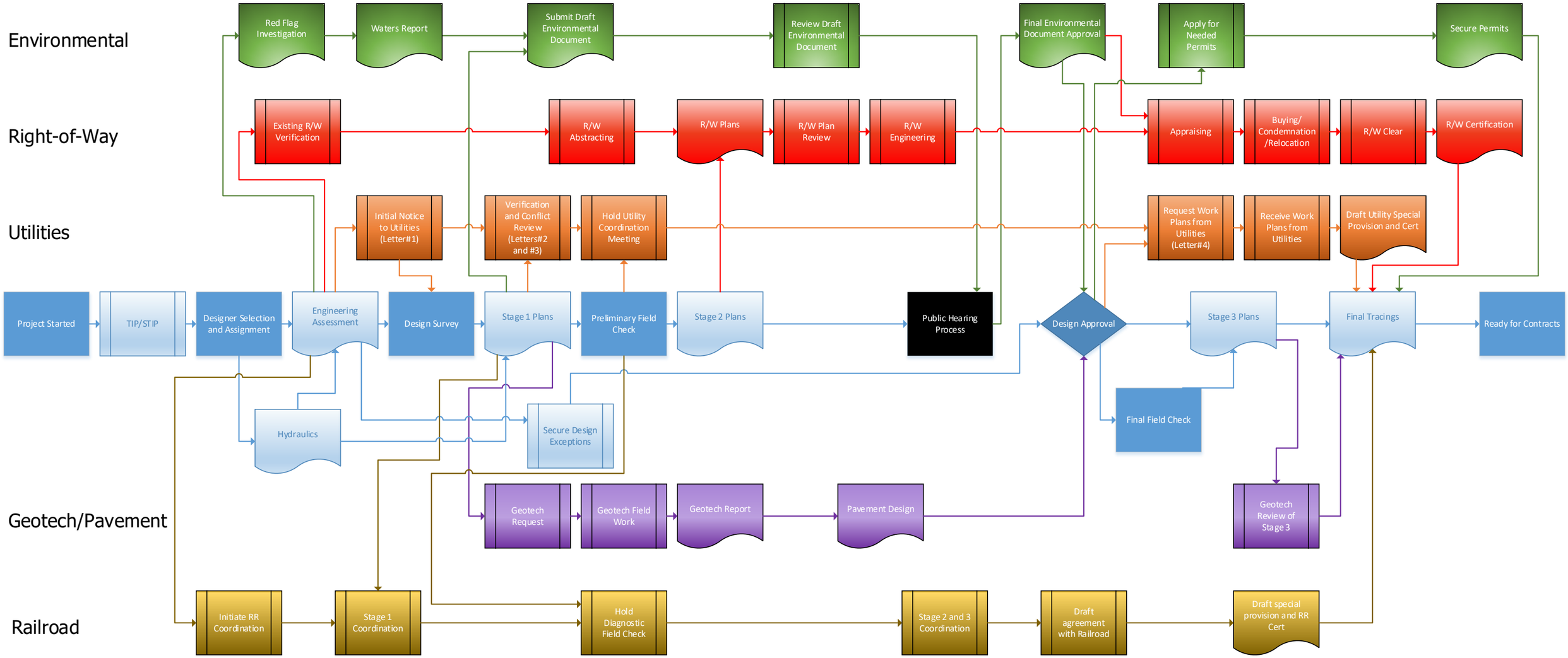
3-1.0 MILESTONES – CAPITAL PROGRAM PRESERVATION AND RECONSTRUCTION (3R/4R)

The following section outlines the milestones for typical Preservation or Reconstruction type projects. New Construction projects on new terrain will follow a similar process, but will involve higher levels of environmental documentation. The process descriptions in this section are not meant to be a comprehensive summary of each process in its entirety but rather an overview of the process as a whole with emphasis upon submittals and time sensitive aspects of a project from a project management perspective.

The durations for each step noted throughout these processes may actually vary depending on a project's scope and complexity, but are to be used as a general guideline. Also included in the process descriptions are instances which might potentially put a project schedule in jeopardy.

Figures 3-1A and 3-1B outline the typical development process for a Preservation or Reconstruction project, and subsequent sections of this chapter describe each milestone in greater detail.

Project Development Process – Preservation and Reconstruction



Legend

- Milestone
- Milestone with Document
- Subprocess

Fig. 3-1A – Preservation and Reconstruction (3R/4R) Development Process Flowcart

Public Hearing Process

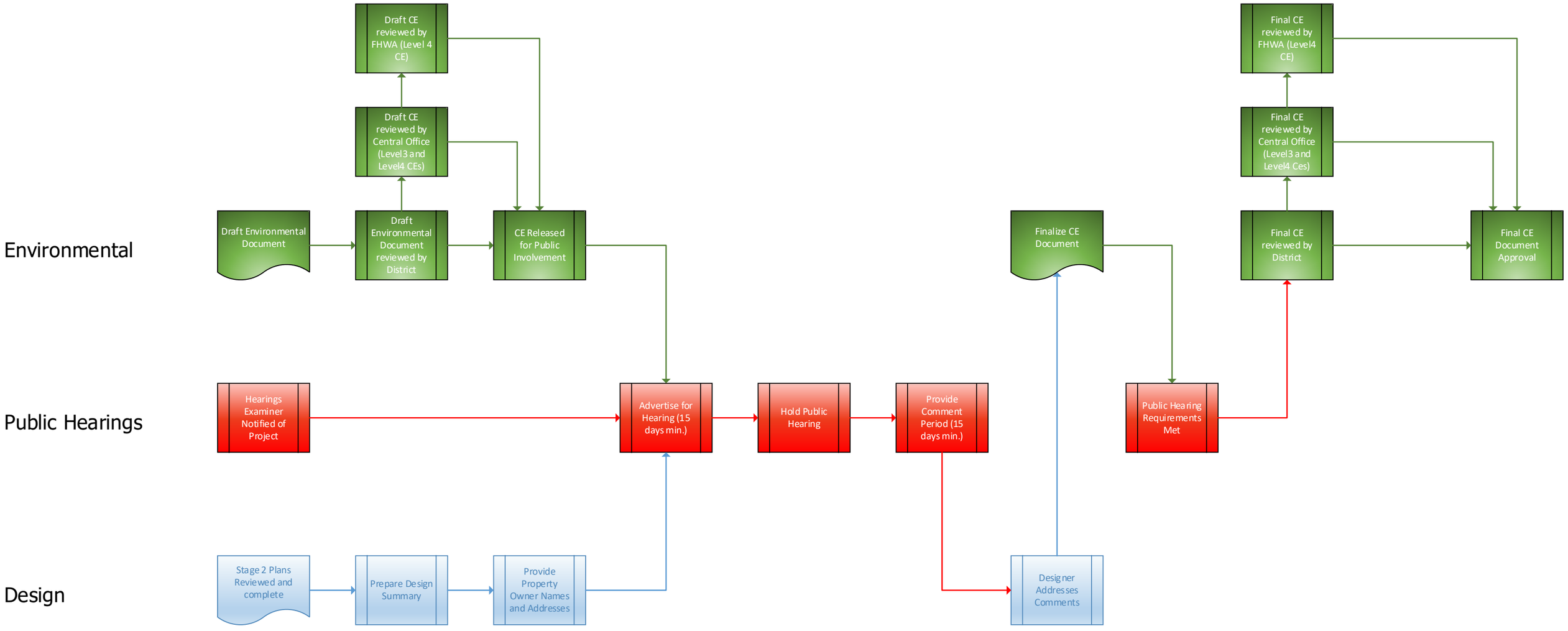


Fig. 3-1B – Preservation and Reconstruction (3R/4R) Project Development Flowchart – Public Hearing Process

3-1.01 Project Started

Duration: 60 Days
Predecessor: None
Successor: Designer Selection and Assignment
Critical Path Element: Yes

Purpose of Task:

The purpose of this activity is for the Capital Programs Department, through the Project Manager, to verify and acknowledge the proposed scope, schedule, and budget as provided by Tech Services through the project's scoping document.

Deliverables:

Project Plan, completed by the Project Manager and authorized by the CPMD (or designee), entered into SPMS. This process also validates the initial project letting date.

Task Summary:

The Project Manager shall develop a Project Plan, summarizing the project purpose and need, project objectives and success criteria, high-level requirements, assumptions and constraints, high-level risks, potential stakeholders, as well as a summary budget and high-level schedule (verifying project can be delivered within proposed fiscal year). The project's scoping document (project initiation document or engineering assessment) should be reviewed by the Project Manager to aid in crafting the Project Plan.

Process Details:

Once a project is proposed, the Project Manager reviews the project scoping document to verify scope, schedule, and budget. The PM needs to ensure these items are clearly defined and attainable.

Barring any emergency considerations, all projects will need to have a scoping document created before the project can be authorized and activated in the Capital Program.

In areas where the PM or CPMD are in disagreement with the proposed scoping document, the PM will facilitate discussions with Technical Services and Capital Programs directors to propose changes to the project scoping document. In cases where this affects project score, budget, or fiscal year, this may result in changes or the project being re-scoped or withdrawn from consideration into that year's program.

Once the Project Plan is completed, it is routed to the Capital Program Management Director (or designee) for review and authorization.

Resource People:

District Scoping Engineer – Responsible for helping to draft proposed project scoping document. Should be a resource to confirm project purpose and need.

District Asset Engineer – Responsible for helping to draft proposed project scoping document. Subject matter expert in proposed treatment type and lifecycle strategy of their respective asset.

Capital Program Director (CPMD) – Responsible for authorizing final Project Plans. To be consulted, along with Technical Services Director, if changes are proposed to a project scoping document before project authorization

Technical Services Director – Authorizes scoping document for distribution for asset deliberations. Responsible, along with CPMD, for reviewing changes to scoping document suggested by the PM to determine next course of action for proposed project.

Potential Obstacles:

- Project Plans not completed or approved in a timely fashion
- Lack of project scoping document
- Scoping document at time of project programming incomplete or incorrect
- Ambiguous purpose and need statements
- Unattainable delivery dates/assumptions
- Underfunded/incomplete budget for any phase of the project
- Disagreement between Capital Programs and Tech Services on final changes to scoping document

3-1.01(01) TIP/STIP (Transportation Improvement Program/State Transportation Improvement Program)

Duration: 120 days
Predecessor: Project Started
Successor: Designer Selection and Assignment
Critical Path Element: For those projects utilizing Federal Funding

Purpose of Task:

Each state is required under 49 U.S.C. 5304(g) to develop a statewide transportation improvement program (STIP) covering a period of at least four years. The STIP is a staged, multi-year, statewide intermodal program of transportation projects, consistent with the statewide transportation plan and planning processes as well as metropolitan plans, transportation improvement programs (TIPs), and planning processes. The STIP must be developed in cooperation with the metropolitan planning organizations (MPOs), public transit providers, and any Regional Transportation Planning Organizations (RTPO) in the state, and must be compatible with the TIPs for the state's metropolitan areas.

The STIP serves two purposes. First, it presents a comprehensive, one-volume guide to major transportation improvements planned in the State of Indiana. Second, it serves as the reference document, required under federal regulations (23 CFR 450.216), for use by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) in approving the expenditure of federal funds for transportation projects in Indiana. The STIP is a valuable reference for implementing agencies such as the Indiana Department of Transportation (INDOT), and all other parties interested in transportation issues in the state.

Deliverables:

Inclusion of the project (along with associated financial information for each phase) into the STIP (and TIP, if applicable).

INDOT STIP is updated monthly throughout the course of the year for projects additions, advancements, deletions, and other types of modifications. These are accomplished either by a formal STIP Amendment or a Modification.

STIP Amendment - Before FHWA/FTA can approve a STIP Amendment the associated MPO's TIP must also be amended, if the project is within the geographic boundaries of the MPO. Generally, the MPO TIP may only be amended by a formal resolution of the MPO Executive Board. TIPs/STIP require formal amendments based on the following criteria:

- Adding a new project that was not included in the current STIP
- Adding a new phase of a project not currently included in the STIP (preliminary engineering, right-of-way acquisition, construction)
- Changes where project costs have increased or decreased significantly
- Changes in project scope

Task Summary:

Once a project is approved for the Capital Program, the Project Manager, in conjunction with the Program Funds Manager, is responsible for coordinating with any applicable MPO and the central office Planning Department to ensure funding amounts for all phases of the project, along with the estimated fiscal year of federal authorization for each phase is accounted for in the STIP (and TIP if project resides in an MPO/RTPO boundary)

FHWA breaks project funding down into three major phases:

a. PE – Preliminary Engineering – this includes all design/development costs associated with the project. All scoping, design, survey, environmental, engineering services (Geotech, pavement design, etc.), utility/railroad coordination, along with right-of-way engineering, title research, and in some cases, when pre-approved, appraising services fall under this phase. Construction inspection for Local projects is currently considered a PE phase activity.
b. RW – Right-of-way – this phase includes appraising, negotiation/buying, relocation, condemnation, and property management for not only the services provided, but the actual cost of real estate acquisitions, relocation, and judgment amounts.
c. CN – Construction – Includes the estimated construction cost. Also includes costs associated with reimbursement for utilities and railroads, along with construction inspection services for State projects.

It is imperative that the funding amounts and phases are shown correctly in the STIP/TIP prior to initial funding authorization for each phase. For PE, STIP/TIP is often a critical path activity to get consultant services started. For RW phase it must be in place prior to initial RW authorization and assignment of consultant services for Real Estate functions. For CN phase, it must be in place prior to federal authorization in order to advertise the contract for letting.

Resource People:

· District Funds Manager

· Statewide STIP Director

Process Details:

The duration from start to inclusion of the project in the TIP/STIP Exception includes timeframes allowing for various elements:

· Project Programming includes mapping the project which denotes project within Metropolitan Planning Organizations (MPO) areas. If a project is within an MPO area, the funds manager must ensure inclusion within that MPO's TIP.

· MPOs have various requirements and timelines for including projects their Transportation Improvement Program (TIP).

·Once TIP Amendment has been approved, the funds manager can submit to the open STIP amendment.

· Amendment is reviewed internally and ultimately sent to FHWA for final approval.

· Once the Amendment is approved, the elements within the TIP/STIP can access federal funding.

Potential Obstacles

· The various timelines and schedules of the different MPOs.

Not allowing for enough lead time to get the project in the STIP/TIP prior to initial funding authorization of any phase of the project could lead to project delays.

· Bundling, removing from a bundle, movement of lead Des out of project can cause delays.

· Significant scope changes, cost increases, bundling near the completion of the project can cause the project risk as getting all these approved through Change Management and then included in the TIP/STIP can cause significant delays for the project.

3-1.02 Designer Selection & Assignment

Duration: 30 Days (in-house)
60 Days (consultant on-call)
300 Days (consultant RFP)
Predecessor: Project Started, TIP/STIP
Successor: Engineering Assessment
Critical Path Element: Yes

Purpose of Task:

The purpose of this activity is to assign the plan development of the project to a designer, either to in-house design personnel or to a professional design consultant.

Deliverables: Assignment of the project to an in-house designer for in-house design. For consultant designed projects, a signed INDOT/Consultant contract along with an official Notice to Proceed (NTP) issued from the Department.

Task Summary:

INDOT procures outside professional services using a Request for Proposals (RFP) process. General information about INDOT's RFP and contracting process is available in the INDOT Professional Services Contract Administration Manual.

Firms performing architectural and engineering services and other services associated with project development have to be prequalified with INDOT prior to submitting proposals. Information about the prequalification process is available in the INDOT Consultant Prequalification Manual and at the Consultants Prequalification webpage.

Three of the most common methods to assign a designer to a project are as follows:

1. Assignment to in-house design personnel within the Department.

2. Assignment to outside design consultant through an existing on-call contract.

   On-Call Contracts - To remain responsive to time sensitive issues and to on-board outside professional services quickly, the Department advertises and maintains On-Call contracts for a wide variety of professional services. On-call contracts are advertised through the RPF process for a professional services consultant to provide their services on an “as-needed” basis of assignment, not to exceed a certain cumulative dollar amount of assignments to the contract. Typically, these types of contracts are set with a fixed window of two years from the date of the signed contract to distribute work assignments. At the end of this assignment period, no new

work can be assigned to the consultant on that contract. The advantage of on-call assignments is the ability to on-board outside designers quickly, without going through the RFP process for each assignment. This method lends itself to projects that require immediate attention that may be beyond the Department in-house staff's existing capacity or expertise to deliver.

3. Assignment to outside design consultant through the Request for Proposals (RFP) process.

   Project-specific Contracts – This is the Department's preferred method of procuring professional services that may be beyond the Department's in-house capacity or expertise. Advertising each project individually (or bundled in small groups of similar work types) provides an advantage to the Department in terms of greater flexibility on method of compensation (lump sum, cost plus fixed fee, negotiated labor rate) and also provides a cleaner path for audit to track down and close out projects.

All three of the above methods to on-board a designer have differing processes and durations associated with them. The choice of which method to use to procure design services may depend on project complexity, the time sensitivity of the project in question, or other Department needs.

The three methods above are not the only exclusive means to procure professional services. Additional methods are outlined in the INDOT Professional Services Contract Administration Manual.

Resource People:

Contract Engineer – responsible for finalizing RFP items for advertisement, processing contract amendments, and negotiating fees for project specific contracts.

In-House Services Manager/Design Manager – responsible for managing in-house design workload and verifies in-house design assignments.

Consultant Services Manager – responsible for managing district/regional on-call contracts. Assists PM with determination between in-house and outside consultant services. Typically the Owner Office contact for project development services in the Districts.

Owner Office – Any district/region or group that is designated as the owner of an on-call contract. Negotiates fee proposals for on-call assignments and prepares/approves Work Order Requests.

Process Details:

After Project Authorization, the Project Manager will work with the District Consultant Services Manager and Capital Program Management Director to determine how best to procure professional design services for their project.

In-house design – If the project is considered a candidate for in-house design, the PM or their supervisor will be responsible for requesting the assignment of a designer from the In-House Services Manager or Design Manager of the appropriate region (Central Office or District). Once the In-House Services Manager / Design Manager acknowledges the request and makes the assignment, this activity is complete. In-house assignments should take no longer than 30 days on average for this task.

Consultant Design: On-call assignment – If the project is considered a candidate for assignment to an existing on-call contract, the PM will submit a request for services to the Owner Office of the on-call contract (typically the District Consultant Services Manager (CSM)). The Owner Office will check the availability of the Department's existing on-call capacity to see where an assignment can be made. The Owner Office or their designee will then request a fee proposal from the selected consultant and follow the procedures outlined in the INDOT Professional Services Contract Administration Manual. Once a fee has been agreed to by all parties, the Owner Office will begin drafting a Work Order Request to start the process of issuing a Purchase Order. The PM will need to review this information in PSCS and sign off to advance the Work Order Request. The PM will need to make sure PE money for the agreed to amount is budgeted in SPMS and that the PE phase listed in the STIP and TIP in the correct fiscal year in order to process prior to submitting a Work Order Request. Assignments to an on-call contract should take no longer than 60 days on average if funding and STIP information is already in place.

Consultant Design: Project Specific RFP – If the project is considered a candidate for project specific RFP, the PM (or the CSM) will go into PSCS and create a new RFP Item in the Contract Administration module. This is where the PM (or CSM) will enter project specific information, including work description, des number, project scoping document, estimated design fee, estimated construction cost, identification of what consultant prequalification types may be needed for the project, etc.

Once the PM (or CSM) has finished entering all of their information in the system, they will submit the Item for review. The Contract Engineer will then be responsible for reviewing the RFP Item and making any necessary changes to get the Item ready for advertisement. Once the review is done, the RFP will be advertised on the Department's website for a duration of two (2) weeks to entertain proposals or Letters of Interest (LOI) for professional services. During that time, the District CSM or Owner Office will assign scorers and a team lead to help score and rate the proposals on a qualifications based method of

ranking. Once the advertised two weeks are over, the scorers assigned to that RFP Item will then have two (2) weeks to perform their scoring. The team lead will then tabulate all the scores, break any ties, and provide the recommendations to the Contracts Administration department. The Department then reviews all scores and final selection of the consultant will go through the Selection Committee and the Commissioner's office.

Once a firm is selected, then the consultant will work with the PM and Contract Engineer to set up a scope of work meeting to go over the project(s) and verify expectations as to the level of effort of the work involved. The consultant will then provide a fee proposal to the PM and Contract Engineer to review and negotiate if necessary. Once a fee is agreed to, the process of drafting a contract will be started and it will proceed in the workflow through various approving departments and agencies that the PM can track in PSCS in the "Contract Details" module. This process duration can vary wildly, due to the number of agencies and staff level involved in the process. Typical durations are from 180 to 300 days. 10 months from Item creation to Notice to Proceed (NTP) is not uncommon.
It is important to note that the selected consultant cannot be paid for any work initiated prior to receiving a Notice to Proceed (NTP) from the Department. This notice is given upon final signature of the INDOT/Consultant contract and the issuance of a Purchase Order (PO).

Potential Obstacles & Fatal Flaws:

- Failure to get project amended to TIP/STIP before requesting Work Order. FMIS request for Federal funding cannot proceed until all TIP/STIP requirements are met.

- Instructing the consultant to proceed with work before an official Notice to Proceed is issued by the department. Any work started prior to the NTP will not be eligible for Federal reimbursement.

- Since this item is always on the critical path, every day of delay attributed to this item eats up a day out of the total project schedule. Failure to get RFP items created, fee proposals back from Consultants, Work Orders requested, FMIS delays from FHWA, can all have detrimental effects on the total project schedule.

3-1.02(01) Designer Kickoff Meeting

It is a best practice that the Project Manager host a "kick-off" meeting with the development team and stakeholders once a designer is on board. The project development team might include but not be limited to individuals from a variety of internal departments including Road and Bridge design, Environmental, Hydraulics, Utilities, Real Estate, Construction, and Maintenance. Depending on the size, complexity and impacts of the project, coordination with external stakeholders may include but not be limited to Federal Highway Administration (FHWA), a Metropolitan Planning Organization (MPO), and/or local units of government and representatives from low income and/ or minority populations or business groups that may be uniquely affected. The coordination with external stakeholders may occur at the kickoff of a project or it may occur later once a better picture of the impacts of the project are known. During stakeholder engagement the stakeholder should be given the opportunity to discuss the project from their perspective. As a result, the project development team will have a more thorough understanding of project issues, needs, and goals.

3-1.03 Engineering Assessment

Duration: 180 days – Engineer's Report
60 days – Abbreviated Engineer's Report
Predecessors: May be complete prior to project authorization
Designer Selection & Assignment (if required after project authorization)
Successors: Topographic Survey
Critical Path Element: Yes

Purpose of Task:
The engineering assessment process involves the development and comparison of alternatives, alternative selection, and supporting documentation to establish effective and cost efficient solutions to highway transportation problems.

The engineering assessment process is summarized in either an abbreviated engineer's report or a full engineering report. This document presents a formal analysis of alternatives and serves as the official agency purpose and need for the proposed project scope of work.

In most cases, the full engineer's report or abbreviated engineer's report will be developed prior to project authorization. In cases where this has not occurred, the designer should work to develop this documentation.

In all cases, the designer of record should review the engineer's report that was provided at time of project programming to verify the assumptions are valid and to provide buy-in and concurrence to the project scope.

Deliverables:
Either one of two formats:

An Abbreviated Engineer's Report (or addendum) with supporting data to be submitted and approved.

A Full Engineer's Report (or addendum) with supporting data should be submitted and approved.

Task Summary:
Project work types are broken up into two main categories: Complex and Non-Complex as per the INDOT Engineering Assessment Manual.

Complex work types require Full Engineer's Reports and include, but are not limited to, the following categories (also see the INDOT Engineering Assessment Manual for a more complete list):

- pavement replacement or rehabilitation to 3R or 4R standards
- drainage correction
- added travel lanes and median construction
- intersection improvement
- sight-distance improvement
- slide correction - due to their unique soil characteristics, geotechnical investigation needs to be completed prior to the engineering assessment in order to include the geotechnical investigation's findings into the final engineer's report.

The Scoping Engineer should coordinate with the INDOT Office of Hydraulics, Pavement Engineering, Geotechnical Services, and District Traffic, depending on project type, to ensure that the appropriate expertise is incorporated into the chosen alternative during project selection. During project development as the project evolves, the Scoping Engineer and Technical Services team shall be involved as needed if the scope of work for the project needs to be reevaluated.

Non-complex work types require an Abbreviated Engineer's Report.. The abbreviated engineer's report is a succinct assessment document that summarizes the project scope. These documents often have a directed alternative, as they cover projects that do not require extensive alternative analysis.

Regardless of which assessment type (Full Engineer's Report vs. Abbreviated Engineer's Report) the completed document should be submitted in ERMS for final review and approval.

Resource People:
The following section outlines the persons responsible for the following activities:

- **Defining purpose and need** - Technical Services
- **Preparing the Engineer's Report** – Scoping Engineer (either INDOT or consultant designer)
- **Engineer's Report review and approval** – As per INDOT Engineering Assessment Manual (Typically District Systems Assessment Manager, District Technical Services Director, and Project Manager)

Process Details:
The Engineering Assessment should be prepared in accordance with the INDOT Engineering Assessment Manual.

Potential Obstacles:

- Errors and delays in data collection
- Project Design team may have alternative solution that may re-open the engineering assessment for consideration. This could impact schedule and budget.
- Budget bust in Engineer's Report vs. programmed funding
- Environmental Unknowns – Cultural Resources, Underground Storage Tanks, etc.
- Railroad involvement – failure to identify early could lead to increased costs and delays.

3-1.04 Design Survey

Duration: Approximately 75 Days (may be weather dependent)
Predecessor: Engineer's Assessment, Designer Selection and Assignment
Successor: Stage 1 Design
Critical Path Element: Yes

Purpose of Task:

The purpose of the field survey is to provide the Designer with a field survey in INDOT format of physical features in a 3D format, which will be used to prepare a design to fulfill the requirements identified in the Scoping Report.

The survey will also provide information to the Real Estate Section for purchase of additional property, if needed. Ideally, the identification of needed additional right-of-way shall be called for in the Scoping Report, though this also may be discovered during design when it is determined the proposed design cannot be accomplished within property presently owned by the State of Indiana.

Deliverables:
Topographic Survey submitted in ProjectWise according to INDOT's CAD standards. If additional right-of-way is needed, a Land Control Route Survey Plat is required.

Task Summary:
Obtain project requirements, collect available records, establish or reestablish survey alignment, establish elevations, collect topographic data of project limits, tie survey into United States Public Land Survey (USPLS) corners, create and record Location Control Route Survey (LCRS) Plat, place survey information into ProjectWise, maintain open communications with design team, and advance proper notification when survey is complete. Identify and locate above ground and underground utility facility locations.

Resources:
The following is a sampling of those considered as resources to the survey team. However, other sources may be as good and valuable to the cause.

- County Courthouse (Auditor, Recorder, Assessor, Treasurer, and Surveyor).
- County online GIS database, where available
- Private surveyors who have completed property surveys in the area.
- Records Section in Central Office for plans and books of previous road and/or bridge surveys and plans.

- Check INDOT records in INDOT district in which the project is located, including ProjectWise. Individuals move on and memories of surveys conducted in the past may not be known to present personnel.
- Underground Utility Locates.
- Internet sites for National Geological Survey (NGS) horizontal and vertical control locations and positions.
- District Survey Manager.
- Designer.
- Valuable information can be found in Title 865 IAC, Rule 12 and the Indiana Design Manual.

Process Details:
Each survey will require variations of sequence and requirements to complete, but as a general rule, roadway projects will require:

- Obtain purpose, location, length, and width of project from Scoping Report or Designer.
- Is additional R/W needed? If so, this will require tying survey into USPLS corners, subdivision corners, and monuments called for in deed of record of the present property owner. A detailed list of requirements can be found in Title 865 IAC, Rule 12.
- Obtain INDOT plans and books of surveys, road and bridge, in the area of proposed project.
- Visit County Courthouse to obtain:
    - Name of latest owner of record of all property that may touch this project (Auditor's Office, and checked in Recorder's Office).
    - Copy of deed of latest property owner (Recorder's Office)
    - Address of property owner to send Notice of Survey letters (Treasurer's Office)
    - Copies of all recorded surveys within area of survey (Recorder's Office and/or Surveyor's Office).
    - Copies of all Subdivision plats in the area of survey (Recorder's Office or Surveyor's Office).
    - Legal Drain information on Legal Drains (Recorder's and/or Surveyor's Office).
    - Section Corner information (Surveyor's Office).
- Interview owner of property within area of the project.
- Establish a Control Point back of start of project and beyond end of project. It may require additional Control Points throughout the project if the project warrants these monuments.
- Using survey grade GPS, obtain Indiana State Plane Coordinates' (SPC) on each Control Point.
- Convert SPC to Local Ground Coordinate (LGC) on Control Points.
- Traverse between these Control Points. If within allowable tolerance, adjust to LGC as computed from SPC's on the Control Points.

- Reestablish original survey alignment from INDOT plans; if there isn't an original alignment; establish a survey alignment to best fit the existing roadway.
- Reference all alignment points and USPLS corners.
- Establish Bench Marks (used to establish elevations throughout the survey limits) from government Bench Mark records.
- Locate visible physical features (Topography) within limits of survey as specified by project scope or designer.
- Tie underground utilities, via monument by utility owner's representatives, into the project survey.
- Create LCRS Plat.
- Record LCRS Plat in county of survey; in all counties for those surveys crossing from one county into another.

For those surveys for bridges, there are additional requirements, for example:

- 100 feet upstream and downstream or as determined by permitting requirements.
- Location, horizontal and vertical, of present structure.
- Side view of present structure showing information to compute Average Ordinance of structure.
- Low steel elevation of structure.
- Testimony of local individuals having information of markings showing High Water marks, Low Water marks.
- Elevations on High Water marks, Low Water marks, and drift shots for Average High Water marks.

Potential Obstacles:

- Property owners who are resisting proposed project, or simply do not want anyone on their property for any reason.
- Scoping report doesn't call for property to be purchased but during design its determined additional property is needed.
- Scoping report calls for need of additional property when in fact none is needed.
- Original alignment monuments not recovered which leads to inconsistencies and ambiguity in the location of right-of-way lines.
- Unable to recover all necessary section corners, thus requiring additional research and field work to re-establish missing corners.
- Underground utility coordinators are not responsive in locating utilities which causes delays in completing the survey.

3-1.05 Hydraulics

Duration: 60 days (minimum of 45 days)
Predecessor: Designer Selection and Assignment[1]
Successor: Engineering Assessment
Critical Path Element: Yes

Purpose of Task:
The purpose of the Hydraulics Analysis is to calculate the size of the structure(s) needed to provide the required amount of flood protection while taking into account various regulatory agencies concerns.

Deliverables:
Hydraulic report and model. A memorandum from the INDOT Office of Hydraulics with the project's approved design option(s) is required. In some instances, the preliminary hydraulics may have been performed during the project selection process, prior to project authorization. The project manager should always check with the Office of Hydraulics before assigning this work to the design team to ensure duplication of effort is not being expended.

Task Summary:
The designer is to provide a hydraulic report and model for all proposed storm sewers (trunkline 36" and larger), small structure replacements (36" and larger) or small structure rehabilitations (liner of any size), bridge replacements or rehabilitations, and detention facilities.

Resources:
- Central Office Hydraulics Staff – Responsible for hydraulic review
- Designer – Responsible for hydraulic design
- County Surveyor – To be consulted if project involves impacts to a legal drain
- Sub-District Maintenance Staff – To be consulted for flooding history
- INDOT Hydraulics Website

Process Details:
After the survey is complete, Designer follows Chapter 203 of the Indiana Design Manual. For small structure replacement, small structure rehabilitation, storm sewer or detention outlets and bridge replacement projects, the Designer will consult with the County Surveyor to determine if the waterway is a legal drain, and if so, discuss any special requirements. Sub-District Maintenance Staff may also have valuable information about any history of flooding at the project site and should be consulted. When completed, the consultant shall submit a hydraulics report and model to the Office of Hydraulics for review and approval through ERMS.

[1] In some cases, the hydraulics analysis may be complete prior to project authorization.

Potential Obstacles:

Designers not following all the Indiana Design Manual requirements will cause resubmittals to be required and delay the approval process.

Assigning hydraulics activities to a designer on a project where the hydraulics memo has already been completed prior to project authorization.

On HDPE small structure liner projects, occasionally a design is approved, but in construction it is discovered the proposed liner will no longer fit into the existing structure due to the continuing deformation of the existing structure. A re-design is then required and may require a headwall or jacked pipe not in the original budget.

3-1.06 Stage 1 Plans

Duration: 155 days (120 days for submittal – 35 days for review)
Predecessor: Survey, Hydraulics (for bridge and small structures)
Successor: Preliminary Field Check
Critical Path Element: Yes

Purpose of Task:
To submit a set of preliminary plans with supporting documentation to set grade and alignment of the proposed design, and to ensure all the applicable federal and state laws, regulations and design standards are adhered to.

Deliverables:
For plan submittal - Set of Stage 1 plans along with supporting documentation in accordance with Chapter 14-2.01(03) of the Indiana Design Manual. Level 1 design exceptions should be identified and applied for during this time if applicable.

For final approval - Marked up Stage 1 Plan set with reviewer's comments attached to the plans. Comments should generally be incorporated into the next plan submittal.

Task Summary:
The designer is responsible for the preparation and delivery of all plan sheets, design computations, quantity take-offs, cost estimates and contract documents.

Plan development is intended to be concurrent with several other project development tasks. Many tasks have to be coordinated to ensure that as conditions change other tasks adjust to the modifications.

Resource People:
The Project Manager has a responsibility to contact all the individuals on the team to ensure the project is delivered successfully. The entire development team will need to be contacted throughout the development phase as appropriate. Getting concurrence from key stakeholders at this stage is crucial in minimizing costly design changes further in to development. A concise list of resource people include:

- Central Office Bridge and/or Roadway Services Staff
- District ERMS Coordinator
- Construction Area Engineer
- Asset Engineer
- Designer
- Utility/Railroad Coordinator
- various Technical Staff

Process Details:

Grade Review Meeting

A grade review meeting should be held with the project manager and development team prior to Stage 1 plan submittal for certain New Construction or Reconstruction work types. The meeting is primarily for new alignment/geometry configurations and should be held at the discretion of the project manager. See Chapter 14-2.01(01) of the IDM for more information.

Stage 1 Plans

Work on Stage 1 plan development occurs after the topographic survey is finalized and should be approximately 25% complete at this time. The design should identify the project limits, horizontal and vertical alignment characteristics, existing utility facility locations, and all Level 1 and certain Level 2 Criteria of the proposed improvements.

a. Selecting a Traffic Control Strategy

Initial analysis and discussion about the preferred method of Maintenance of Traffic (MOT) should be occurring prior to this submittal. The project scope may have designated a particular strategy for MOT. The development team is still responsible for collecting data, considering alternatives, and analyzing feasible transportation management strategies based on the guidance given in the scope as a starting point.

Selection of the appropriate traffic control strategy can represent one of the most significant elements in project design. The identification of an appropriate strategy at an early stage in the development process can significantly reduce the amount of time spent on analysis and expedite overall planning and design. A Traffic Control Strategy memo, residing on INDOT's Editable Documents webpage, should be routed around this time to validate the project's preferred MOT scheme.

b. Design Exceptions

Level 1 Design Criteria are design elements that have been identified by FHWA and INDOT that are the critical elements of a highway's safety and functionality. Level 2 Design Criteria are important elements to a highway's safety and functionality, but are not as critical as Level 1. On occasion, exceptions to Level 1 & 2 criteria are required. Refer to the Chapter 40 of the Indiana Design Manual regarding the process of obtaining Design Exceptions.

Stage1 plans are submitted through the department's Electronic Record Management System (ERMS) by the Designer and are routed through the District Coordinator. Once submitted to the District Coordinator:

- The PM is notified by the Coordinator that the plan set has been received by INDOT
- PM reviews submittal to ensure adherence to scope, schedule, and budget
- SPMS is updated to reflect the submittal's latest cost estimate
- Coordinator sends the plan set to Central Office review (either Central Office Bridge or Roadway Services, depending on project type)
- Coordinator sends the plan set to Construction for Stage1 Constructability Review

Stage 1 Plan Review

The INDOT District ERMS Coordinator is the initial contact for all design submittals. The submittal will then be forwarded to the Central Office INDOT ERMS Coordinator (Coord7 or Coord8 as appropriate) for final concurrence and sign off. The total review time should be less than 35 days for plan submittals. The Project Manager should review the supporting documents at each submittal to validate that scope, schedule and budget are within acceptable ranges.

Depending on workload capacity, the plan review may either be performed in house or outsourced to a consultant reviewer. Once complete, the marked up plans are put back in ERMS and the District ERMS Coordinator is notified by the appropriate Central Office ERMS Coordinator to let the PM know the review is complete.

In cases of extreme urgency, an expedited review may be requested. All requests should be directed through the appropriate manager of Road or Bridge sections. Proactive communication is encouraged in these types of situations.

Constructability review of the plans should be happening concurrently with this review.

Potential Obstacles:

- Level 1 Design element exceptions found late in project development. If a deviation from standards on a Level 1 Design criteria is found late in the game, this can have major impacts on project scope, schedule, and budget. Don't put off applying for these and assume that a Level 1 design exception will be approved. Early identification and application of Design Exceptions can save a lot of rework associated with a costly redesign if the exception is not approved.
- Design with Utilities in mind. Try to avoid conflicts if possible. Early identification and adjustment of design to avoid and minimize utility conflicts as much as practical can avoid expensive utility costs and delays down the road.
- Staying on schedule. Stage 1 plans are typically on the critical path in the development process. Delays to this submittal could add to overall project delays.

- Scope Creep –The design should focus on the primary objective of the project. It is easy to incrementally add elements to the project. Be sure the proposed design reflects the intent of the project. For example, if the project is a small structure replacement, then do not attempt to fix the substandard vertical curve unless this is a need outlined in the engineering assessment.
- Delays in transitioning documents to review staff
- Excessive markups on plans that necessitates a re-submittal of Stage 1 plans
- Incomplete Stage 1 plan set and supporting documents
- Expedited review requests sent in at last minute
- PM not tracking review times – Agency reviews can bust a schedule if not monitored and accounted for in the project schedule.

3-1.08 Preliminary Field Check

Duration: 60 days (although actual meeting is a one day event)
Predecessor: Stage 1 Plans
Successor: Stage 2 Plans
Critical Path Element: No

Purpose of Task:
To hold an on-site meeting with a broad group of project stakeholders to collect, share and distribute information pertaining to the project.

Deliverables:
An updated plan set incorporating the markups from Stage 1 review, as well as PFC meeting minutes to be compiled by the Designer and distributed to the PFC attendees. Both plans and minutes should be a part of the project file. This submittal does not go through a formal review.

Task Summary:
Field checks provide affected parties, such as utilities, railroad, construction, environmental, and right-of-way personnel, the opportunity to ensure that all concerns are addressed and to help prevent unnecessary design changes late in plan development and to avoid construction change orders.

Resource People:
Project Designer
Construction Area Engineer
District Asset Engineer
Utility/Railroad Coordinator
Utility Companies
Geotechnical Engineer
Other Technical support staff

Process Details:
A Preliminary Field Check (PFC) should be conducted on the project site. The design plans should be approximately 40% complete at this time. It should take approximately 60 days to incorporate the Stage 1 design review comments, distribute the plans, conduct the meeting, and provide the attendees with meeting minutes. The PFC is essentially for gathering all affected parties of the project to determine potential conflicts; especially involving constructability, environmental, traffic, utilities, right-of-way, geotechnical, and pavement design. It is essential that the PFC meeting be coordinated through the INDOT Construction Area Engineer. It is the responsibility of the Designer to prepare and submit the PFC notification meeting calendar invite and plans a minimum of 2 weeks prior to the field check. For projects with earthwork required,

contact with the INDOT Geotechnical Staff should be made to ensure they are at the meeting. The District Traffic Engineer should be invited to validate the Maintenance-of-Traffic (MOT) strategy. Additionally, the County or City Engineer should be consulted, if applicable, to discuss impacts to local roads and unofficial detour routes.

Potential Obstacles:

- Lack of attendance of critical personnel at the meeting – Best practice is to schedule these field checks around the Construction Area Engineer and District Asset Engineer, as these two individuals generally provide significant insight to the design team.
- Utilities not invited or not accommodated early in the PFC meeting – Most utility company reps do not want to sit through a half hour or more hearing internal INDOT project discussions. Best practice is to start the PFC off discussing utilities first to get their input and let them go about their business if needed.
- Making sure the minutes of the meeting get read and actioned. Ensure the designer responds to comments and suggestions brought up in the meeting. The team can catch a mistake or risk in the meeting and document it, but if it's never followed up on, it can get a project into trouble.

3-1.09 Stage 2 Plans

Duration: 125 days (90 days for plan submittal – 35 days for review)
Predecessor: Preliminary Field Check
Successor: R/W Plans, Public Hearing
Critical Path Element: Frequently, but not always

Purpose of Task:
To submit a set of preliminary final plans with supporting documentation to set proposed right-of-way for the proposed design, further design and detail out the proposed Maintenance of Traffic strategy, and to ensure all the applicable federal and state laws, regulations and design standards are adhered to.

Deliverables:
For plan submittal - Set of Stage 2 plans along with supporting documentation in accordance with Chapter 14-2.01(07) of the IDM.

For final approval - Marked up Stage 2 Plan set with reviewer's comments attached to the plans. Comments should generally be incorporated into the next plan submittal.

Task Summary:
The designer is responsible for the preparation and delivery of all plan sheets, design computations, quantity take-offs, cost estimates and contract documents.

Plan development is intended to be concurrent with several other project development tasks. Many tasks have to be coordinated to ensure that as conditions change, other tasks adjust to the modifications.

Resource People:
The Project Manager has a responsibility to contact all the individuals on the team to ensure the project is delivered successfully. The entire development team will need to be contacted throughout the development phase as appropriate. A concise list of resource people include:

- Central Office Bridge and/or Roadway Services Staff
- District ERMS Coordinator
- Construction Area Engineer
- Asset Engineer
- Designer
- Utility/Railroad Coordinator
- various Technical Staff

Process Details:

Stage 2 Plans

Stage 2 Plans are anticipated to take approximately 90 days after the Preliminary Field Check and should be approximately 55% complete. Plans for this submittal should be close to their final form. Maintenance of Traffic (MOT) for the project should be detailed out and close to its final form. This stage of plan development should have the desired quality and be detailed for public viewing and commenting.

It will be important to take into consideration all aspects of the project that may require more right-of-way; such as, utilities, drainage structures, traffic runarounds, or traffic signal poles. Applicable comments from the Preliminary Field Check should be addressed in this set of plans. It is important to determine the appropriate level of access control at this time. These plans will be the catalyst for real estate buyers to purchase property from land owners. It will be important for the project manager to work closely with the district and central office staff while preparing the plans to ensure proper procedures are followed.

Stage2 plans are submitted through the department's Electronic Record Management System (ERMS) by the Designer and are routed through the District Coordinator. Once submitted to the District Coordinator:

- The PM is notified by the Coordinator that the plan set has been received by INDOT
- PM reviews submittal to ensure adherence to scope, schedule, and budget
- SPMS is updated to reflect the submittal's latest cost estimate
- Coordinator sends the plan set to Central Office review (either Central Office Bridge or Roadway Services, depending on project type)
- Coordinator send the plan set to Construction for Stage2 Constructability Review

Stage 2 Plan Review

A formal review of the Designer's Stage 2 Plans is performed to ensure compliance with the IDM, MUTCD, or other approved standards.

The INDOT District ERMS Coordinator is the initial contact for all design submittals. It will then be forwarded to the Central Office INDOT ERMS Coordinator (Coord7 or Coord8 as appropriate) for final concurrence and sign off. The total review time should be less than 35 days for plan submittals. The Project Manager should review the supporting documents at each submittal to validate that scope, schedule and budget are within acceptable ranges.

Depending on workload capacity, the plan review may either be performed in house or outsourced to a consultant reviewer. Once complete, the marked up plans are put back in ERMS

and the District ERMS Coordinator is notified by the appropriate Central Office ERMS Coordinator to let the PM know the review is complete.

In cases of extreme urgency, an expedited review may be requested. All requests should be directed through the appropriate manager of Road or Bridge sections. Proactive communication is encouraged in these types of situations.

Constructability review of the plans should be happening concurrently with this review.

Potential Obstacles:

- Be sure that during Stage 2 and right-of-way plans that all design elements that may influence the right-of-way line are identified; such as, utilities, drainage structures, temporary runaround, temporary signal, fore slopes, back slopes, construction limits, etc.
- Make sure the Utility Coordinator is consulted before setting final r/w limits, as there may be need to acquire additional r/w to accommodate utilities.
- Level 1 Design elements found late in project development. If a deviation from standards on a Level 1 Design criteria is found late in the game, this can have major impacts on project scope, schedule, and budget. Don't put off applying for these and assume that a Level 1 design exception will be approved. Early identification and application of Design Exceptions can save a lot of rework associated with a costly redesign if the exception is not approved.
- Scope Creep –The design should focus on the primary objective of the project. It is easy to incrementally add elements to the project. Be sure the proposed design reflects the intent of the project. For example, if the project is a small structure replacement, then do not attempt to fix the substandard vertical curve.
- Delays in transitioning documents to review staff
- Excessive markups on plans that necessitates a re-submittal of Stage 2 plans
- Incomplete Stage 2 plan set and supporting documents
- Expedited review requests sent in at last minute
- PM not tracking review times – Agency reviews can bust a schedule if not monitored and accounted for in the project schedule.

3-1.11 Red Flag Investigation

Duration: 30 – 90 days
Predecessor: Engineering Assessment, Designer Selection and Assignment
Successor: Environmental Document
Critical Path Element: Rarely

Purpose of Task:

Red flag investigations (RFIs) are completed to identify locations of concern or items that might create a need for design changes to mitigate or avoid impacts, additional studies, increased projects costs or delays. A "fatal flaw" is an issue that could create significant impacts. Generally speaking, a fatal flaw is a location that should be avoided. All INDOT CEs should have an RFI.

Deliverables:
A Red Flag Investigation document prepared by the environmental team. Final document resides in Projectwise.

Process Details:

a. Conduct Desktop Review: The first source of information for the RFI generally is a desktop review of available electronic databases for things such as historical resources, hazardous materials, or other environmental issues.

b. Identify Potential Property Owners: As part of the desktop review, the Environmental Manager should identify and notify potentially impacted property owners, especially before conducting site visits that require physical entry onto private property. This notification is done via Notice of Entry (NOE) letters.

c. Conduct Preliminary Site Visit: Some resource material (databases) may not reflect current conditions. Therefore, a site visit should be conducted to verify the desktop review. Multiple site visits may be required.

d. Prepare and Submit RFI: The RFI should be completed following the most current RFI guidance and submitted to the District Environmental Manager, and SAM team for review. If potential hazardous materials are discovered, additional studies may be required. In addition to hazardous materials, the RFI might identify other items that could create a need for mitigation or avoidance, which might result in significant increase to the project cost and timeline. On-going communication between all members of the Project Delivery Team is vital to manage these situations.

3-1.12 Waters Report

Duration: 60 – 180 days (seasonally dependent)
Predecessor: Red Flag Investigation
Successor: Permits, Environmental Document
Critical Path Element: Rarely

Purpose of Task:

The Waters Report includes the location of all regulated resources in the project area to include waters of the U.S. and waters of the state.

Deliverables:

The Waters Report is a stand-alone document and is also submitted later with the permit application. If available, a summary of the findings are included in the text of the CE; and a copy of the report is included in the appendix. See the *Waters Report* chapter of the Ecology Manual for more information.

Task Summary:

The waters report is a resource to help the designer avoid and minimize impacts to regulated resources. A permit is required for any unavoidable impacts to regulated resources. The Ecology & Waterway Permitting Office (EWPO) permit specialist assigned to the district will make the determination of the permits required for a project. Permits should be obtained prior to RFC. See the Permit Manual for more information.

Process Details:

For information on the requirements for preparation of a Waters Report, see the INDOT Permit Manual for further details.

Once completed, the Waters Report is submitted through ERMS by the environmental specialist preparing the report.

Waters Reports are routed through ERMS to Central Office Environmental Services for review and concurrence.

Environmental Services will transfer the document into Projectwise where the review comments and final document will reside.

Potential Obstacles:

- Much of wetland delineation is dependent on plant identification, which cannot be completed during late fall or winter months. Waters Report data collection needs to occur during the "growing season" to account for this. If a Waters Report is falling on the critical path, keep this in mind when building and maintaining your project schedule.

3-1.13 Environmental Document (Categorical Exclusion)

Duration: Draft Categorical Exclusion (CE) Document

Programmatic CE	30 Days
CE 1	60 Days
CE 2	120 Days
CE 3	150 Days
CE 4	240 – 360 Days
Final Categorical Exclusion (CE) Document	30 – 60 Days[2]

Predecessor: Red Flag Investigation
Successor: Right-of-way appraising, Stage 3 Plans
Critical Path Element: Frequently, but not always

Purpose of Task:

Environmental clearance is required for all INDOT projects prior to authorizing right-of-way funding and advertisement for letting. Transportation projects vary in type, size, complexity, and can have impacts ranging from negligible to significant to both the natural and human environment. Therefore, the class of document required is based on the extent and severity of the project impacts. There are three classes of NEPA documentation, CE, EA and EIS. Most transportation projects in Indiana qualify for the CE classification.

This section describes INDOT's Categorical Exclusion (CE) process as referenced in the Department's *Procedural Manual for Preparing Environmental Documents*. Environmental Assessments (EA's) and Environmental Impact Statements (EIS') are more commonly encountered for New Construction or Major Projects and are not addressed in this chapter.

Deliverables:

A final environmental document in ERMS, reviewed, and signed off on by all applicable signatories. In addition to the CE document, other deliverables may be required as part of the NEPA process (e.g. Red Flag Investigation (RFI), Waters Report, Threatened and Endangered Species and Section 106 analysis). All INDOT NEPA documentation must be prepared by either certified in-house staff or INDOT prequalified consultants and reviewed and approved by the appropriate approval authority (District Environmental, Central Office Environmental Services Department, and/or FHWA).

[2] 30 Days typical for CE1-3. CE4 Review time can take up to 60 days due to increased number of reviewers.

Task Summary:

INDOT and FHWA, through a programmatic agreement, agreed to allow INDOT to act on behalf of FHWA in assuring NEPA compliance for certain CE level projects.

This chapter describes how to navigate the INDOT CE process and comply with the requirements of the National Environmental Policy Act (NEPA), as modified by the current federal transportation funding bill. The CE level is based on the type of action and the anticipated project impacts. Any work done prior to signing of the CE is "at risk" for receiving federal funding.

The review and approval path for a CE depends on the level of the document. There are 5 levels of CE document:

- Programmatic CE (PCE) – This level is reserved for projects that have little to no environmental impact and that fall under the guidelines of the Programmatic Categorical Exclusion agreement between INDOT and FHWA.
- CE1 and CE2 – Reviewed at the District level.
- CE3 – Reviewed by ESD
- CE4 – Reviewed by ESD and FHWA

See the INDOT Categorical Exclusion Manual for more detail on CE levels. Review should be completed within 30 days for each office conducting the review.

Process Details:

While every project is different and will present unique environmental challenges, there are basic steps that apply to most projects. The following sections outline the subtasks required under the INDOT CE Process.

Step 1: Conduct NEPA Early Coordination

Duration: 1 day to 45 days

NEPA requires coordinating agency participation and comment during the environmental process. For INDOT CEs, the Early Coordination Letter (ECL) is the initial agency contact and the invitation to be a participating and cooperating agency. These coordination letters are sent out to numerous consulting parties and regulatory agencies. See the *Procedural Manual for Preparing Environmental Studies* for a complete list.

Step 2: Conduct Impact Studies

Certain resources require specific impact analyses. These studies are conducted and approved during CE development, with results reported in the CE. Not all CEs will need impact studies. The following are common impact studies; but this is not a complete list.

- **Cultural Resources**

  Review: ESD –Cultural Resources Office (CRO), State Historic Preservation Officer (SHPO), FHWA

  1.) Section 106 Process

  The Section 106 analyses and documentation must be conducted and prepared by an individual who meets the Secretary of the Interior's requirements for qualified professional. Depending on the scope of the project, a variety of documents are prepared during each stage of the Section 106 process. These include Section 106 consulting party letters, both long form and short form Historic Property and Archaeological Reports, Minor Projects PA Submission and approval forms, 800.11 documentation and findings of NHPA, NAE & AE; MOAs, Public Notices, Consulting Party Meeting Notes, Historic Bridge Alternatives Analysis etc. The Section 106 process must be completed before the CE can be approved. Processing time is dependent on the intensity of impacts to identified resources.

  2) State Preservation law – IC 14-21-1-18

  A Certificate of Approval (COA) or the Division Director's letter of clearance must be obtained from the Indiana Historic Preservation Review Board (Review Board) before using any state funds to alter, demolish, or remove a state owned historic resource listed in or eligible for inclusion in the Indiana Register of Historic Sites and Structures (IRHSS) or the National Register of Historic Places (NRHP), or other non-state owned historic resources listed in either the IRHSS or NRHP. A director's letter of clearance is usually issued if there are no adverse impacts to these historic resources as a result of the project. A certificate of approval is, however, usually required if the proposed project is going to adversely impact such resources and must be prepared and submitted to the Division of Historic Preservation and Archaeology at least 40 days prior to the Review Board meeting which occurs quarterly. Cultural Resources Office (CRO) staff should be consulted for additional guidance.

  3) Historic Select Bridges

  Note: Bridges that qualify as Historic Select can expect significant additional development time in the project schedule. 8 to 10 months of additional development time is not uncommon.

Historic bridges are an important part of the heritage, development and transportation system of Indiana. As our state has grown, certain historic bridges have been replaced with modern bridges to accommodate today's higher traffic volumes and larger vehicles. Recognizing the value of Indiana's historic bridges, INDOT commissioned a study to complete an inventory and develop a process to manage and preserve this valued resource. In coordination with the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation, and the Indiana State Historic Preservation Office, INDOT initiated a historic bridge preservation program. This program is outlined through the *Historic Bridges Programmatic Agreement*. It provides incentives for bridge owners to help prevent the loss of these important historic resources and provides a process to manage historic bridges in Indiana.

Projects utilizing federal funds and involving a historic bridge are analyzed to see if the existing bridge will meet the purpose and need of the future traffic conditions expected on that roadway segment. If it does, then rehabilitation of that historic bridge is considered as a viable option for reuse of the existing structure. If the historic structure does not meet the purpose and need for the motoring public, other alternatives are considered.

When a historic bridge is planned for bypassing or replacement, the bridge is offered to any group or individual that may want to take ownership of the bridge and manage or relocate it to another site. Bridges currently available for reuse can be found on the Historic Bridges Marketing Program page.

For more information regarding additional steps to the development process due to Historic Select status, please refer to INDOT's *Historic Bridges Programmatic Agreement*. Also see Chapter 4-1.12 of this document for more information about the Historic Bridge PDP.

- **Section 4(f) Properties**
  Review: ESD –Environmental Policy Office (EPO), IDNR (Indiana Department of Natural Resources), CRO, SHPO, FHWA

  Section 4(f) - Protection of Publicly Owned Park, Recreation Area, Wildlife or Waterfowl Refuge, or Land from Historic Sites. The environmental document preparer must check for Section 4(f) resources for all projects and resolve or document any Section 4(f) "use". The EPO should be contacted for additional guidance if a Section 4(f) property is in or near the project area

- **Karst Study**
  Review: EWPO

  Karst is a type of geological feature generally, although not exclusively, found in south-central Indiana. See the Karst chapter of the Ecology Manual for more information.

Step 2: Prepare a Draft CE

The results of the preceding steps will determine the level of CE required for the project. The review path for draft CE is determined by its level. The draft document must be accurate and complete and ready to be released for public involvement.

Step 3: Complete Public Involvement (PI)

The public involvement process depends on the project impacts. See the Public Hearing milestone chapter or the INDOT Public Involvement Manual for more information on public involvement requirements.

Step 4: Prepare Final CE

Once public involvement has been completed, the environmental document preparer incorporates the results of public involvement into the Final CE. The Final CE is reviewed and approved by District Environmental, ESD, and/or FHWA.

Potential Obstacles:

- The amount of time and level of effort required to document a project's environmental impacts for any project varies with the context and intensity of the impacts to the natural and human environment. It can take from a day to several years. The documentation timeline can be lengthened by changes in scope, changes to the project footprint, change of funding source (partial or entire), unexpected resource impacts, schedule conflicts with other projects, and time of year for field work or construction. It's in the project's best interest for there to be regular and consistent communication between the Project Team members
- If your project requires additional R/W, a good rule of thumb is to have your final environmental document complete 1 year prior to RFC to ensure you allot enough time to complete the right-of-way acquisition process.
- Moving into R/W phase before the CE is finalized can put the project in jeopardy with a potential loss of federal funding eligibility. **Always ensure NEPA is complete prior to requesting R/W funding.**

3-1.14 Public Hearing

Duration: Approximately 60 to 90 Days
Predecessor: Draft Environmental Document, Stage 2 Plans
Successor: Final Environmental Document
Critical Path Element: Yes

Purpose of Task:
To adhere to all state a federal requirements in offering a public forum to discuss a proposed Capital Program project.

Deliverables:
Where public involvement is required, and the environmental document has been released for public involvement, the designer should submit revised Stage 2 plans, Traffic-Maintenance Plan (as required), and a completed public involvement summary to ERMS. Plans must be suitable for public viewing, i.e. no mark ups.

Public comments received during the hearing and during the comment period will need to be addressed by the Designer to incorporate into the Final Environmental Document prior to finalizing and signoff.

Task Summary:
Any project receiving or planning to receive federal funds is subject to a minimum level of public involvement. Public involvement must be documented and certified by the INDOT Office of Public Involvement prior to proceeding to the next stage of development. Public involvement activities are contained in the INDOT Public Involvement Procedures Manual.

Process Details:
The minimum thresholds that trigger public involvement for a project include:

1. Requires one half acre (0.5) or more of permanent new right-of-way (R/W). Any project resulting in the increase in right-of-way due to the factors listed below would be ***exempt*** from this requirement

    a. The proposal does not involve new R/W impacts but rather reacquires past prescriptions (i.e. existing or apparent existing R/W)

    b. The proposal involves the acquisition of donated R/W from property owner

    c. Acquiring R/W presently within INDOT apparent R/W to establish legal documented ownership

d. Additional R/W needed for mitigation purposes, for projects where original R/W impacts as described in the environmental document were less that 0.5 acre

e. Temporary R/W

2. Substantially changes layout or functions of connecting roadways or facility being improved;

3. May have a substantial adverse impact on abutting property;

4. May have a significant social, economic, environmental or other effect;

5. FHWA determines a public hearing is in the public's interest;

6. Highway project uses federal funds and involves bypassing or going through any city, town, or village either incorporated or unincorporated;

7. Is an Interstate System project;

8. Involves a historic bridge; or

9. Requires and Environmental Assessment (EA) or Environmental Impact Statement (EIS)

The designer should upload the revised Stage 2 plans to ERMS and attach the summary and cover letter to the notification email. Templates for the public information summary and notification cover letter as well as an example are available from the Department's Editable Documents webpage.

The Designer will advertise for the opportunity for a public hearing for those projects that meet the thresholds listed above. If significant interest is generated from the hearing advertisement, a public hearing will be scheduled at a proper local venue. The Project Manager should allow for at least 15 days of advertisement for the public hearing (usually in a local newspaper).

The Designer, in coordination with the Environmental document lead contact, Project Manager, and District Communications Director will conduct the public hearing or provide the opportunity for a public hearing for federally funded transportation improvement projects on State-maintained routes.

Comments from the public, either verbally stated on the record, or submitted in writing, are gathered at the hearing for entry into the official public record. Written comments are also accepted a number of days after the public hearing (minimum of 15 days, although this time can be set longer).

Once all of the public comments are gathered, the Designer will go about addressing the comments, which will become part of the final environmental document. The District Consultant Services Manager will sign off on the final environmental document to verify that all public hearing requirements have been met.

Potential Obstacles:

- Not accounting for a public hearing in your project schedule. If required, this is always a critical path item, and will delay your schedule if the Project Manager has not accounted for this activity.
- Failure to gain public support for the project could put the whole project in jeopardy. Significant public backlash can derail even the most well intentioned projects. Early coordination with local officials and key stakeholders can mitigate this risk and give you a greater chance for buy-in and local public endorsement.
- Information gathered out of the public hearing process could generate a re-evaluation of the proposed project alterative.

3-1.15 Design Approval

Duration: 0 days
Predecessor: Final Environmental Document, Stage 2 Plans
Successor: Permits (request), Utility Coordination (Work Plan request), R/W Appraising
Critical Path Element: Yes

Purpose of Task:
Design Approval is not a task, per se, but a trigger that the project has moved into the final design phase; and that activities that require preliminary final plans can commence. A Project Manager tracking this event can ensure functional service providers that depend on final design decisions have the earliest start possible on their activities.

Deliverables:
There are no deliverables for this task.

Task Summary:
There are three items that once completed ensure that the plans are moving into their final form and preliminary final design has commenced.

1. Final Environmental Document complete – Final NEPA
2. Stage 2 Plans (revised from Stage 2 markups) complete – Plans are nearing their final form at this stage. Proposed R/W has been set and geometrics have been finalized.

   This is assuming the Stage 2 plans have incorporated the following:

   a. Pavement Design and Geotechnical work is finalized
   b. Hydraulics memo is complete
   c. Final Maintenance of Traffic determination has been made

3. All Design Exceptions have been acquired (if applicable) – This ensures all Level 1 criteria decisions are finalized, minimizing any further changes to the plans.

Potential Obstacles:

- Having all of the above criteria met and not realizing that final design activities can begin (permit applications, utility work plan requests, r/w appraising) can cause unnecessary project delays.
- R/W phase technically relies on final NEPA approval and R/W Engineering to begin, but other design items such as unapproved design exceptions, hydraulics, and Maintenance of Traffic layouts that are still undecided can have a major impact on needed R/W limits. The Project Manager should make sure these items are completed as much as practical before commencing R/W appraising and buying activities.

3-1.16 Utility Coordination

Duration: Throughout project development.
Work plans – 120 days from request to Utility
Predecessor: Project Started, Design Approval – prior to sending out request for work plans
Successor: Final Tracings
Critical Path Element: No

Purpose of Task:
Utility Coordination is the process of strategically coordinating utility relocation, accommodation, design, and construction issues for Indiana's highway projects.

Deliverables:
Final deliverables are a Utility Certification, Utility Special Provisions, Utility Work Plans, along with any applicable Reimbursement Agreements

Task Summary:
Utility Coordination on contracts is required to be performed by a certified utility coordinator. Coordination with utilities begins as soon as a project scope has been developed and continues throughout construction until the project, including utility work, has been completed. The design of the project should occur simultaneously with the utility coordination process.

The Utility Coordination process should be in accordance to 105-IAC-13, the INDOT Utility Accommodation Policy, and Chapter 104 of the Indiana Design Manual (aka. INDOT Utility Coordination and Design Manual). All information regarding these requirements may be found on the INDOT Utility and Railroads website.

Process Details:

1. *Utility Research* - Usually occurs during the engineering assessment process. The utility coordinator, or a member of the District utility coordination team will research existing utilities in the project area.

2. *Initial Notice* - The utility coordinator will prepare and send to each utility company identified in the research phase, as described above, an initial notice of the proposed improvement project. The initial notice is a letter used by the Department to inform a utility company of a proposed improvement project, as per 105 IAC 13-3-1(c). There are four (4) letters required to be sent out by the Department in the utility coordination process as per Indiana Administrative Code. This is commonly referred to as Letter #1.

   This letter lets the Utility Company know that INDOT has a project planned in that area, and this gives the utilities a heads up in order for them to plan and coordinate their own maintenance and capital improvement projects with INDOT's project.

3. *Survey and Plan Development* – As mentioned in the Design Survey section of this manual, the topographic survey for the project will include gathering existing utility locations, both

horizontal and vertical to the most practical extent possible. For urbanized areas, or locations with several utilities located in a tight footprint, Subsurface Utility Engineering (SUE) may be required to get the appropriate level of existing facility information. Refer to INDOT's Utility Coordination Manual for more information on the different Quality Levels of SUE investigation and their benefits.

4. *Utility facility Verification* – Once Stage 1 Plans have been completed, the utility coordinator will send a verification letter and plans to each utility company with facilities in the project area. Also, the utility coordinator will send a verification letter and plans to each company that did not respond to the initial notice. A verification letter is used to request a utility company to verify that its facilities are shown correctly on the plans, as per 105 IAC 13-3-2(a). This is commonly referred to as Letter #2. In response to the letter, the utility company is required to respond with specific information. This is an opportunity for the utility to verify that their facilities are located accurately on the plans, and if not, then to supply the Department with corrected locations of their facilities.

5. *Conflict Review* – Generally initiated around the same time as *Utility facility Verification*. The conflict review provides the Utility with an opportunity to identify locations where the proposed highway construction is likely to require the relocation of its facility. The utility company and designer can find alternatives to minimize impacts to the proposed construction, utility facilities, and project schedule. The Conflict Review Letter is used to request that a Utility determine if there are conflicts between its facilities and the project, as per 105 IAC 13-3-3(a). This is commonly referred to as Letter #3. In response to the letter, the utility company is required to respond with specific information regarding possible conflicts.

   Both Letter #2 and Letter #3 are sent out in advance of the Preliminary Field Check (PFC). Utility representatives are strongly encouraged to attend the PFC, and a separate utility meeting may be necessary if utility representatives do not attend the PFC.

6. *Work Plans* – After Design Approval, the project moves into preliminary final design phase, and plans can be sent to utilities along with a request for their work plans.

   The work plan is a plan for the Utility to carry out facility relocation to accommodate the project. A Utility with facilities in the project area will provide a work plan as required by 105 IAC 13-3-3(b). A work plan can include up to four components; the narrative, the relocation drawing, a cost estimate, and easement documents.

   Utilities typically have 120 days to draft and submit their work plan to the utility coordinator. The utility coordinator will need to compare all the work plans received by all the utility companies to ensure there are no conflicts between utilities.

7. *Contract Documents* - Prior to the ready for contracts date, the utility coordinator will provide to the designer digital copies of; the utility coordination certificate, the utility special provisions, and the approved work plan narratives and relocation drawings. The documents will be named in accordance with the naming conventions established by INDOT.

The designer will include the documents with the final tracings submission to the Contract Administration Division.

Resource People:
Utility coordination is typically accomplished with multiple participants, each of which is performing a different role during the coordination process. Some participants include but are not limited to the designer, surveyor, certified Utility Coordinator, utility-oversight agent, utility company's authorized representative, project manager, and the individual Districts Manager of Utilities.

Potential Obstacles:

- Waiting until Stage3 to send out work plan requests can cause delays to receiving the utility certification and final documentation.
- Failure to perform accurate research and identification can cause the project team to miss critical utilities, which encountered during construction can cause significant costs and delays.
- Unresponsive utility companies can delay work plans and utility certification.
- Last minute changes to the project plans could cause work plan revisions, or worse, facilities that have already been relocated in anticipation of the project could require a second relocation. INDOT bears the cost of any unnecessary relocations.

3-1.17 Railroad Coordination

Duration: Throughout project development
Predecessor: Project Started
Successor: Final Tracings
Critical Path Element: No

Purpose of Task:
Railroad coordination is required if a project crosses, or is adjacent to, a railroad, and which potentially has an impact on the railroad facilities or operation. This includes roadway design features (e.g., roadway widening, earthwork) which obviously require work on railroad right-of-way, and not-so-obvious impacts (e.g., maintenance of traffic, contractor work activities during construction) which may impact the safe operations of the affected rail line.

Deliverables:
Railroad Special Provisions, along with a Railroad agreement

Task Summary:
Where highways and railroads intersect, are adjacent to, or otherwise encroach upon each other, problems may develop if the operations of one mode affect the other. Highway agencies and railroad companies are each generally responsible for constructing, maintaining, and operating their own facilities. However, close coordination and cooperation between the two is needed where they interact to ensure that the design, construction, operation, and maintenance of both modes are compatible. Please refer to Chapter 105 of the Indiana Design Manual or the Department's Railroad Coordination webpage for further information.

Process Details:
Because of the variety of potential conflicts, the wide variation in potential scope for each type of conflict, and the internal variations among railroad companies, no single railroad-coordination process or timetable is applicable to every highway project.

i. *Scoping Process* - Assumptions regarding Railroad involvement should not be made without consulting the District Railroad Coordinator. Even though involvement may appear to be minimal or non-existent due to a proposed project scope, if there is a railroad within or near the proposed highway project, the designer should request a review by the railroad coordinator. If the project construction limits are within 50 feet of the nearest rail, or if there is the possibility of the maintenance of traffic (MOT) plan involving a rail crossing, there will be Railroad involvement.

   Identifying the need for Railroad Coordination upfront in the engineering assessment phase can ensure proper funding is allocated for RR activities, as well as to start the process of coordination with the affected Railroad.

a. Assessment of Railroad involvement - The railroad coordinator will determine if the project scope is one that will only require flagging from the Railroad. If so, the railroad coordinator will work with the designer to determine a preliminary estimate of the cost for the project and also the number of days the contractor will likely be required to be working within 25 feet of the tracks. Once the estimates are complete, it is not necessary to complete the coordination activities associated with Stage 1 or Preliminary Field Check. The designer may proceed to Stages 2 and 3.

ii. *Stage 1 Coordination* – Once Stage1 plans are complete, the railroad coordinator assesses the scope of work and makes a determination as to if the plans need to be sent to the Railroad company for review and comment.

a. The railroad coordinator will assess if Railroad review is needed. Prior to sending plans to the Railroad, the Project Manager and Railroad Coordinator need to determine if Preliminary Engineering (PE) funding needs to be authorized in order for the Railroad to review the plans. The PM will work with the Railroad Coordinator and Funds Manager to ensure proper funding is in place prior to authorizing PE funds for RR funds. The District Railroad Coordinator will assist in cutting the Purchase Order and Notice to Proceed for the Railroad.

b. Once PE funding is in place and the purchase order is cut, the railroad coordinator can issue the Railroad a notice to proceed and they can begin reviewing the plans and generating comments.

iii. *Diagnostic/Prelim. Field Check* – The preliminary field check is an opportunity to become familiar with and confirm the existence of the Railroad's facilities on site, including any underground facilities. An assessment should also be made regarding the surrounding environment and features including but not exclusive to; drainage, crossing surface, grading issues, active warning devices, and signal and communication lines. Attention should also be given to the impact the MOT plan will have on the Railroad operations and safety.

iv. *Stages 2 and 3 Coordination* –

a. Stage 2 - The Railroad should submit all needed information and comments back to the railroad coordinator prior to the Stage 2 submittal. If comments have not been received by the Stage 2 submittal, the designer should communicate with the railroad coordinator and the project manager to determine if the Railroad has any significant concerns with the overall design.

b. Stage 3 - The railroad coordinator will submit the plans and specifications to the Railroad for final approval. If the Railroad does not approve the plans, the designer and railroad coordinator must address and reconcile the Railroad's concerns with the design plans. The designer must not agree to changes without consulting the railroad coordinator or project manager. For a grade-separated structure, the railroad coordinator must receive *written* correspondence from the Railroad granting their final approval of the plans.

v. *Draft agreement with Railroad* - If not previously submitted, the Railroad must submit its detailed project cost estimates and drawings and details of its proposed work to INDOT. The railroad coordinator will use this and other information to prepare a draft legal agreement between the State and the Railroad for the necessary railroad work to accommodate the highway project. The agreement requires both Railroad and INDOT approval to proceed.

vi. *Final Documents / Final Tracings* - Once the Railroad approves the plans, the railroad coordinator may proceed with the execution of the agreement. Lacking full acceptance from the Railroad, the letting and construction process may proceed, if there is assurance that items still in dispute are relatively minor and that they can be addressed satisfactorily and without subsequent delay to the contractor. However, FHWA will not participate in any costs associated with delays when INDOT proceeds to construction prior to Railroad final acceptance and an executed railroad agreement.

Final Railroad Special Provisions should also be finalized at this time. The designer must include the Railroad Special Provision and any unique provisions required by the Railroad with the Final Tracings submittal.

3-1.18 Geotechnical Investigation

Duration: 180 Days
Predecessors: Preliminary Field Check, Designer Selection and Assignment (for Slide Corrections)
Successor: Pavement Design
Critical Path Element: No for most projects. Critical for Slide Corrections.

Purpose of Task:
The purpose of the Geotechnical Investigation is to evaluate the subsurface conditions of the project site in order to provide analysis and recommendations to the Designer to aid in the design of the project. For all subsurface information required for the geotechnical engineering design of an INDOT project, the Geotechnical Services Section shall be contacted.

Deliverables:
If applicable, a geotechnical report with supporting data should be submitted and approved.

Task Summary:
A geotechnical report will be required for all projects involving subsurface disturbance.
In certain conditions, the Geotechnical Services Section will issue a geotechnical waiver if a subgrade recommendation is not required for work including, but not limited to, certain categories (see *Chapter 107-2.0* of the Indiana Design Manual). Most preservation projects will require a full geotechnical investigation.

Resource People:
The following section outlines the persons responsible for the following activities:

- **Geotechnical Waiver or Investigation Request** - Designer
- **Geotechnical Investigation and Report** – Geotechnical Engineer
- **Geotechnical Report approval** –Geotechnical Services Section
- **Foundation Review form** – Designer
- **Foundation Review approval** –Geotechnical Services Section
- **Geotechnical Review of Final Check Prints request** – Designer
- **Geotechnical Review of Final Check Prints approval** – Geotechnical Engineer

It is recommended that the Geotechnical Engineer be present at preliminary field checks to coordinate with the Designer and Project Manager.

Process Details:

- *Geotechnical Waiver or Investigation Request* – Projects eligible for a geotechnical waiver or full investigation require the Designer to complete *Figure 107-1A* along with supplying additional project information in accordance with *Chapter 107-2.0* of the Indiana Design Manual. This request is submitted by the Designer in ERMS with notification sent to the Geotechnical Services Section.

  If the geotechnical investigation is being performed by the design consultant/subconsultant (turnkey project), and the project is a full geotechnical investigation, a formal geotechnical request is not necessary, but the consultant Geotechnical Engineer still needs to contact the Project Manager and the Geotechnical Services Section prior to the geotechnical investigation field work.

- *Geotechnical Investigation* – This is the process of the Geotechnical Engineer collecting and analyzing the soils data in accordance with the INDOT Geotechnical Design Manual

- *Geotechnical Report* – The findings from the geotechnical investigation are summarized in the geotechnical report, along with recommendations for proposed subsurface treatments. This document also contains supporting data and analysis developed during the investigation. The report is created by the Geotechnical Engineer in accordance with INDOT's Geotechnical Design Manual. If created by a consultant, a draft copy of the report will be uploaded in ERMS with notification to the Geotechnical Services Section. Once approved, the report is uploaded in ERMS with notification sent through the Project Manager back to the Designer.

Once the Geotechnical Report is finalized,

- *Foundation Review* – A foundation review shall be conducted by the designer for each bridge replacement, bridge reconstruction, box structure that can be classified as a bridge, or three-sided structure including that which cannot be classified as a bridge as per *Chapter 408-1.06(01)* of the Indiana Design Manual. A foundation review shall be conducted once actual loads are available, but no later than Stage 3 submittal.

- *Geotechnical Review of Final Check Prints (Stage3)* - If a geotechnical report is prepared for an INDOT project, the Designer will upload the Geotechnical Review of Final Check Prints form, see *Fig. 107-5A* of the Indiana Design Manual along with the Geotechnical Report to ERMS at the Stage 3 review submission. INDOT's Geotechnical Services Section will review the plans, resolve all discrepancies between the plans and the geotechnical requirements with the Designer, and return the signed copy of the Geotechnical Review of Final Check Prints form to the Designer.

For turnkey projects, the consultant Geotechnical Engineer shall work directly with the Designer to fill out *Fig. 107-5A* of the Indiana Design Manual with notification being given to the Project Manager.

Potential Obstacles:

The Project Manager and Designer should review *Chapter 107-6.01* of the Indiana Design Manual that discusses areas throughout the State where geotechnical anomalies occur and special subsurface treatments should be considered. The areas in this chapter should be compared to the project site to see if they may affect the project schedule and budget.

3-1.19 Pavement Design

Duration: 120 Days
Predecessors: Geotechnical Report (if applicable)
Successor: Stage 3 Plans
Critical Path Element: No

Purpose of Task:
The pavement-type selection and thickness for a project is determined based on an economic analysis considering subgrade conditions, environmental conditions, pavement material properties and traffic loadings. *Chapter 304* of the Indiana Design Manual provides guidelines for the design of pavement on INDOT's highway system.

Deliverables:
pavement design memorandum – This is the document that summarizes the pavement design analysis and recommendations. This document is created by the Pavement Designer and routed through INDOT Pavement Engineering staff for review and approval. Once approved it is placed in ERMS with notification sent to the Project Manager and Designer.

Task Summary:
Pavement design is required on projects whenever roadway pavement is being impacted by the project scope (i.e., resurface, wedge and level, widening, rehabilitation, reconstruction of the pavement, added travel lanes, etc.) either on a temporary or permanent basis.

Bridge approach slabs are exempt from this requirement, and do not require a pavement design, as their design is covered by INDOT's standard drawings.

Process Details:

The Office of Pavement Engineering in most cases will assign a Pavement Designer to a project. The Project Manager should work closely with the Office of Pavement Engineering to verify work assignments and deliverable dates for this task. In some cases, the pavement design will be performed by the prime design consultant or subconsultant (turnkey project). In these cases, the consultant should coordinate with the Office of Pavement Engineering before fieldwork begins.

The following information, in addition to the existing geometric information from the plans and field survey, are used to help develop a pavement design:

- Traffic forecasts – if not already included in the Engineer's Report, traffic forecasts are requested by the Designer through the Project Manager via *Fig. 5-2B* of the Indiana Design Manual

- Geotechnical recommendations – this information can be obtained from the approved geotechnical report.

- Existing pavement information – this information can be obtained from coordination with the INDOT Office of Pavement Engineering, and may include pavement history, pavement cores, FWD testing, etc. Some of this information may already be documented in the Engineer's Report.

It is recommended that the INDOT Pavement Engineer and/or Pavement Designer be present at the preliminary field check to coordinate with the Designer and Project Manager.

- Life Cycle Cost Analysis – An alternate pavement design is required for a new pavement replacement, or major rehabilitation project when the area of proposed mainline pavement is greater than 10,000 syd. A Life Cycle Cost Analysis (LCCA) utilizing FHWA RealCost, ver. 2 or higher software is required to evaluate the alternate pavements.

  If the LCCA indicates a cost difference within 10% of alternate treatments, an Alternate Pavement Bid is required. The LCCA process is outlined in *Section 52.12.01 of the* Indiana Design Manual.

Potential Obstacles:

- If alternate pavement design is required for the project, the Designer and Project Manager should check to ensure this is included in the final contract documents.

- The Designer and Project Manager should review the plans to ensure that the design plans match the approved Pavement Design.

3-1.20 Permits

Duration: Varies (30 days to 360 days)
Predecessor: Design Approval, Waters Report
Successor: Final Tracings
Critical Path Element: Frequently

Purpose of Task:
To gain approval from regulatory agencies for impacts to regulated areas or environmental resources.

Deliverables:
Usually (but not always) these come in the form of a document from the approving agency.

Task Summary:
A regulated resource is a feature that is protected under federal or state law. The three most common types encountered are stream, wetlands, and floodways.

The Rule 5 permit issued by IDEM, which is required when 1.0 acre or more of soil is disturbed, provides protection to the streams and wetlands in the project area through erosion and sediment control.

The USACE and USCG also protect the ability to navigate on traditional navigable waterways. A USACE Section 10 permit is required for an activity over or in a traditional navigable waterway. A USCG Section 9 permit is required for bridges on navigable waterways.

Federal Aviation Permits are required when work involved is in close proximity to an airport.

INDOT's Waterway Permitting Manual should be referenced for a complete list of permits and requirements.

Process Details:
The designer is responsible for submitting permit applications for their project once the project enters the "preliminary final design" phase.

Permit applications are submitted through the Ecology and Waterway Permitting Office (EWPO) for review and comment. EWPO staff will then sign and submit the final permit application to the appropriate regulatory agency.

Approximate timeframes for agency review are shown in Figure 3-1D.

Impacts to water resources that cross certain thresholds can trigger mitigation measures. This can add cost and time to a project. Please reference INDOT's Waterway Permitting Manual for further information.

Common Permit Types:

401/404 - Nationwide and Regional General Permits - These concurrent permits through IDEM and USACE are required when impacting Waters of the United States or Waters of the State. Impacts to streams and wetlands are common on highway projects. Once certain thresholds of impacts are met, these permits may be elevated to Individual Permits which greatly increase the review time by the regulatory agencies and require increased mitigation efforts.

Rule 5 – This permit through IDEM is required when the project includes 1.0 acre or more of soil disturbance. Erosion and sediment control plans are a critical component for application of this permit.

IDNR Construction in a Floodway (CIF) Permit – IDNR evaluates projects to protect the floodway from undue restrictions and environmental impacts. This permit is generally required for any waterway with an upstream drainage area equal to or greater than 1.0 sq. mile, however, there are exceptions. See the INDOT Waterway Permitting Manual for additional details and requirements for this and all other permits.

Permit exceptions:

Permit exceptions are generally needed when required permits will not be received prior to the RFC. The need to work with the Ecology and Waterway Permitting Office (EWPO), Construction Area Engineer, and Capital Program Management Leadership is critical in determining if the project will utilize a permit exception. If a permit exception is deemed to be necessary, the following steps can be used as a guide to obtain the needed exception.

1. Identify Need for Exception (RFC or Letting)
2. Communicate with leadership the need for an exception
3. Gather any necessary information to assist in writing exception
4. Write exception request email and send to leadership along with Permit USP
5. Leadership reviews and sends off to Director of Project Delivery for Approval.

If a permit exception is required, make sure all necessary RFC packet documents are updated accordingly and a USP is written to address the permit(s) not received. At this time, the ECF may be approved by providing the exception approval email along with the USP to the environmental manager.

Additional considerations for permit exceptions:

- The project development team should consider the impact of a permit exception on the constructability of the project. Can the contractor efficiently get a good portion of the work done with the environmental restrictions in place, or will it cause undue cost and risk to the project?
- It is important to use permit exceptions sparingly – These can be a big risk to both the contractor and INDOT if work occurs in protected areas without a permit. Moving the letting date of a project out a month or two if needed is usually a better option if possible.
- The PM is responsible to anticipate permit tracking times and plan accordingly to get the development team to a point where permits can be submitted early enough to hit the desired permit approval dates to eliminate the need for any possible exceptions.
- PM needs to follow up on permit approvals with exception during construction.

Potential Obstacles:

- Failure to account for agency review times for submitting permit applications can cause undue risk to the schedule if submitted too late.
- Engagement of permit team and regulatory agencies early in development can help identify risks and potential resource impacts. Minimization and avoidance is always preferred if practical.

Fig. 3-1D – Permit Time Frames

Agency	Permit type	Average Agency Review Time (months)	Number of Months Application Packages Need to be Given to EWPO Prior to RFC
USCG	Section 9	3 months	5 months
USACE	Section 10	2 months	7 months
USACE	404 Individual Permit	12 to 18 months	18 months
USACE	404 Nationwide Permit	4 months	4 months
USACE	404 Regional General Permit	4 months	4 - 6 months
IDEM	401 Individual	2 months	7 months
IDEM	401Nationwide Permit	1 month	4 months
IDEM	401 Regional General Permit	1 month	4 months
IDEM	Rule 5	1 month	4 months
IDEM	Isolated Wetlands	4 months	7 months
IDNR	All Permits	6 months	9 months
County Drain	Regulated Drain Permit	3 months	4 months

3-1.21 Right-of-Way (Overview)

At the final stage of project development, Real Estate Division staff coordinates obtaining the land necessary for transportation projects. The quantity and value of all land, improvements and damages for each piece of property are determined in accordance with established laws and procedures.

Each required property is obtained by purchase or acquired through court process by right of eminent domain.

Existing Right-of-Way Verification:

While upon project initiation, district Right-of-Way and scoping staff review and make recommendations on whether additional Right-of-Way will be required, it is ultimately in development (design/survey) where design and property owner research will determine the needed course of action. It is ultimately the designer's responsibility to verify if work can be accomplished in the proposed construction limits and determine what legal standing INDOT has to utilize R/W. INDOT then has the authority to decide a course of action based on risk when there is legal ambiguity.

Verification ensures the initial assumptions utilized for deliberation of a project are correct in regard to existing Right-of-Way. Additional Right-of-Way may be required due to additional scope, additional construction operating room, utility accommodation for relocated utilities, or it may be necessary to reacquire previously acquired Right-of-Way due to changes in real estate laws.

The designer should obtain a copy of the previous plans for a project location. This should provide a designer with an idea of where the previously determined Right-of-Way lines are. Through the survey and property owner research, this can be further refined. These documents typically include grants and warranty deeds. These documents will then be used to decide whether INDOT still has valid claim over the Right-of-Way identified on previous plans.

Funding Overview:

To provide uniform and equitable treatment for personas whose property is acquired for public use, Congress passed the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (amended in 1987). This law, called the Uniform Act, is the foundation for how the Department acquires real property on State and Federal Aid projects. For additional information on the Uniform Act, see the FHWA Acquisition Brochure – BLUE from the Department's Real Estate web page.

Regardless of funding type (State/Federal) the Uniform Act should be followed. If the Uniform Act is followed a project can utilize State Only Funding on R/W acquisition while being able to utilize Federal Funding on other phases.

Funding Phases and Early Acquisition

- If Federal Funding for R/W Phase
    - If NEPA is not complete prior to buying
        - Map-21 Funding
        - Restrictions: No Condemnation, no 4f properties, no historic properties, purchase of property cannot influence the solution in the NEPA document
    - If NEPA is not complete prior to Appraising but complete before buying.
        - PE must be utilized for Appraising
        - Funding Implications – essential the same as traditional federal funding path listed below but it will have STIP and programmed funding implications.
        - Development Implications – allows a portion of the R/W process and the environmental process to run concurrently however appraisals and abstracting have shelf lives. Unless a method above is utilized buying cannot begin until the environmental document is complete which could result in necessary rework.
    - If NEPA is complete prior to appraising
        - RW funding can be utilized from appraising through buying
        - Most typical path for preservation projects
- If State Funding for R/W Phase
    - If NEPA/SEPA is not complete prior to buying
        - Early Acquisition
        - Condemnation is allowed
        - Differences/Restrictions: If 4f and Historic properties are avoided the project will remain eligible for future reimbursement or credits if purchase of R/W does not influence the environmental document. R/W phase will not need to be in STIP if the project is not of "regional significance."
    - If NEPA/SEPA is not complete prior to Appraising but complete before buying.
        - From the PM perspective no difference from Federal Funding
        - R/W phase will not need to be in STIP if the project is not of "regional significance."
    - If NEPA/SEPA is complete prior to appraising
        - Most utilized path for State Funded R/W acquisition
        - From the PM perspective no difference from Federal Funding
        - R/W phase will not need to be in STIP if the project is not of "regional significance."

Terms:

- Early Acquisition – Beginning the buying process prior to environmental approval by utilizing state funding.
- Map-21 Funding – Method by which federal funding can be utilized for acquisition prior to environmental approval if restrictions are avoided.

3-1.21(01) Right-of-Way Abstracting

Duration: 60 Days
Predecessor: Stage 1 Plans
Successor: Right-of-way Engineering
Critical Path Element: No

Purpose of Task:
Abstracting ensures the correct owner of a piece of property is compensated and can transfer an unencumbered (no strings attached) legal ownership of the property to INDOT. Potential liens, landlord/tenant arrangements, corporate and multiparty ownership, land contract purchases, inherited estates, etc. can all present challenges to determine clear property interest.

Deliverables:
A comprehensive abstract should contain every deed transfer, easement and/or lien that affects a given piece of property for a specified length of time and will need to be completed for every property INDOT needs to acquire.

Task Summary:
Title Research is the process of adequately researching all available records and preparing a Title and Encumbrance Report (T&E Report) documenting the research to identify all parties or entities having an ownership interest in the property to be acquired, including an abstract of all pertinent data, legal descriptions, liens, assessments, taxes and any encumbrances associated with the property. This documentation is key, as it provides not only a transfer (chain of title) history of the subject property over a 20-year period, but may provide support for whether existing right of way is sufficient or if additional is necessary.

Resource People:
- District Survey Staff
- Central Office Real Estate Staff

Process Details:

The abstracting process should be initiated as early in the development process as possible to uncover any possible property interests that may complicate an abstracting assignment.

Permanent Right Of Way and Perpetual Highway Easements:

INDOT's level of impact upon a piece of property determines what time frame a given abstract needs to cover. In the case of permanent (Fee Simple) acquisition, or land that will become a permanent part of the highway and its facilities, the Title Abstract should be twenty years inclusive of the last fee transfer. For example, if a property has been owned by a single owner, such as a family farm, for fifty years a comprehensive abstract should include the deed by which the family acquired the property even though their acquisition happened more than twenty years

ago. Reference the Right-Of-Way Engineering Manual for more specific requirements of each abstract.

Temporary right-of-way:

For temporary acquistion a copy of the last Fee transfer is all that is required. In general abstracting on a temporary parcel(s) should not be a problem in the 60 days typically allotted.

Potential Obstacles:

- One key thing to remember is that if a project will impact what appears to be an abandoned Rail Road or a commercial property (especially in highly developed, urban areas), finding all of the transfers and liens for that property may be difficult to accomplish in the 60 day window. If you know you are encountering such an acquisition and the project limits are set in stone, it may be wise to begin the abstracting for that parcel as early as Stage 1 plans.

- Title abstracts are generally considered to have a "shelf life". In the real estate section the prevailing philosophy is that a title abstract is current if it is no older than six months to a year. The abstract will still need to be current during the appraisal and buying phases. If the "effective date" is more than a year before appraising or negotiations begin, it could mean additional fees to update the T&E reports.

3-1.22 Right-of-way Plans

Duration: Concurrent with Stage 2 Plans (60 Days typical)
Predecessor: Right-of-way Abstracting
Successor: Appraising
Critical Path Element: Not Always

Purpose of Task:
To submit a set of right-of-way plans that clearly show all proposed right-of-way needed for the project.

Deliverables:
Set of Right-of-way plans along with supporting documentation in accordance with Chapter 85 of the IDM.

Task Summary:
Right-of-way plans are developed concurrently with Stage 2 Plans, and are essentially the Stage 2 Plans with some formatting changes (i.e. proposed right-of-way linetype increased thickness, station offset of r/w breaks, etc)

Resource People:
The Project Manager has a responsibility to contact all the individuals on the team to ensure the project is delivered successfully. A concise list of resource people include:

- District ERMS Coordinator
- District R/W Engineering Surveyor
- Central Office R/W Engineering staff
- Designer

Process Details:
Right-of-way Plans are anticipated to take approximately 90 days after the Preliminary Field Check and should be approximately 55% complete. Plans for this submittal should be close to their final form. This stage of plan development should be prepared in accordance with Chapter 85 of the Indiana Design Manual.

It will be important to take into consideration all aspects of the project that may require more right-of-way; such as, utilities, drainage structures, traffic runarounds, or traffic signal poles. Applicable comments from the Preliminary Field Check should be addressed in this set of plans. It is important to determine the appropriate level of access control at this time. These plans will be the catalyst for real estate buyers to purchase property from land owners. It will be important for the project manager to work closely with the district and central office staff while preparing the plans to ensure proper procedures are followed.

Right-of-way plans are submitted through the department's Electronic Record Management System (ERMS) by the Designer and are routed through the District Coordinator. Once submitted to the District Coordinator they are reviewed by District R/W Engineering staff prior to Right-of-way Engineering being performed.

Terms:

- Preliminary R/W Plans – Plans produced prior to abstracting. These are the plans District Staff reviews, and which then initiates the R/W Engineering step.
- Final R/W Plans – During the course of R/W Engineering often it is discovered R/W plans must be updated. These update plans are the copy that is ultimately provided to appraisers and buyers.

3-1.23 Right-of-way Engineering

Duration: 60 Days
Predecessor: Right-of-way Abstracting
Successor: Appraising
Critical Path Element: Frequently, but not always

Purpose of Task:
Once proposed right of way is laid out on the Right-of-Way Plans, R/W Engineering breaks out and defines, per parcel, how much permanent or temporary right of way will be acquired for each parcel. Right-of-way engineering will produce all of the legal documents by which INDOT will acquire the property.

Deliverables:
At a minimum, a legal description, and often a parcel plat will be necessary for INDOT to acquire additional right of way.

Task Summary:

Right of Way Engineering involves the preparation of the final right of way plans, legal descriptions, right of way parcel plats, and the additional associated documents required prior to initiating the appraisal and acquisition phases of a project. These documents are to be prepared by or under the direct supervision of an Indiana licensed Professional Land Surveyor. The subject documents are prepared to define the extent of the right of way required, provide the necessary details to facilitate the completion of an accurate appraisal, and as a result help lead to expedite the acquisition process.

Resource People:

- District Survey staff
- Surveyor

Process Details:

INDOT references all the property it purchases to a line generated from the location of an existing or proposed road. This line or alignment is technically referred to as a Location Control Route Survey (LCRS). Upon completion, the LCRS must be stamped by a licensed surveyor and recorded in the county(s) in which the road and the proposed job are located.. While an LCRS is usually finished long before the right-of-way engineering phase begins, it is very important to confirm that this document has been completed and recorded before R/W Engineering proceeds. If the LCRS is not recorded, then the subsequent legal descriptions have no corresponding legal document to establish their location and may be voidable.

All parcel plats and legal descriptions produced for acquiring land by public agencies must also be stamped by a licensed land surveyor. As with Abstracting, right-of-way engineering will need to be completed for every piece of property INDOT will acquire.

Permanent right-of-way:

Permanent right-of-way will need to have both a legal description and a parcel plat as a part of the engineering packet. The permanent acquisition requires a parcel plat to accompany it because after the land is acquired, the property owner's (or adjoining property owner's) legal parcel boundaries will change along with the amount of land for which they will be assessed property taxes.

Per the Department of Local Government Finance a separate description needs to be prepared for every "Tax Key Number" from which property will be taken. Often a developer or farmer will own several parcels side by side which appear as one large parcel and share the same frontage or field but have multiple Tax Key numbers.

Engineering of such parcels generally will not have much impact upon the timeframe for engineering but they can substantially affect the fee for engineering. Consulting with the Real Estate Division once some of the initial field data has been acquired can help to confirm the total number of parcels (not just property owners) and whether or not it is the same as the number of owners or there are multiple Key numbers that will require legal descriptions. This will save any time delays from supplementing a PO to account for extra engineering after the fact.

Temporary right-of-way:

Temporary acquisitions do not actually change the ownership of a parcel and as such do not technically require a parcel plat as part of the engineering packet. All other support documentation should still be included in Temporary parcel packet.

Again it is wise to consult with the Real Estate Division once a firm design has been established to evaluate parcel/engineering needs for an impacted property. If temporary right of way is required at non-contiguous places on a parcel this will increase the number of temporary descriptions for a given parcel and will also impact the engineering fees.

Highway Easements:

Occasionally, INDOT will acquire a permanent interest in a property but not the underlying fee interest. This is typically an interest for something like drainage across Rail Road property. As a general rule these parcels are rare and are often generated as the result of negotiation as opposed to a requirement of the original design. This will usually generate a new parcel and fee.

Potential Obstacles:

- Errors and omissions with the right-of-way engineering and LCRS can have a negative impact upon project schedule. Ensure that all right-of-way engineering, as well as the LCRS, has been thoroughly reviewed to ensure no time-consuming surprises later on. In some extreme cases, poor engineering could lead to repurchasing land INDOT thought it already owned.

- Changes to the proposed design or r/w limits after commencing r/w engineering could cause additional rework to the r/w engineering task and cause schedule delays.

3-1.24 Right-of-way Appraising

Duration: 150 Days
Predecessor: Final Environmental Document, Design Approval
Successor: Right-of-Way Buying (Negotiations)
Critical Path Element: Yes

Purpose of Task:
The purpose of the appraisal is to provide a value determination of the proposed right of way during the acquisition process.

Deliverables:
An appraisal document, used as a basis to generate the initial offer to acquire additional right-of-way

Task Summary:
Appraising will develop a well-informed and documented estimate of a property's value. This document is critical as it will be the foundation upon which the negotiation process will rest and will be one of the most scrutinized documents in any condemnation proceeding. The appraisal or "opinion of value" will be developed by a qualified, INDOT certified professional who will document and provide sound market data to support the concluded value.

Resource People:

- Central Office Appraising Supervisor/ Manager

Process Details:

Contact with property owners, prior to the completion of the NEPA document and FHWA funding approval of the right-of-way process is approved, is strictly regulated; the appraising process can be funded using preliminary engineering funding, however, negotiations with the property owner cannot commence until FHWA right-of-way funding approval has been received (which will not occur until after the conclusion of the NEPA process). The only exceptions to this are when early acquisition funding approval has been obtained from FHWA.

Prior to considering whether to use preliminary engineering funding to fund the appraising process, the expected date of the conclusion of the NEPA document should be taken into account; if appraisals are completed prior to six months before the initiation of negotiations for the property, the appraisals could become "stale" and the properties may need to be re-appraised, resulting in delays and additional right-of-way service costs. In addition, if preliminary engineering will be used to fund appraising services, the consultant service contracts should be reviewed before funding is requested in order to ensure that preliminary engineering funding can

be utilized as it may not be possible if right-of-way services will be managed using a “turnkey” real estate services contract, depending on the agreement.

Once the Environmental document is complete, the Central Office appraisal section can request a Purchase Order (PO). This will take approximately 30 days to process and as the majority of parcels INDOT acquires are appraised by consultant appraisers it is wise to plan for this time to be a part of every project. Be advised that appraisals can vary significantly in cost. While many parcels can be valued by waiver valuations, which may cost less than a thousand dollars (per the current INDOT appraisal fee schedule), some long form appraisals could total up to ten thousand dollars’ worth of fees. Thus a thorough analysis of the property and area being appraised will be necessary for reasonable project budget forecasting. Early coordination with the district and central office real estate staff is key to estimating the type of appraisal that will be necessary for a particular parcel.

The project manager should expect that in most cases every day of the 150 allotted days will be needed to complete appraising. Some appraisals can be completed faster than this but with all of the problems that can be encountered (even on seemingly “simple acquisitions”) with the potentially different opinions between the appraiser, the review appraiser and the desk reviewer or simply a scarcity of market data in a given area, it is unwise to assume this step may be completed early.

Location: Parcel location is undoubtedly one of the most important facts in determining value. A parcel’s location and the surrounding character of a neighborhood may impact the amount budgeted for right-of-way and requesting a supplement in funding can take time. It is best to consult with the district real estate staff or Appraising supervisor early so surprises are not encountered in the middle of the acquisition process.

Review: Once an appraisal is completed it is sent to another highly experienced and qualified appraiser who will review and evaluate the original appraiser’s opinion of value. Sometimes an appraisal will need to be revisited and modified if there is a disagreement between the review appraiser and the original appraiser but in general the 150 day time frame should be enough to accommodate any revisions in this phase.

Plans: The importance of a thorough and comprehensive set of plans is vital throughout the process but omitted topographical information and an omission of known, subterranean obstructions can cost time and increase budgets if not uncovered before the appraisal process begins. If an item such as an in-ground sprinkler system or fence will be impacted and was omitted on the plans given to the appraiser both the plans. Then the appraisal will need to be amended which will add time onto the subsequent processes. Be sure to engage the district real estate Staff at all field checks and plan submittals to ensure as comprehensive of a plan set as possible.

Revisions: Late stage design revisions can affect and complicate right-of-way. If right-of-way will need to increase to accommodate a design revision the plans, possibly the abstracting (if property boundaries are traversed) engineering, appraisals perhaps even the negotiations process will need to be revised to reflect the changes and may have a significant impact upon the project schedule. The district real estate staff and Appraisal Manger should be kept apprised of any design changes as soon as they occur (even if they occur after the known parcels have been transitioned to negotiations).

Billboards: Commercial billboards on a property may generate the need for another appraisal. Often the billboard is owned by someone other than the property owner and in fact only leases a portion of the property to place their billboard. This will require a separate appraisal from the original property appraisal and will be an additional cost. Make sure to review this with the district real estate staff and Appraisal Manager to determine the appropriate amount of funding for services. If the billboard was installed illegally contact the permit manager, real estate staff and INDOT legal.

Potential Obstacles:

- ***R/W Funding authorization cannot commence until the Final Environmental Document is completed.***

- Currently INDOT's appraisal section cannot request a PO to begin appraising using right-of-way funding until the Environmental document is finalized. Given that a large portion of all appraising is performed by consultants (who must be paid with claim vouchers drawn against an existing PO) any delays in finalizing the Environmental document may prompt a subsequent adjustment of all successive steps in the process as it represents the critical path moving forward.

- If preliminary engineering funding will be utilized to fund appraising, so that appraising can begin prior to the approval of the Environmental Document, the appraising services need to be timed in order to ensure the appraisals will not be stale prior to right-of-way funding approval is obtained from FHWA, and in addition, there need to be the correct real estate services contracts in place in order to be able to utilize preliminary engineering funding.

- Parcels move through the process individually and buying may begin on one parcel before it can on other parcels still in appraising. Unfortunately, this still means that the slowest parcel will set the pace as all parcels must be cleared before right-of-way can be considered "Clear".

3-1.25 Right-of-way Buying (Negotiations)

Duration: 120 Days
Predecessor: Right-of-way Appraising
Successor: Right-of-way Clear[3]
Critical Path Element: Yes

Purpose of Task:
To secure property to accommodate INDOT's proposed project.

Deliverables:
Signed, secured offers from property owners accepting INDOT's offer to purchase their property for INDOT's project.

Task Summary:
Right-of-way buying is the process of presenting a detailed offer to the property owner that explains INDOT's project, the need the agency has for their property in particular, how their property will be affected by our job and what we are offering them in terms of compensation for our impact upon them.

Resource People:

- District Survey staff
- Central Office Buying Manager
- LRS administrator
- Central Office Legal Liaison
- Central Office Relocation Manager
- Central Office Property Management

Process Details:

A parcel cannot enter into the Buying phase until after the Appraisal process has been completed. Either a Buying staff member or a consultant Buyer will receive the reviewed and approved appraisal within a week of the staff appraiser finalizing their review of a parcel and an offer will usually be made shortly thereafter.

If a project is a "Total Turn-Key" job then the consultant will be in charge of assigning parcels to fee buyers, having money in place to pay the buyers and making the offers to affected property owners. It is a good idea to check periodically with the consultant to ensure that acquisition process is on schedule and that there are enough funds to pay the property owners.

[3] R/W Relocations & R/W Condemnations can begin as early as 30 days after R/W Buying begins

The buyer will be completing a meticulous log of all communication and information shared or discussed with a property owner called a buyer's report. The buyer is trained as to the necessary documentation that must be presented to all property owners and will know how the information must be presented and all of INDOT's policies on how property owner communication is to progress.

The first step for every parcel is for a buyer to update the T&E report by visiting the county recorder's office and to prepare an offer based upon the appraisal and certain project details after that the negotiations can take a few different paths.

Standard Acquisitions (No condemnation or relocations):

The right-of-way acquisition process has the potential to be the most time consuming process of all. Statutorily, an affected property owner has at least 30 days to consider an offer that has been presented to them, but the 30 day window does not begin until the buyer can confirm that the property owner has physically received and understands the offer. Sometimes simply locating and making contact with the property owner can be a challenge when the parcel's owner lives out of state, or resides somewhere other than at the parcel's physical address. Locating a property owner can take weeks or even months at which time there is still no guarantee that the property owner will be receptive to INDOT's offer and further negotiation and attempts at mediation can run another 60 days on top of the original period for acquisition. Given that historically one in every ten parcels will enter into lengthy condemnation proceedings, it is generally wise to plan for the full 180 days of the buying period, even for smaller jobs.

Even if a property owner accepts and signs an offer the day it is presented to them, the parcel must be reviewed by the buying manager after being turned in, and then subsequently reviewed by INDOT legal. This makes it very unlikely that a parcel could feasibly be secured sooner than 30 days after the offer is made.

If an owner takes the full amount of time allotted to consider the offer a parcel will generally take at least 60 days before it can be considered "secured" (but not necessarily cleared).

***Condemned Parcels*:**

When a parcel goes to condemnation and is being handled by INDOT legal staff there is still a possibility that a property owner will decide at the last minute to forgo condemnation and accept the original offer. This will still mean that the parcel needs to be reviewed and will not reach secured status until around the 90 day mark.

If a condemnation moves forward, a certain procedure will be followed to settle the parcel and secure the right of way. The following is a very simplified summary of the steps as they may be relevant to the project manager.

- Step 1 – Complaint Filed

In the event that no settlement can be reached, INDOT legal will begin condemnation proceedings. By this time at least 60 days have elapsed of the buying phase. After the initial complaint is filed, the defendant (property owner being condemned) will have one month to file any appeals. If an appeal is filed, the necessity of the condemnation may be reviewed and the case could potentially be thrown out of court to re-enter negotiation. There is no "standard" time for this appeal process as each parcel must be tried in the county court in which the condemned property is located, and each court has its own processes. Theoretically, this process can go on for a very long time but in general the complaint is accepted and an order for appropriation can be filed within 60 days of the complaint being filed.

- Step 2 – Order for Appropriation

In this step the court will appoint three appraisers to value the property in question. The appraisers need to file one report with the Court, with the amount they have determined is the amount INDOT should pay for the property. Once funds matching the amount of the court award are deposited with the clerk of courts, INDOT effectively has possession of the parcel. Even if there are subsequent disagreements by either the property owner or INDOT about the value this parcel can be considered clear at this point. If the parties continue to disagree about the value of the property, the litigation to resolve the value INDOT must pay may take years to resolve, and for this reason, additional funding to finalize the acquisition of the property will need to be maintained.

***Relocation*:**

Relocation happens concurrently with buying. Summaries of the amount of relocation benefit will be provided to affected property owner during negotiations. Communication regarding the required need for the relocation to the Buying section before buying begins is key to ensuring that a property owner is approached as quickly as possible. If an affected property owner is contacted early in the buying process by a Relocation agent, then relocation is usually achievable within the 180 days allotted. This is true for both residential and commercial properties whose owners have been approached early in the process. It is worth noting that business relocations often take longer and are more complex than residential ones. Early awareness of such situations by Central Office Buying and Relocation staff will ensure this process is concluded within the allotted time even for complex relocations. Like Condemnation, relocation will require extra monies outside of the normal acquisition and service costs and can continue even after a parcel is considered clear. Consult with the Central Office Relocation manager to make sure an adequate amount of funding is available.

Potential Obstacles:

The range of property owners a buyer might encounter during this phase makes the duration and the potential pitfalls vast. It may be completed quickly, but given all the potential challenges it would be unwise to count on it.

- Do not negotiate on behalf of the buyer or discuss anything about terms, property value or negotiations with other property owners. If you receive a request from a property owner for information, take the property owner's contact info and tell them someone from the Real Estate department will be in contact with them. Keeping all communication centralized through the buyer can ensure that contradictory information is not given and that the buyer's report of the transaction is complete. Any discussions about acquisition with a property owner could be construed as negotiation and potentially commit INDOT to payments and or valuation, outside of the original offer.

- On larger jobs, especially in urban areas it may be wise to consider adding float to the right-of-way phase. Unfortunately these jobs usually have higher condemnation rates and INDOT has no bearing or authority with the county courts in which our condemnation trials must be tried. Zoning ordinances are often more complex and restrictive in these areas and the potential for roadblocks is great in these areas.

- Allocating time for condemnation activities in every schedule with r/w activity is a good rule of thumb to ensure your project has enough time to handle this potentially unexpected, but high risk activity.

3-1.26 Right-of-Way Certification

Duration: 30 Days
Predecessor: Right-of-way Buying[4]
Successor: Ready for Contracts[5]
Critical Path Element: Yes

Purpose of Task:
Right-of-way clear indicates that INDOT has all property or land necessary for the completion of the construction of the project. Right-of-way Clear is a when a property owner has been paid and all obstructions (private property) cost to cure items have been removed from the right-of-way. Right-of-way /W Clear Prime is when a property owner has been paid to remove a given item but the item is still in the right of way and will be added as a pay item for removal by the contractor that constructs the job.

Deliverables:
A memo from the Central Office Property Manager will certify that all right-of-way is clear or clear prime

Task Summary:
After parcels are through the buying phase they are sent to the Property Management Division. It is at this time that property owners who were paid for certain personal items in the right-of-way (commonly referred to as Cost To Cure or CTC items) will receive a letter mailed from the Property Management Division telling them to remove their personal property from the right-of-way within 30 days. By statute INDOT needs to give them this time to remove the structure.

Resource People:
- Central Office Property Management
- District Real Estate staff
- LRS administrator
- Central Office Relocation Manager
- Central Office Buying Manager

Process Details:

After parcels are through the buying phase they are sent to the property management division. It is at this time that property owners who were paid for certain personal items in the right-of-way (commonly referred to as Cost To Cure or CTC items) will receive a letter mailed from the

[4] Right-of-way Clear cannot be certified until all right-of-way Relocations & right-of-way Condemnations are completed
[5] After the right-of-way has been certified Clear, Utility Companies can be provided a Notice-to-Proceed to begin their relocations

Property Management Division telling them to remove their personal property from the right-of-way within 30 days. By statute INDOT needs to give them this time to remove the structure. At the completion of this 30 days the parcel will enter into one of two statuses based upon their response and follow up to the letter they were sent by Property Management:

Clear: In this scenario the property owner complied with the letter and has removed the specified item from the proposed right-of-way. No further work is necessary on this parcel and the land is ready for construction related activity.

Clear Prime: Often, though a property owner was paid to remove their property from the proposed right of way they do not fulfill their end of the bargain and INDOT will need to include the removal of the Cost To Cure item in its main contract. The property management division will continue to try to get the property owner to comply with the terms of their original agreement with INDOT but at the end of the 30 day statutory period this parcel's status will be changed to Clear Prime and will be ready for construction activities with the provision that the contractor will need to remove the Cost To Cure item as a part of their construction activity.

If there are no items that need to be moved by the property owner within the new right of way then that parcel will to "Clear" status as soon as the property owner is paid.

Once all parcels are either in Clear or Clear Prime status the right-of-way can be considered clear. Note that the district real estate section will provide a document called the Ten Week Letter which lists any items still in the right-of-way that need to be added to the contract when it is bid. In general the thirty days on top of the one hundred and eighty days for acquisition will be enough to ensure that every parcel is ready for construction.

Letting with Right-of-Way Exceptions

In certain cases, the Department can let a contract without all parcels being cleared on the project. According to the INDOT Real Estate Manual, certifying with exceptions should be initiated by a request from the Project Manager. Exceptions should be kept to a minimum, and only submitted when it is in the best interest of the public.

Prior to the Project Manager requesting a r/w exception, the PM should come up with realistic estimated timelines for the parcels to be secure as well as coordinating with the Construction department for guidance on project constructability while unsecured parcels are outstanding. Final approval for letting with right-of-way exception comes from the Director of Project Delivery and the Department may limit the amount of exceptions that are granted in any particular fiscal year.

Potential Obstacles:

- If a dwelling (house, building, garage etc…) is to be demolished as a part of a project there is still activity that will need to take place after the parcel is considered Clear. Asbestos inspections and parcel utility disconnects will need to be coordinated through the district Property Management/Real Estate section before construction can commence. In some cases the asbestos inspection will generate an abatement plan that will need to be paid for out of construction monies. Early coordination with the Real Estate Department about structures that need to be demolished can help in planning for potential abatement costs.

- Not all parcels will enter into Clear or Clear Prime status at the same time. Unfortunately right-of-way cannot be considered to be Clear until all parcels are Clear so the slowest parcels will set the pace throughout the buying process. If the full 180 days is allotted for the Buying process and subsequently 30 days to ensure right-of-way clear it is highly unlikely that a schedule will come into jeopardy.

3-1.27 Final Field Check

Duration: 60 days (although actual meeting is a one day event)
Predecessor: Design Approval, Stage 2 revised from previous markups
Successor: Stage 3 Plans
Critical Path Element: No

Purpose of Task:
To hold an on-site meeting with a broad group of project stakeholders to collect, share and distribute information pertaining to the project prior to final design plans.

Deliverables:
An updated plan set incorporating the markups from Stage 2 review, as well as Final Field Check (FFC) meeting minutes to be compiled by the Designer and distributed to the FFC attendees. Both plans and minutes should be a part of the project file. This submittal does not go through a formal review.

Task Summary:
Field checks provide affected parties, such as utilities, railroad, construction, environmental, and right-of-way personnel, the opportunity to ensure that all concerns are addressed and to help prevent unnecessary design changes late in plan development and to avoid construction change orders.

Final Field Checks are not always required, but are most helpful when there has been some amount of time (generally 18 months or more) since the preliminary field check. There are times that land use changes or new utility facilities may be present that will need to be updated on the plans. Verifying these items in the field are critical for minimizing change orders in construction.

Resource People:
Project Designer
Construction Area Engineer
District Asset Engineer
Utility/Railroad Coordinator
Utility Companies
Other Technical support staff

Process Details:
A Final Field Check (FFC) should be conducted on the project site. The design plans should be approximately 80% complete at this time. It should take approximately 60 days to incorporate the Stage 2 design review comments, distribute the plans, conduct the meeting, and provide the

attendees with meeting minutes. The FFC is essentially for gathering all affected parties of the project to assess field conditions and determine potential conflicts; especially involving constructability, environmental, traffic, utilities, and right-of-way. It is essential that the FFC meeting be coordinated through the INDOT Construction Area Engineer. It is the responsibility of the designer to prepare and submit the FFC notification meeting calendar invite and plans a minimum of 2 weeks prior to the field check. The District Traffic Engineer should be invited to validate the Maintenance-of-Traffic (MOT) plan. Additionally, the County or City Engineer should be consulted, if applicable, to discuss impacts to local roads and unofficial detour routes.

Potential Obstacles:

- Lack of attendance of critical personnel at the meeting – Best practice is to schedule these field checks around the Construction Area Engineer and District Asset Engineer, as these two individuals generally provide significant insight to the design team.
- Making sure the minutes of the meeting get read and actioned. Ensure the designer responds to comments and suggestions brought up in the meeting. The team can catch a mistake or risk in the meeting and document it, but if it's never followed up on, it can get a project into trouble.
- Land use changes, geometric changes, utility changes, and other site changes not captured on the current set of plans can get missed if a substantial amount of time has occurred since PFC and a final field check is not scheduled.

3-1.28 Stage 3 Plans

Duration: 125 days (90 days for plan submittal, 35 days for review)
Predecessor: Design Approval, Final Field Check (if applicable)
Successor: Final Tracings
Critical Path Element: Not always

Purpose of Task:
To submit a set of final plans with supporting documentation to ensure all the applicable federal and state laws, regulations and design standards are adhered to.

Deliverables:
For plan submittal - Set of Stage 3 plans along with supporting documentation in accordance with Chapter 14-2.01(12) of the IDM.

For plan review - Marked up Stage 3 Plan set with reviewer's comments attached to the plans. Comments should generally be incorporated into the next plan submittal.

Task Summary:
The designer is responsible for the preparation and delivery of all plan sheets, design computations, quantity take-offs, cost estimates and contract documents.

Process Details:

Stage 3 Plans

Stage 3 Plans should take approximately 90 days after the Final Field Check and be approximately 95% complete. The purpose of submitting the 95% plans is to ensure that the plans are complete and prepared for the final contract package. At this time the project manager should evaluate the completeness of the entire plan set and all supporting documents. It will be important to work closely with the Construction Area Engineer to determine the amount of time that will be allowed for a contractor to complete the required construction, known as a time set. This will also provide our construction partners one last opportunity to review the plans, MOT, special provisions, utility information, and cost estimate for any construction issues or missing pay items.

Stage 3 plans are submitted through the department's Electronic Record Management System (ERMS) by the Designer and are routed through the District Coordinator. Once submitted to the District Coordinator:

- The PM is notified by the Coordinator that the plan set has been received by INDOT
- PM reviews submittal to ensure adherence to scope, schedule, and budget
- SPMS is updated to reflect the submittal's latest cost estimate
- Coordinator sends the plan set to Central Office review (either Central Office Bridge or Roadway Services, depending on project type)
- Coordinator sends the plan set to Construction for Stage 3 Constructability Review

Stage 3 Plan Review

The INDOT District ERMS Coordinator is the initial contact for all design submittals. The submittal will then be forwarded to the Central Office INDOT ERMS Coordinator (Coord7 or Coord8 as appropriate) for final concurrence and sign off. The total review time should be less than 35 days for plan submittals. The Project Manager should review the supporting documents at each submittal to validate that scope, schedule and budget are within acceptable ranges.

Depending on workload capacity, the plan review may either be performed in house or outsourced to a consultant reviewer. Once complete, the marked up plans are put back in ERMS and the District ERMS Coordinator is notified by the appropriate Central Office ERMS Coordinator to let the PM know the review is complete.

In cases of extreme urgency, an expedited review may be requested. All requests should be directed through the appropriate manager of Road or Bridge sections. Proactive communication is encouraged in these types of situations.

Constructability review of the plans should be happening concurrently with this review. The Office of Geotechnical Engineering should also be reviewing the Stage 3 plans to ensure that the plans are designed in accordance with recommendations in the approved foundation / geotechnical report.

Potential Obstacles:

- Level 1 Design element exceptions found late in project development. If a deviation from standards on a Level 1 Design criteria is found late in the game, this can have major impacts on project scope, schedule, and budget. Don't put off applying for these and assume that a Level 1 design exception will be approved. Early identification and application of Design Exceptions can save a lot of rework associated with a costly redesign if the exception is not approved.
- Standard changes can have impacts on the final design if too much time has passed between Stage 2 and Stage 3.

- Last minute design changes can have deleterious effects on utility coordination, r/w acquisition, and environmental document compliance. Keeping the project stakeholders involved and in contact through project development can minimize the amount of last minute changes.
- Scope Creep –The design should focus on the primary objective of the project. It is easy to incrementally add elements to the project. Be sure the proposed design reflects the intent of the project.

- Delays in transitioning documents to review staff
- Excessive markups on plans that necessitates a re-submittal of Stage 3 plans.
- Incomplete Stage 3 plan set and supporting documents
- Expedited review requests sent in at last minute
- PM not tracking review times – Agency reviews can bust a schedule if not monitored and accounted for in the project schedule.

3-1.30 Final Tracings

Duration: 30 days, should be submitted no later than 30 days prior to Ready for Contracts (RFC)
Predecessor: Stage 3 Plan Review, Utility Coordination, Railroad Coordination, R/W Certification, Permits
Successor: Ready for Contracts
Critical Path Element: Yes

Purpose of Task:
Submittal of final plans, specifications, and estimates, along with all associated required project documentation. The Final Tracing submittal is the last designer submittal in the project development process.

Deliverables:
Set of Final Tracings plans along with supporting documentation in accordance with Chapter 14-1.02 (04) of the IDM. All relevant documents as outlined on the Final Tracings Checklist (see the Department's Design Manual Editable Documents webpage for further details) should be included in this submittal.

Task Summary:
Final Plans should be 100% complete with all Stage 3 markups addressed and corrected. Engineer's estimate should be in final form and transitioned to Contract Administration. All special provisions are finalized and included along with special provision menus. All documents as outlined in the Final Tracings Checklist should be included as well.

Process Details:
Once Stage 3 review comments have been addressed on the plans, and all other required certifications, permits, and documentation are ready, the designer will upload all relevant plans and documentation to ERMS.

Final Tracings are submitted through the department's Electronic Record Management System (ERMS) by the Designer and are routed through the District Coordinator. Once submitted to the District Coordinator, they will get with the PM to start their review.

The designer will need to either start or have started coordinating with the Construction Area Engineer to help develop completion dates (time set) and other contract specific details (i.e., intermediate completion dates, liquidated damages, field office requirements, etc.) as contained in the Contract Preparation Documents to Contract Administration Division form.

Potential Obstacles:

- Failure to acquire all certifications, permits, and documentation prior to Final Tracing submittal can put the project's letting date in jeopardy. Additionally, utility, railroad, permit, and right of way status play a major part in helping Construction to develop completion dates (time set) for construction.

3-1.31 Ready for Contracts

Duration: 30 Days
Predecessor: Final Tracings
Successor: Letting
Critical Path Element: Yes

Purpose of Task:
The purpose for Ready for Contracts is to review and compile all the elements and documents of the project development into one package for assembly into a construction contract.

Deliverables:
The project manager will submit the Final Tracings package to Contracts Administration for compilation into a construction contract for letting. See chapter 14 of the Indiana Design Manual for a list of required documents. Depending on project specifics some of the documents may not be applicable. It is important to note that Final Tracings may be submitted to Contracts up to 30 days prior to the scheduled RFC Date. In other words, Tracings may be submitted any time during the month following the prior RFC Date. Early submittal provides Contracts personnel the opportunity to review content and request feedback or revisions prior to beginning the prescribed process of letting the Contract.

Task Summary:
The Project Manager is responsible for reviewing the Final Tracings submittal for completeness and accuracy prior to transitioning the electronic files to Contracts in accordance with the final tracings checklist The goal of addressing all issues prior to transition is to reduce review time for Contracts personnel as they work toward publishing letting documents.

Resource People:
- Central Office Contracts Administration Staff
- Construction Area Engineer
- Designer

Process Details:

Ongoing review of project documents throughout the development process (Stage 1, 2, 3, etc.) will prepare the project manager for delivering Final Tracings. At RFC, the Final Tracings Checklist will be most beneficial. This document is available to assist in the gathering of all appropriate documents and should be considered the road map for success toward meeting the RFC goal.

Final Tracings are submitted through the department's Electronic Record Management System (ERMS) by the Designer and are routed through the District Coordinator. Once submitted to the District Coordinator:

- The PM is notified by the Coordinator that the plan set has been received by INDOT
- PM reviews plan set to ensure that Stage 3 markups are incorporated in the Final Tracings plans.
- SPMS is updated to reflect the submittal's last cost estimate
- PM reviews all supporting documentation for conformity and completeness.
- Coordinator sends the plan set to Contract Administration to start the process of compiling the construction contract for advertisement.

The Project Manager will also be responsible for filling out Part 2 of the PS&E checklist before transitioning all files to Contract Administration.

Potential Obstacles:

Every document has Contract related pertinence and must be checked for completeness and accuracy prior to submittal. Consequently, every document has the potential to stall a project. At this point the details matter the most.

Common errors:

- ERMS naming conventions incorrect – can cause confusion for Contract Administration when reviewing the contract package. These files will be rejected by Contracts if naming convention is wrong.

- ERMS document type incorrect – ERMS presorts files into separate "buckets" when final tracing submittals are transitioned to Contracts Administration. Having the wrong document type creates issues with compiling the contract. Files will be rejected by Contracts if document type is wrong.

- Any document marked as "letting date critical" on the Final Tracings Checklist will need to be included in the final documents sent to Contract Administration. Incomplete submittals may delay processing the contract, and put the project letting date at risk.

- Excessive markups of Stage 3 plans – if Central Office review of Stage 3 plans contained excessive markups and/or the designer's Final Tracings corrections do not address the Stage 3 markups, the Project Manager should coordinate with the appropriate plan reviewer to validate the new changes. This may delay or compress the project schedule.

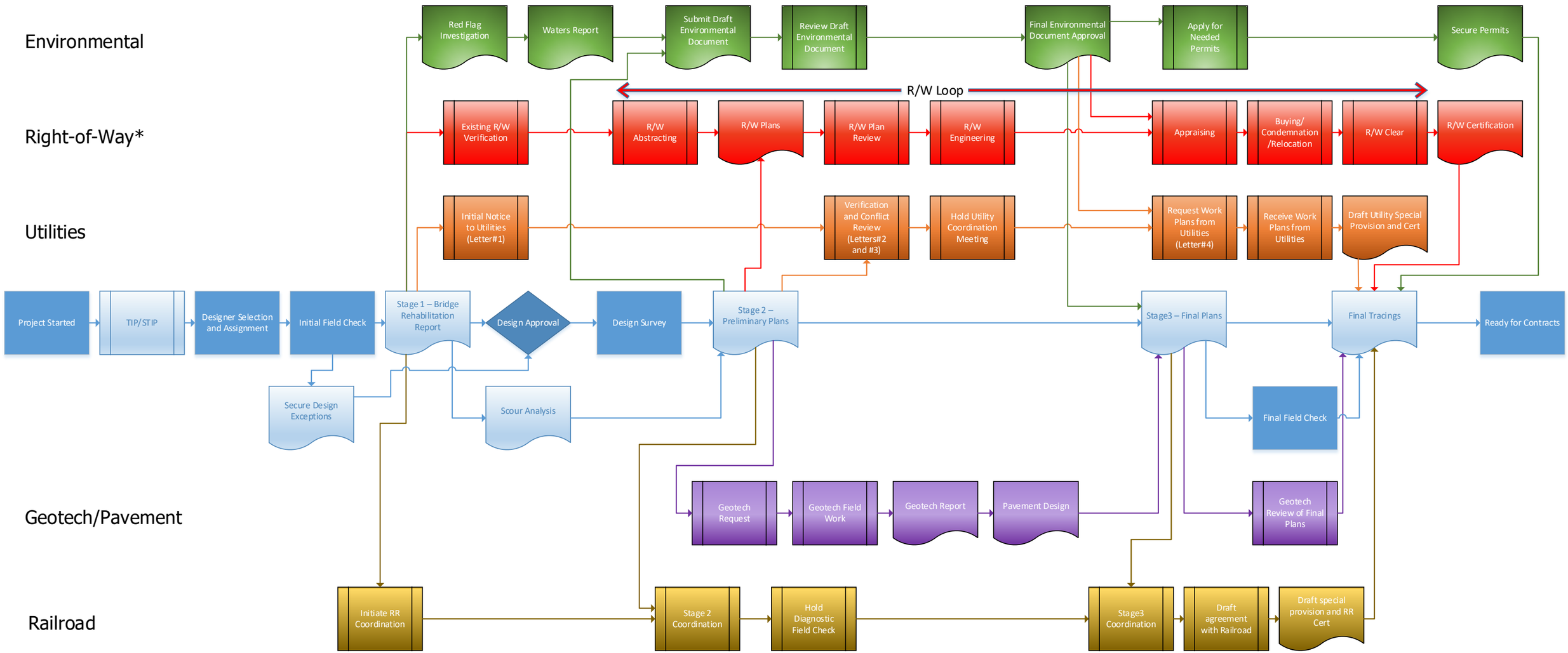
4-1.0 MILESTONES – BRIDGE REHABILITATION

The following section outlines the milestones for a typical Bridge Rehabilitation type project. See Chapter 1-1.01 of this document for typical projects associated with this category. The process descriptions in this section are not meant to be a comprehensive summary of each process in its entirety but rather an overview of the process as a whole with emphasis upon submittals and time sensitive aspects of a project from a project management perspective.

The durations for each step noted throughout these processes may actually vary depending on a project's scope and complexity, but are to be used as a general guideline. Also included in the process descriptions are instances which might potentially put a project schedule in jeopardy.

Figure 4-1A outlines the typical development process for a Bridge Rehabilitation project, and subsequent sections of this chapter describe each milestone in greater detail.

Project Development Process – Bridge Rehabilitation



Legend

Milestone

Milestone with Document

Subprocess

*Note: Most bridge rehab work occurs within existing r/w.
Occasionally new r/w may need to be acquired. If so, include r/w loop.

Fig. 4-1A – Bridge Rehabilitation Development Process Flowchart

Project Development Process – Historic Bridges

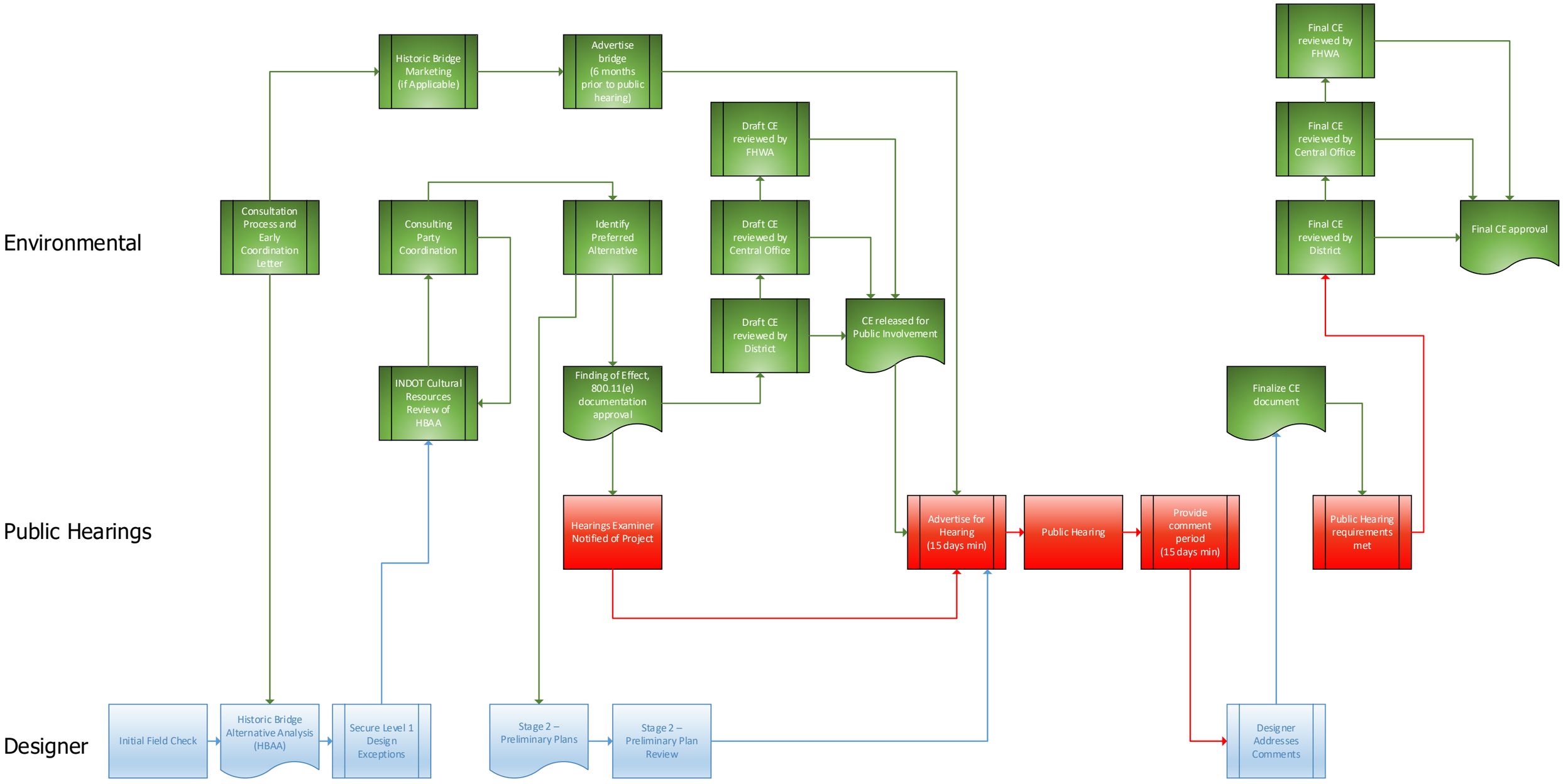


Fig. 4-1B – Historic Bridge Development Process Flowchart

4-1.01 Project Started

See section 3-1.01 for details

4-1.02 Designer Selection and Assignment

See section 3-1.02 for details

4-1.03 Initial Field Check

Duration: 30 Days
Predecessor: Designer Selection and Assignment
Successor: Stage1 – Bridge Rehabilitation Report
Critical Path Element: Yes

Purpose of Task:
The purpose for the Initial Field Check is for the development team to visit the project site to validate scope of work items and address each bridge element with recommended treatments.

Deliverables:
Meeting minutes to be taken by the Designer and distributed to the field check attendees for concurrence. Final initial field check minutes to be incorporated into the Bridge Rehabilitation Report as appendices.

Task Summary:
Field checks help to define the proposed scope of work, provide affected parties, such as utilities, railroad, construction, environmental, and right-of-way personnel, the opportunity to ensure that all concerns are addressed, and to help prevent unnecessary design changes late in plan development and to avoid construction change orders.

Resource People:
Project Designer
Central Office Structural Reviewer
District Bridge Asset Engineer
Construction Area Engineer
District Traffic Engineer
Utility/Railroad Coordinator
Environmental Manager

Process Details:
A Field Check should be conducted on the project site. The Field Check is essentially for gathering all affected parties of the project to validate the proposed scope of work, while identifying potential conflicts; especially involving constructability, environmental, traffic, utilities, right-of-way, geotechnical, and pavement design. It is essential that the Field Check meeting be coordinated through the Central Office Structural Reviewer and the District Bridge Asset Engineer. It is the responsibility of the Designer to prepare and submit the field check notification meeting calendar invite and plans a minimum of 2 weeks prior to the field check. The Construction Area Engineer and District Traffic Engineer should be invited to validate constructability and the Maintenance-of-Traffic (MOT) plan.

Potential Obstacles:
- Lack of attendance of critical personnel at the meeting – Best practice is to schedule these field checks around the Central Office Structural Reviewer, District Bridge Asset Engineer, and Construction Area Engineer, as these individuals generally provide significant insight to the design team.
- Making sure the minutes of the meeting get read and actioned. Ensure the Designer responds to comments and suggestions brought up in the meeting. The team can catch a mistake or risk in the meeting and document it, but if it's never followed up on, it can get a project into trouble.

4-1.04 Stage 1 – Bridge Rehabilitation Report

Duration: 30 Days
Predecessor: Initial Field Check
Successor: Design Approval
Critical Path Element: Yes

Purpose of Task:
The purpose of the Bridge Rehabilitation Report is to formalize into a document, validation of the proposed scope of work for the bridge, and address each element with recommended treatments.

Deliverables:
A Bridge Rehabilitation Report, completed by the Designer, as prescribed in Chapter 14 of the IDM, similar in format to the example provided in the Design Manual Editable Documents section.

Task Summary:
The designer is responsible for the preparation and delivery of all bridge rehabilitation reports, plan sheets, design computations, quantity take-offs, cost estimates and contract documents.

Plan development is intended to be concurrent with several other project development tasks. Many tasks have to be coordinated to ensure that as conditions change, other tasks adjust to the modifications.

Resource People:
The Project Manager has a responsibility to contact all the individuals on the team to ensure the project is delivered successfully. The entire development team will need to be contacted throughout the development phase as appropriate. Getting concurrence from key stakeholders at this stage is crucial in minimizing costly design changes further in to development. A partial list of resource people include:

- Central Office Bridge Department Staff
- District ERMS Coordinator
- Construction Area Engineer
- Bridge Asset Engineer
- Designer
- Utility/Railroad Coordinator
- Scoping Engineer

Process Details:
The Bridge Rehabilitation Report should include minutes from the Field Check, as well as an itemized cost estimate, Maintenance of Traffic recommendations, and Level 1 Design analysis.

The Bridge Rehabilitation Report is submitted through the department's Electronic Record Management System (ERMS) by the Designer and is routed through the District Coordinator. Once submitted to the District Coordinator:

- The PM is notified by the Coordinator that the submittal has been received by INDOT
- PM reviews submittal to ensure adherence to scope, schedule, and budget
- SPMS is updated to reflect the submittal's latest cost estimate
- Coordinator sends the submittal to Central Office Bridge Department review

Historic Bridges:
A bridge deemed to be historic, whether select or non-select, will require completion of a Historic Bridge Alternatives Analysis (HBAA) in place of the Bridge Rehabilitation Report. The Designer will not commence with the subsequent milestone submittals in this section until the HBAA is approved. See Section 4-1.12 for more information regarding Historic Bridges.

Level 1 Design Exceptions:
A Level 1 Design Criteria checklist is required for all bridge rehabilitation projects. Any design exceptions required for the project should be submitted during this time.

Potential Obstacles:
- Historic Select bridges will require much more upfront work to gain concurrence on the approved project scope. Allow for several months to account for consulting party stakeholder comment and involvement.
- Depending on the results of the Field Check, the rehabilitation report may include more work elements than originally anticipated at time of programming, leading to budget or schedule issues.
- Budget bust in Bridge Rehabilitation Report vs. programmed funding
- Environmental Unknowns – Cultural Resources, Karst features, etc.
- Railroad involvement – failure to identify early could lead to increased costs and delays.

4-1.05 Design Approval

Duration: 35 Days
Predecessor: Stage 1 – Bridge Rehabilitation Report
Successor: Scour Analysis, Design Survey, Stage 2-Preliminary Plans
Critical Path Element: Yes

Purpose of Task:
The purpose of this task is for central office Bridge group to review and concur with the proposed design concept for the project.

Deliverables:
A cover letter attached to the Bridge Rehabilitation Report with the appropriate signatures uploaded to ERMS.

Task Summary:
This is a chance for the Department to review and approve the proposed design concept, to ensure that the bridge program is being developed in a consistent fashion according to accepted policies and standards. Any Level 1 Design exceptions for the project are reviewed and approved during this time.

Resource People:
- Central Office Bridge Department Staff
- District ERMS Coordinator
- Central Office ERMS Coordinator

Process Details:
The INDOT District ERMS Coordinator is the initial contact for all design submittals. The submittal will then be forwarded to the Central Office INDOT ERMS Coordinator for final concurrence and sign off. The total review time should be less than 35 days for bridge rehabilitation report and plan submittals. The Project Manager should review the supporting documents at each submittal to validate that scope, schedule and budget are within acceptable ranges.

If the project is an historic bridge, the final approved environmental document will serve as design approval.

Potential Obstacles:

- Not enough project funding to accommodate the proposed scope of work
- Work type changes that can affect schedule and budget
- Unapproved/denied Level 1 design exceptions can cause rework to project scope, schedule and budget.

4-1.06 Scour Analysis

Duration: 60 Days
Predecessor: Stage 1 – Bridge Rehabilitation Report
Successor: Stage 2 – Preliminary Plans
Critical Path Element: Yes

Purpose of Task:
The purpose of this task is to identify if the bridge is prone to bridge scour (loss of sediment from around bridge piers or abutments due to swiftly moving water), and if so, what countermeasures should be included into the project.

Deliverables:
A scour report, including hydraulic calculations, indicating whether the structure is scour critical or not, along with recommended countermeasure treatments.

Task Summary:
Bridge scour can be a cause for bridge failure, therefore potential scour problems should be identified and recognized. INDOT has determined that bridge rehabilitation projects crossing a waterway should be analyzed for scour if there is not already a previously completed report on file at INDOT's Hydraulics Division Office.

Resource People:
- Project Designer
- Central Office Hydraulics staff – Reviews hydraulics calculations and report
- Central Office Bridge Department – consulted during the Bridge Scoping Report

Process Details:
The project Designer should contact the INDOT Office of Hydraulics to determine if a scour analysis has been completed previously or should be completed as part of the current project. This determination should be documented in the Bridge Rehabilitation Report.

When a scour analysis is completed as part of the project, it must be signed, sealed, and dated by a professional engineer licensed in Indiana and submitted for review in ERMS at least 35 days prior to Stage 2 – Preliminary Plans submission.

Potential Obstacles:
- Scour countermeasures, if applicable on a project, will require Waters Reports and Waterway Permits. The Project Manager should account for these items in the project schedule.

4-1.07 Design Survey

Duration: 60 Days
Predecessor: Design Approval
Successor: Stage 2 – Preliminary Plans
Critical Path Element: Yes

See Section 3-1.04 for details.

When a rehabilitation project involves bridge deck replacement, superstructure replacement, or widening, a field survey may be warranted. A typical survey will involve a structure profile and topographic features.

In all cases, if the work type may even remotely involve disturbance to an existing utility, a survey should be completed to accurately show existing utility facilities in the project area.

If not determined beforehand, the need for a Design Survey should be discussed at the Initial Field Check.

Existing vertical and horizontal railroad clearances should be measured and included in the Bridge Rehabilitation Report if the project involves a railroad.

Potential Obstacles:

- Failure to perform accurate research and identification can cause the project team to miss critical utilities, which encountered during construction can cause significant costs and delays.

4-1.08 Stage 2 – Preliminary Plans

Duration: 95 Days (60 days for submittal, 35 days for review)
Predecessor: Design Approval, Design Survey
Successor: Draft Environmental Document, R/W Plans, UT Coordination, Permits
Critical Path Element: Yes

Purpose of Task:
To submit a set of preliminary plans with supporting documentation, that details Maintenance of Traffic layout, general layout, and plan information to ensure all the applicable federal and state laws, regulations and design standards are followed.

Deliverables:
For plan submittal - Set of Stage 2 – Preliminary Plans along with supporting documentation in accordance with Chapter 14-2.05(03) of the IDM.

For plan review - Marked up Stage 2 – Preliminary Plans with reviewer's comments attached to the plans. Comments should generally be incorporated into the next plan submittal.

Task Summary:
The Designer is responsible for the preparation and delivery of all plan sheets, design computations, special provisions, cost estimates and contract documents.

Plan development is intended to be concurrent with several other project development tasks. Many tasks have to be coordinated to ensure that as conditions change, other tasks adjust to the modifications.

Resource People:
The Project Manager has a responsibility to contact all the individuals on the team to ensure the project is delivered successfully. The entire development team will need to be contacted throughout the development phase as appropriate. A concise list of resource people include:

- Central Office Bridge Department Staff
- District ERMS Coordinator
- Construction Area Engineer
- Bridge Asset Engineer
- Designer
- Utility/Railroad Coordinator
- various Technical Staff

Process Details:

Stage 2 Plans

Stage 2 – Preliminary Plans are submitted through the department's Electronic Record Management System (ERMS) by the Designer and routed through the District Coordinator. Once submitted to the District Coordinator:

- The PM is notified by the Coordinator that the submittal has been received by INDOT
- PM reviews submittal to ensure adherence to scope, schedule, and budget
- SPMS is updated to reflect the submittal's latest cost estimate
- Coordinator sends the submittal to Central Office Bridge Department review

1. **Environmental, Utilities & Railroad, and Permit coordination:**

   Each bridge rehabilitation project is subject to NEPA, waterway permitting, utility, and railroad coordination requirements. Stage 2 – Preliminary Plans are critical to communicate the project's impacts to these areas.

2. **Right-of-Way:**

   Most bridge rehabilitation work can be performed within the existing right-of-way. There are certain situations where additional temporary or permanent right-of-way may need to be acquired. In these situations, the r/w process should be followed as per Chapters 3-1.21 through 3-1.26 of this manual with the Stage 2 – Preliminary Plans serving as the basis for the R/W Plans.

Stage 2 Plan Review

The INDOT District ERMS Coordinator is the initial contact for all design submittals. The submittal will then be forwarded to the Central Office ERMS Coordinator as appropriate for final concurrence and sign off. The total review time should be less than 35 days for plan submittals. The Project Manager should review the supporting documents at each submittal to validate that scope, schedule and budget are within acceptable ranges.

Depending on workload capacity, the plan review may either be performed in house or outsourced to a consultant reviewer. Once complete, the marked up plans are put back in ERMS and the District ERMS Coordinator is notified by the Central Office ERMS Coordinator to let the PM know the review is complete.

In cases of extreme urgency, an expedited review may be requested. All requests should be directed through the manager of Bridge Design. Proactive communication is encouraged in these types of situations.

Constructability review of the plans should be happening concurrently with this review.

Potential Obstacles:

- Level 1 Design element exceptions found late in project development. If a deviation from standards on a Level 1 Design criteria is found late in the game, this can have major impacts on project scope, schedule, and budget. Don't put off applying for these and assume that a Level 1 design exception will be approved. Early identification and application of Design Exceptions can save a lot of rework associated with a costly redesign if the exception is not approved.
- If additional R/W is required to construct the project, this can have significant implications to the project schedule.
- Design with Utilities in mind. Try to avoid conflicts if possible. Early identification and adjustment of design to avoid and minimize utility conflicts as much as practical can avoid expensive utility costs and delays down the road.
- Staying on schedule. Stage 2 plans are typically on the critical path in the development process. Delays to this submittal could add to overall project delays.
- Scope Creep –The design should focus on the primary objective of the project. It is easy to incrementally add elements to the project. Be sure the proposed design reflects the intent of the project.
- Delays in transitioning documents to review staff
- Excessive markups on plans that necessitates a re-submittal of Stage 1 plans
- Incomplete Stage 2 plan set and supporting documents
- Expedited review requests sent in at last minute
- PM not tracking review times – Agency reviews can bust a schedule if not monitored and accounted for in the project schedule.

4-1.10 Red Flag Investigation

Duration: 30 – 90 days
Predecessor: Stage 1 – Bridge Rehabilitation Report
Successor: Environmental Document
Critical Path Element: Rarely

See section 3-1.11 for details

4-1.11 Waters Report

See section 3-1.12 for details

4-1.12 Environmental Document (Categorical Exclusion)

Duration: Draft Categorical Exclusion (CE) Document

Programmatic CE	30 Days
CE 1	60 Days
CE 2	120 Days
CE 3	150 Days
CE 4	240 – 360 Days
Final Categorical Exclusion (CE) Document	30 – 60 Days[6]

Predecessor: Red Flag Investigation
Successor: Right-of-way appraising, Stage3 – Final Plans
Critical Path Element: Frequently, but not always

See section 3-1.13 for details

4-1.12(01) Historic Bridges

A bridge deemed to be historic, whether select or non-select, will require following the Historic Bridge Project Development Process as outlined in Part IV, Chapter 2 of the Cultural Resources Manual. These processes are based on the procedures set forth in the Historic Bridge Programmatic Agreement. All of these activities should be completed by the environmental

[6] 30 Days typical for CE1-3. CE4 Review time can take up to 60 days due to increased number of reviewers.

document preparation team unless stated otherwise. Projects with Historic Bridges will require CE4 level environmental documentation.

Chapter 412-5.01 of the IDM discusses Historic Bridges and the difference between Select and Non-Select designations. FHWA will not participate in the demolition of a Select Bridge. All FHWA projects involving Select bridges must preserve the bridge in some manner. Non-Select Bridges may be replaced if no avoidance alternative is determined to be feasible and prudent, or no alternative that poses the least harm to the bridge is determined to be feasible and prudent.

See Fig. 4-1B for a schematic of the historic bridge development process.

Process Details:

a. Consultation Process

- Issue early coordination letter. Should include high level project information. When referencing the project, the proposed work type and classification (rehabilitation vs replacement) should not yet be stated. Per the Historic Bridge Programmatic Agreement, INDOT will classify and label all historic bridge projects as "Bridge Project – Scope Undetermined" until after FHWA has identified a preferred alternative for the project.

- Invite consulting parties and seek feedback on the following items when they are ready for review – Need INDOT Central Office Cultural Resources and the Office of Bridge Design to approve prior to sharing with consulting parties:
  - Section 4(f) alternatives analysis (Historic Bridge Alternatives Analysis)
  - Project Purpose and Need
  - Area of Potential Effects (APE)
  - Historical Property Report (HPR)
  - Section 106 Documentation / Effect Finding

b. Market Bridge for Re-Use, if Applicable

- Marketing can occur concurrently with other activities, but should not precede the early coordination initiation. In other words, consulting parties should be aware that a bridge project is proposed at least as the same time that marketing measures are started. Part IV, Chapter 2 of the Cultural Resources Manual outlines when marketing is required.

c. Draft Historic Bridge Alternative Analysis

- The Historic Bridge Alternative Analysis is a formal engineering assessment for selecting the proposed alternative for the historical bridge in order to remain

consistent and in line with INDOT's commitment to the Historical Bridges Programmatic Agreement.

- The document is prepared by the Designer in accordance with the guidance as provided in the Historic Bridge Alternatives Analysis Template on INDOT's website

- The Historic Bridge Alternative Analysis will take the place of the Bridge Rehabilitation Report

- Any Level 1 Design Exceptions should be applied for and approved prior to identification of the preferred alternative.

- The report should investigate the following alternatives, in the following order of priority. The analysis can stop once an alternative that meets the purpose and need while also being prudent and feasible has been identified:
    1. No build / Do Nothing
    2. Rehabilitation for continued vehicular use, meeting the Secretary of the Interior's Standards for Rehabilitation
    3. Rehabilitation for continued vehicular use, not meeting the Secretary of the Interior's Standards for Rehabilitation
    4. Rehabilitation for continued vehicular use (one-way pair option), meeting the Secretary of the Interior's Standards for Rehabilitation
    5. Rehabilitation for continued vehicular use (one-way pair option), not meeting the Secretary of the Interior's Standards for Rehabilitation
    6. Bypass (non-vehicular use) / Build new structure
    7. Relocation of existing historic bridge and new bridge construction
    8. Replacement – Demolition of existing historic bridge and new bridge construction (not an option for Select Bridges)

d. Identify Preferred Alternative

- Once the draft HBAA is complete, Central Office Cultural Resources and Office of Bridge Design will review and approve prior to sending the draft HBAA out to consulting parties.

- Continued feedback and consultation with SHPO, consulting parties and FHWA will further refine the determination of the preferred alternative.

- Once a preferred alternative is identified, the Designer can start working on developing Stage 2 – Preliminary Plans milestone at this point.

- Once INDOT is satisfied that substantive SHPO concerns have been addressed, the environmental document preparer should produce the Section 106 documentation, including the updated purpose & need, and HBAA.

- "No Adverse Effect" findings in the 800.11(e) documentation can be signed off by INDOT. "Adverse Effect" findings require FHWA to review and concur.

e. Draft Environmental Document – release for public involvement

- The 800.11(e) is likely to be the last piece of the puzzle when compiling the draft CE document. Once the draft CE is complete, the documentation should be sent in for review and comment.
- Once reviewed, the document can then be signed released for public involvement.

f. Hold Public Hearing

- When the project is being processed under the Historic Bridge PA, a public hearing shall be held for every Select and Non-Select bridge regardless of the preferred alternative. Public hearing guidance for Historic Bridges is given in Part IV, Chapter 3 of the Cultural Resources Manual.

g. CE / 4(f) approval

- Once the public hearing comment period has expired, the CE is updated as appropriate and forwarded to INDOT for final review.

- FHWA final approval of the CE will affirm that all Historic Bridge PA requirements have been fully addressed, serve to confirm that FHWA has concluded its responsibilities under Section 106, and serve as FHWA approval of the Historic Bridge Programmatic 4(f).

h. Plan Submittals for SHPO Coordination

- Appendix B of the Historic Bridges PA, Standard Treatment Approach for Historic Bridges, requires that when a bridge is rehabilitated – whether Select or Non-Select – the bridge owner shall provide plans to the SHPO at the stages listed below. **All three of these submittals are required**. Some may occur during the environmental process, while others will occur after CE approval. As a result, they should be listed as commitments in the environmental document and the Project Commitments Database.
    - Approximately 30% complete
    - Approximately 60% complete

    - Final Design Plans
- The development team should collaborate early on with the Cultural Resources Office and the Office of Bridge Design to determine if additional plan submittals other than Stage1 or Stage3 will be required to meet this requirement, and in what format they should be transmitted in. Submittals should be routed through the Cultural Resources office, and Cultural Resources will be the point of contact with SHPO.

Potential Obstacles:

- Communicating predetermined alternative preferences to consulting parties before they have a chance to review and comment on the project.
- Historical concrete bridges can pose higher challenges for rehabilitation and marketing.
- A designer unfamiliar with the historic bridge process can struggle with designing these types of structures. This can be a very iterative process, with give and take from a greater pool of stakeholders than a typical INDOT project.
- Timelines for getting a preferred alternative and final environmental document can be lengthy. One year of development time is not unheard of for this task.
- FHWA is the final authority on the preferred alternative, and the alternative chosen may or may not align with INDOT's preference.

4-1.13 Utility Coordination

Duration: Throughout project development.
Work plans – 120 days from request to Utility
Predecessor: Project Started, Stage 2 Plans– prior to sending out request for work plans
Successor: Final Tracings
Critical Path Element: No

See Section 3-1.16 for details

4-1.14 Railroad Coordination

See Section 3-1.17 for details

4-1.15 Geotechnical Investigation

Duration: 180 Days
Predecessors: Stage 2 – Preliminary Plans
Successor: Pavement Design
Critical Path Element: No for most projects.

See Section 3-1.18 for details

4-1.16 Pavement Design

Duration: 120 Days
Predecessors: Geotechnical Report (if applicable)
Successor: Stage 3 – Final Plans
Critical Path Element: No

See Section 3-1.19 for details

4-1.17 Permits

See Section 3-1.20 for Details

4-1.18 Right-of-Way Loop

Most bridge rehabilitation work can be performed within the existing right-of-way. There are certain situations where additional temporary or permanent right-of-way may need to be acquired. In these situations, the r/w process should be followed as per Chapters 3-1.21 through 3-1.26 of this manual with the Stage 2 – Preliminary Plans serving as the basis for the R/W Plans.

Existing R/W determination plays a key role in being able to know this information up front where the Project Manager and development team can plan for the extra time if needed to acquire new R/W.

4-1.19 Stage 3 – Final Plans

Duration: 95 Days (60 days for submittal, 35 days for review)
Predecessor: Stage 2 – Preliminary Plans, Final Environmental Document
Successor: Geotech Review of Final Plans, Final Field Check (if applicable), Final Tracings
Critical Path Element: Occasionally

Purpose of Task:
To submit a set of final plans with supporting documentation, that details all elements of the final design, final cost estimate, and all special provisions to ensure applicable federal and state laws, regulations and design standards are followed.

Deliverables:
For plan submittal - Set of Stage3 – Final Plans along with supporting documentation in accordance with Chapter 14-2.05(03) of the IDM.

For plan review - Marked up Stage3 - Final Plans with reviewer's comments attached to the plans. Comments should generally be incorporated into the next plan submittal.

Task Summary:
The designer is responsible for the preparation and delivery of all plan sheets, design computations, special provisions, cost estimates and contract documents.

Plan development is intended to be concurrent with several other project development tasks. Many tasks have to be coordinated to ensure that as conditions change, other tasks adjust to the modifications.

Resource People:
The Project Manager has a responsibility to contact all the individuals on the team to ensure the project is delivered successfully. The entire development team will need to be contacted throughout the development phase as appropriate. A concise list of resource people include:

- Central Office Bridge Department Staff
- District ERMS Coordinator
- Construction Area Engineer
- Bridge Asset Engineer
- Designer
- Utility/Railroad Coordinator
- various Technical Staff

Process Details:

Stage 3 Plans

Stage 3 - Final Plans are submitted through the department's Electronic Record Management System (ERMS) by the Designer and routed through the District Coordinator. Once submitted to the District Coordinator:

- The PM is notified by the Coordinator that the submittal has been received by INDOT
- PM reviews submittal to ensure adherence to scope, schedule, and budget
- SPMS is updated to reflect the submittal's latest cost estimate
- Coordinator sends the submittal to Central Office Bridge Department review

Stage 3 Plan Review

The INDOT District ERMS Coordinator is the initial contact for all design submittals. The submittal will then be forwarded to the Central Office ERMS Coordinator as appropriate for final concurrence and sign off. The total review time should be less than 35 days for plan submittals. The Project Manager should review the supporting documents at each submittal to validate that scope, schedule and budget are within acceptable ranges.

Depending on workload capacity, the plan review may either be performed in house or outsourced to a consultant reviewer. Once complete, the marked up plans are put back in ERMS and the District ERMS Coordinator is notified by the Central Office ERMS Coordinator to let the PM know the review is complete.

In cases of extreme urgency, an expedited review may be requested. All requests should be directed through the manager of Bridge Design. Proactive communication is encouraged in these types of situations.

Constructability review of the plans should be happening concurrently with this review.

Potential Obstacles:

- Level 1 Design element exceptions found late in project development. If a deviation from standards on a Level 1 Design criteria is found late in the game, this can have major impacts on project scope, schedule, and budget. Don't put off applying for these and assume that a Level 1 design exception will be approved. Early identification and application of Design Exceptions can save a lot of rework associated with a costly redesign if the exception is not approved.

- Last minute design changes can have deleterious effects on utility coordination, r/w acquisition, and environmental document compliance. Keeping the project stakeholders involved and in contact through project development can minimize the amount of last minute changes.
- Scope Creep –The design should focus on the primary objective of the project. It is easy to incrementally add elements to the project. Be sure the proposed design reflects the intent of the project.

4-1.21 Final Field Check

Duration: 60 days (although actual meeting is a one day event)
Predecessor: Design Approval, Stage 3 revised from previous markups
Successor: Final Tracings
Critical Path Element: No

Purpose of Task:
Meeting on the project site to confirm the condition of the structure, appropriateness of the plans, validate the project's Maintenance of Traffic plan, and review constructability.

Deliverables:
Final Field Check (FFC) meeting minutes to be compiled by the Designer and distributed to the FFC attendees. Both plans and minutes should be a part of the project file. This submittal does not go through a formal review.

Task Summary:
Field checks provide affected parties, such as utilities, railroad, construction, environmental, and right-of-way personnel, the opportunity to ensure that all concerns are addressed and to help prevent unnecessary design changes late in plan development and to avoid construction change orders.

A final field check is at the discretion of the Project Manager in consultation with the Bridge Rehabilitation review upon completion of Stage3 – Final Plans.

There are times that land use changes or new utility facilities may be present that will need to be updated on the plans. Verifying these items in the field are critical for minimizing change orders in construction.

Resource People:
Project Designer
Central Office Bridge Department staff
Construction Area Engineer
District Asset Engineer
Utility/Railroad Coordinator
Utility Companies
Other Technical support staff

Process Details:
A Final Field Check (FFC) should be conducted on the project site. The FFC is essentially for gathering all affected parties of the project to assess field conditions and determine potential conflicts; especially involving constructability, environmental, traffic, utilities, and right-of-way.

It is essential that the FFC meeting be coordinated through the INDOT Construction Area Engineer. It is the responsibility of the designer to prepare and submit the FFC notification meeting calendar invite and plans a minimum of 2 weeks prior to the field check. The District Traffic Engineer should be invited to validate the Maintenance-of-Traffic (MOT) plan.

Potential Obstacles:

- Lack of attendance of critical personnel at the meeting – Best practice is to schedule these field checks around the Construction Area Engineer and District Asset Engineer, as these two individuals generally provide significant insight to the design team.
- Making sure the minutes of the meeting get read and actioned. Ensure the designer responds to comments and suggestions brought up in the meeting. The team can catch a mistake or risk in the meeting and document it, but if it's never followed up on, it can get a project into trouble.
- Land use changes, geometric changes, utility changes, and other site changes not captured on the current set of plans can get missed if a substantial amount of time has occurred since PFC and a final field check is not scheduled.

4-1.22 Final Tracings

See Section 3-1.30 for Details

4-1.23 Ready for Contracts (RFC)

See Section 3-1.31 for Details

5-1.0 MILESTONES – PREVENTIVE MAINTENANCE

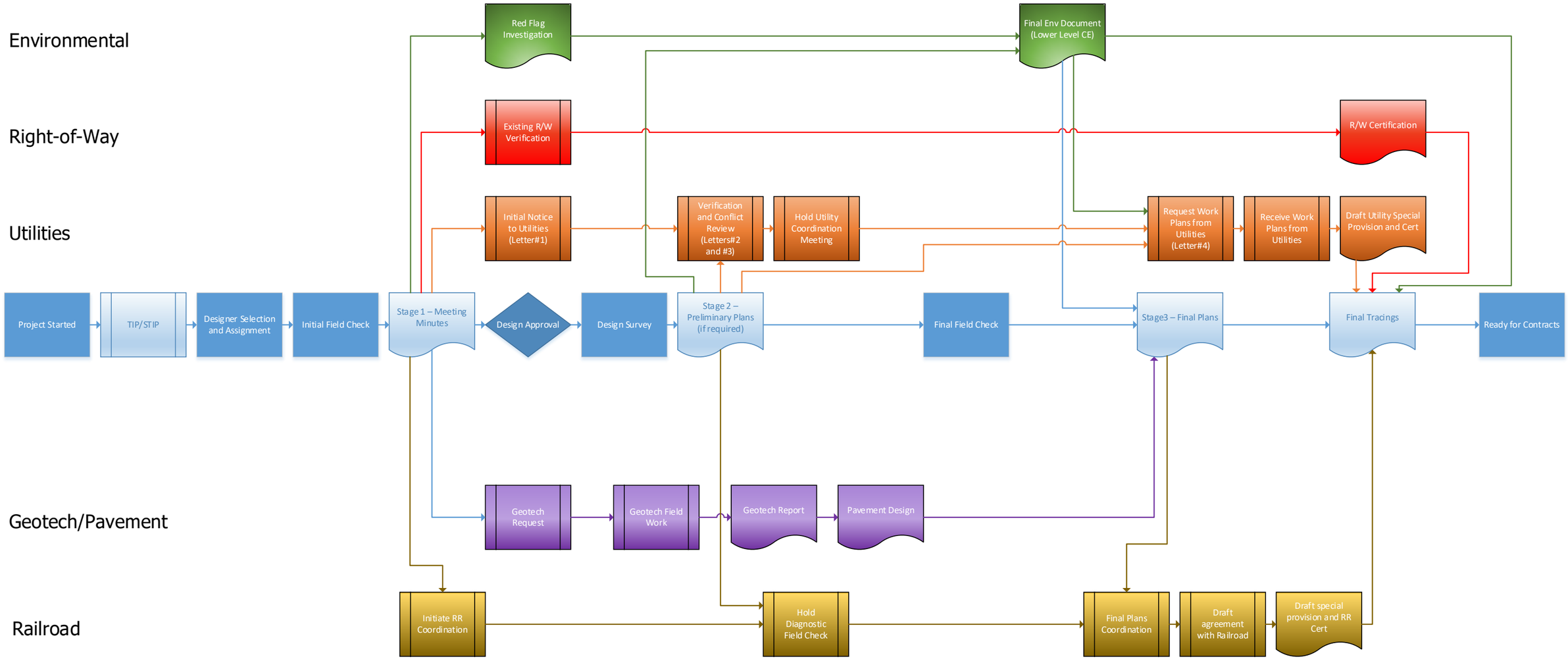
The following section outlines the milestones for a typical Preventive Maintenance type project. See Chapter 1-1.01 of this document for typical projects associated with this category. The process descriptions in this section are not meant to be a comprehensive summary of each process in its entirety but rather an overview of the process as a whole with emphasis upon submittals and time sensitive aspects of a project from a project management perspective.

The durations for each step noted throughout these processes may actually vary depending on a project's scope and complexity, but are to be used as a general guideline. Also included in the process descriptions are instances which might potentially put a project schedule in jeopardy.

For bridge Preventive Maintenance projects, INDOT Bridge Division has developed a color coding system to help the district in-house design and development team asses the level of oversight and review required on a particular bridge Preventive Maintenance project. The Project Manager, Designer, and Asset Engineer should work to define the color level of a bridge project in this category as early as possible. Reference the Color Coding System for Development of Bridge Preventive Maintenance Projects for additional information. The Color Coding System is intended for use for projects designed with in-house forces only. Consultant developed plans will go through the regular submittal and review process as outlined in Chapter 14 of the IDM. Please consult your Project Manager or the Bridge Division to reference the Color Coding System document.

Figure 5-1A outlines the typical development process for a Roadway Preventive Maintenance project, while Figure 5-1B outlines the typical development process for a Bridge Preventive Maintenance project. Subsequent sections of this chapter describe each milestone in greater detail.

Project Development Process – Preventive Maintenance (Partial 3R)



Legend

- Milestone
- Milestone with Document
- Subprocess

Fig. 5-1A – Roadway Preventive Maintenance Development Process Flowchart

Project Development Process – Preventive Maintenance
Bridge Projects

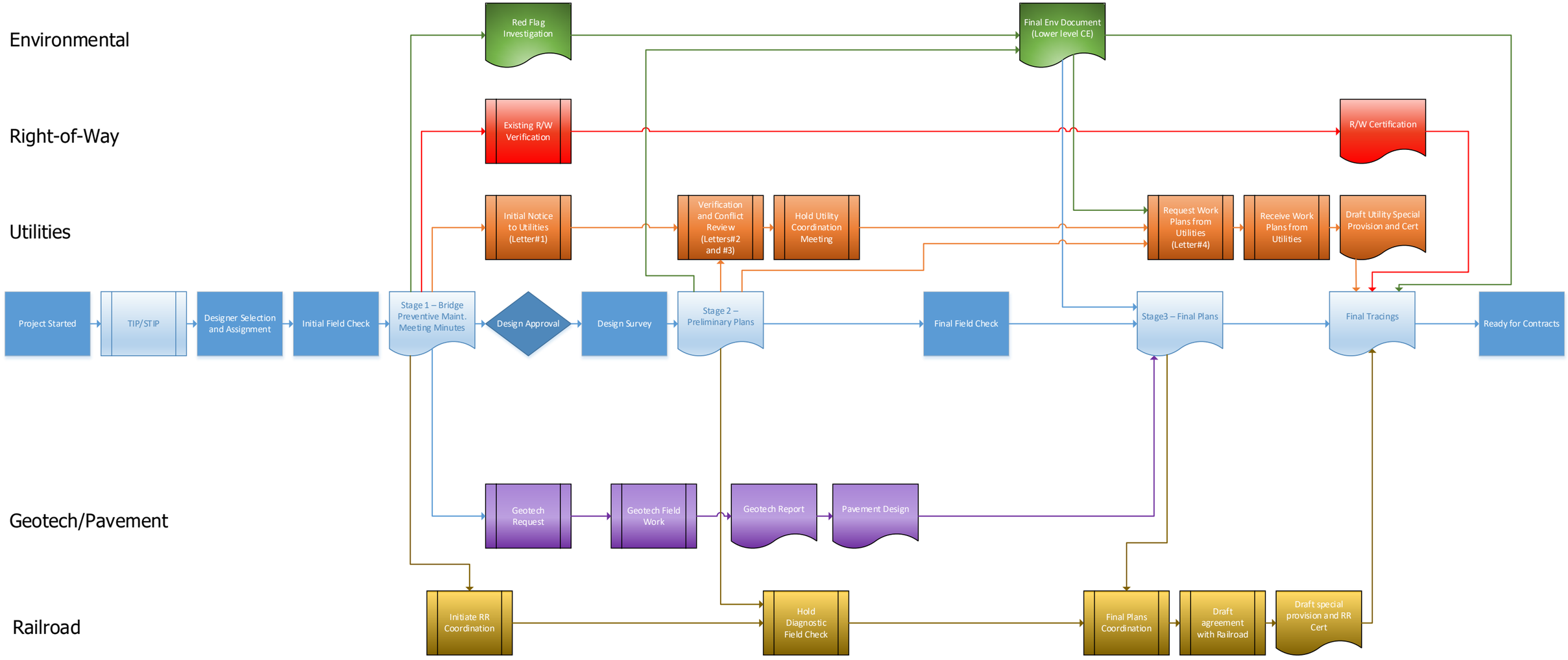


Fig. 5-1B – Bridge Preventive Maintenance Development Process Flowchart

5-1.01 Project Authorization

See section 3-1.01 for details

5-1.02 Designer Selection and Assignment

See section 3-1.02 for details

Preventive Maintenance projects tend to be less complex in nature than other projects in the Capital Program. The Department will usually try to develop the majority of these types of projects with in-house forces to the extent practical.

5-1.03 Initial Field Check

Duration: 30 Days
Predecessor: Designer Selection and Assignment
Successor: Engineering Assessment
Critical Path Element: Yes

Purpose of Task:
The purpose for the Initial Field Check is for the development team to visit the project site (either physically or virtually) to discuss and refine scope of work items in the project scoping document.

Deliverables:
Meeting minutes to be taken by the Designer and distributed to the field check attendees for concurrence.

Task Summary:
Field checks help to refine the proposed scope of work as provided in the scoping document, provide affected parties, such as utilities, railroad, construction, environmental, and right-of-way personnel, the opportunity to ensure that all concerns are addressed, and to help prevent unnecessary design changes late in plan development and to avoid construction change orders.

Resource People:
Project Designer
District Design Manager
District Asset Engineer (Road/Bridge/Traffic, as applicable)
Construction Area Engineer
Utility/Railroad Coordinator

Environmental Manager
Central Office Bridge staff (if applicable)
Other Technical support staff

Process Details:
At a minimum, a virtual Field Check should be conducted offsite, using Pathview, aerial maps, GIS, or other digital means for the project team to discuss site conditions, project limits, purpose and need, and other goals of the project. Green designated projects in the Bridge Color Coding System can be virtually field checked.

On more complex projects, it may be desirable to hold an actual field check at the project site instead of a virtual field check. The Project Manager, Designer, or Asset Engineer should be able to make the call to elevate the field check from virtual to on-site. Yellow and Orange designated projects in the Bridge Color Coding System will require physical field checks.

It is the responsibility of the Designer to prepare and submit the field check notification meeting calendar invite a minimum of 2 weeks prior to the field check. The Construction Area Engineer and Asset Engineer should be in attendance if possible.

Potential Obstacles:

- Lack of attendance of critical personnel at the meeting – Best practice is to schedule these field checks around the District Asset Engineer and Construction Area Engineer, as these individuals generally provide significant insight to the design team.
- Making sure the minutes of the meeting get read and actioned. Ensure the Designer responds to comments and suggestions brought up in the meeting. The team can catch a mistake or risk in the meeting and document it, but if it's never followed up on, it can get a project into trouble.

5-1.04 Stage 1 – Meeting Minutes

Duration: 30 Days
Predecessor: Field Check
Successor: Design Approval
Critical Path Element: Yes

Purpose of Task:
The purpose of the Stage 1 Meeting Minutes is to formalize into a document, development team validation of the proposed scope of work for the project.

Deliverables:
Complete Stage 1 submittal, consisting of Field Check Minutes from the Field Check, a copy of the project scope, and an itemized cost estimate, uploaded to ERMS.

Task Summary:
The designer is responsible for the preparation of the field check meeting minutes and itemized cost estimate. The scoping document should be available prior to project authorization. Changes proposed to the scoping document should follow current Change Management policies.

Plan development is intended to be concurrent with several other project development tasks. Many tasks have to be coordinated to ensure that as conditions change, other tasks adjust to the modifications.

Resource People:
The Project Manager has a responsibility to contact all the individuals on the team to ensure the project is delivered successfully. The entire development team will need to be contacted throughout the development phase as appropriate. Getting concurrence from key stakeholders at this stage is crucial in minimizing costly design changes further in to development. A concise list of resource people include:

- Construction Area Engineer
- District Asset Engineer
- District Traffic Engineer
- Designer
- Utility/Railroad Coordinator
- various Technical Staff

Process Details:
The Stage 1 – Meeting Minutes should include minutes from the Field Check, as well as an itemized cost estimate, and Maintenance of Traffic recommendations.

The Stage 1 – Meeting Minutes submittal is submitted through the department's Electronic Record Management System (ERMS) by the Designer and is routed through the District Coordinator. Once submitted to the District Coordinator:

- The PM is notified by the District ERMS Coordinator that the submittal has been received by INDOT
- PM reviews submittal to ensure adherence to scope, schedule, and budget
- SPMS is updated to reflect the submittal's latest cost estimate
- District ERMS Coordinator sends the submittal to District Review or Central Office Bridge Review depending on work type and bridge color coding system.

Bridge Preventive Maintenance Projects will have varying degrees of oversight and review. The Project Manager will need to reference the Color Coding System for Development of Bridge Preventive Maintenance Projects document for more information.

Potential Obstacles:
- Depending on the results of the Initial Field Check, the project scope may include more work elements than originally anticipated at time of programming, leading to budget or schedule issues.
- Budget bust in the Abbreviated Engineer's Report vs. programmed funding
- Environmental Unknowns – Cultural Resources, Karst features, etc.
- Railroad involvement – failure to identify early could lead to increased costs and delays.

5-1.05 Design Approval

Duration: 30 Days
Predecessor: Stage 1 – Meeting Minutes
Successor: Design Survey, Stage 2-Preliminary Plans, Final Environmental Document
Critical Path Element: Yes

Purpose of Task:
The purpose of this task is for Departmental review and concurrence with the proposed scope of work for the project.

Deliverables:
A cover letter attached to the Stage 1 – Meeting Minutes with the appropriate signatures uploaded to ERMS.

Task Summary:
This is a chance for the Department to review and approve the proposed design concept, to ensure that the program is being developed in a consistent fashion according to accepted policies and standards.

Resource People:

- District Design Manager
- Central Office Bridge Department Staff
- District ERMS Coordinator
- Central Office ERMS Coordinator

Process Details:
The INDOT District ERMS Coordinator is the initial contact for all design submittals.

Most projects (with the exception of bridge projects that fall into the Yellow or Orange Color Coding System) will be routed through the District Design Manager for review and approval.

For Yellow or Orange designated projects per the Bridge Color Coding System, the submittal will be forwarded to the Central Office ERMS Coordinator for final concurrence and routing for sign off.

The total review time should be less than 30 days. The Project Manager should review the supporting documents at each submittal to validate that scope, schedule and budget are within acceptable ranges.

Potential Obstacles:

- Not enough project funding to accommodate the proposed scope of work
- Work type changes that can affect schedule and budget

5-1.06 Design Survey

Duration: 60 Days
Predecessor: Design Approval
Successor: Stage 2 – Preliminary Plans
Critical Path Element: Yes

See Section 3-1.04 for details.

If not determined beforehand, the need for a Design Survey should be discussed at the Initial Field Check.

The need for a Design Survey will vary on the project work type, complexity, and location. If any below ground disturbance is required, underground utilities should be located and included in the utility coordination process.

Potential Obstacles:

- Failure to perform accurate research and identification can cause the project team to miss critical utilities, which encountered during construction can cause significant costs and delays.

5-1.07 Stage 2 – Preliminary Plans

Duration: 95 days (60 days for plan submittal, 35 days for review)
Predecessor: Design Approval, Design Survey
Successor: Final Environmental Document, Utility/Railroad Coordination, Permits
Critical Path Element: Occasionally – when required

Purpose of Task:
To submit a set of preliminary plans with supporting documentation, that details Maintenance of Traffic layout, general layout, and plan information. The primary purpose of this submittal is to aid in coordination with utilities, railroad, and permitting agencies.

Deliverables:

Not all Preventive Maintenance projects will require a Stage 2 submittal. Only those projects that may have utility, railroad, or permit impacts will require a Stage 2 submittal.

The need for Stage 2 plans should be discussed and determined at the Initial Field Check.

For Bridges:

- Deliverable will be a Set of Stage 2 – Preliminary Plans along with supporting documentation in accordance with Chapter 14-2.05(03) of the IDM.

All other projects:

- Deliverable will be a Set of Stage 2 – Preliminary Plans along with supporting documentation in accordance with Chapter 14-2.03(01) of the IDM.

Task Summary:
The Designer is responsible for the preparation and delivery of all plan sheets, design computations, special provisions, cost estimates and contract documents.

Plan development is intended to be concurrent with several other project development tasks. Many tasks have to be coordinated to ensure that as conditions change, other tasks adjust to the modifications.

Resource People:
The Project Manager has a responsibility to contact all the individuals on the team to ensure the project is delivered successfully. The entire development team will need to be contacted throughout the development phase as appropriate. A concise list of resource people may include:

- Central Office Bridge Department Staff
- District ERMS Coordinator
- Construction Area Engineer

- Bridge Asset Engineer
- Designer
- Utility/Railroad Coordinator
- various Technical Staff

Process Details

Stage 2 – Preliminary Plans are submitted through the department's Electronic Record Management System (ERMS) by the Designer and routed through the District ERMS Coordinator. Once submitted to the District Coordinator:

- The PM is notified by the Coordinator that the submittal has been received by INDOT
- PM reviews submittal to ensure adherence to scope, schedule, and budget
- SPMS is updated to reflect the submittal's latest cost estimate
- Coordinator sends the submittal to District Review.
- A formal review is not held for Stage 2 Plans for Preventive Maintenance projects, however, special design elements may require review in limited instances.
- Even if a formal review is not performed, Stage 2 Plans should be shared at this time with Construction for a Constructability Review.

1. **Environmental, Utilities & Railroad, and Permit coordination:**

   Each Preventive Maintenance project is subject to NEPA, waterway permitting, utility, and railroad coordination requirements. Stage 2 – Preliminary Plans are critical to communicate the project's impacts to these areas.

2. **Right-of-Way:**

   Preventive Maintenance work should be performed within the existing right-of-way. There are certain situations where additional temporary or permanent right-of-way may need to be acquired for a project that is traditionally Preventive Maintenance in nature.

   In these situations, the project will develop similar to a Preservation and Reconstruction type project in Chapter 3-1.0. R/W process should be followed as per Chapters 3-1.21 through 3-1.26 of this manual.

   Bridge projects that require additional R/W should develop similar to Chapter 4-1.0.

3. **Permits**
   Most Preventive Maintenance work types will not require any type of waterway permitting. If required, however, the development team should develop a Waters Report as per Chapter 3-1.12, along with a Stage 2 Plan submittal prior to submitting for Permits.

Stage 2 Review

The INDOT District ERMS Coordinator is the initial contact for all design submittals. The submittal will then be forwarded to the District Design Manager or Central Office ERMS Coordinator depending on work type and bridge color coding system for final concurrence and sign off.

The total review time should be less than 35 days for plan submittals. The Project Manager should review the supporting documents at each submittal to validate that scope, schedule and budget are within acceptable ranges.

Once complete, the marked up plans are put back in ERMS and the District ERMS Coordinator is notified by the appropriate Central Office ERMS Coordinator to let the PM know the review is complete.

Bridge Preventive Maintenance Projects will have varying degrees of oversight and review. The Project Manager will need to reference the Color Coding System for Development of Bridge Preventive Maintenance Projects document for more information.

In cases of extreme urgency, an expedited review may be requested. All requests should be directed through the manager of Bridge Design. Proactive communication is encouraged in these types of situations.

Constructability review of the plans should be happening concurrently with this review.

Potential Obstacles:

- If additional R/W is required to construct the project, this can have significant implications to the project schedule.
- Design with Utilities in mind. Try to avoid conflicts if possible. Early identification and adjustment of design to avoid and minimize utility conflicts as much as practical can avoid expensive utility costs and delays down the road.
- Scope Creep –The design should focus on the primary objective of the project. It is easy to incrementally add elements to the project. Be sure the proposed design reflects the intent of the project.

5-1.08 Red Flag Investigation

Duration: 90-120 days
Predecessor: Stage 1 – Meeting Minutes
Successor: Environmental Document
Critical Path Element: Rarely

See section 3-1.11 for details

5-1.09 Environmental Document (Categorical Exclusion)

Duration:	Programmatic CE	30 Days
	CE 1	60 Days
Predecessor:	Red Flag Investigation	
Successor:	Stage3 – Final Plans	

Critical Path Element: Occasionally

See section 3-1.13 for details

Most Preventive Maintenance projects should have minimal environmental impacts. Those projects that require waterway permits will require a CE1 or higher.

5-1.10 Utility Coordination

Duration: Throughout project development.
Work plans – 120 days from request to Utility
Predecessor: Project Started, Stage 2 Plans– prior to sending out request for work plans
Successor: Final Tracings
Critical Path Element: No

See Section 3-1.16 for details

5-1.11 Railroad Coordination

See Section 3-1.17 for details

5-1.12 Geotechnical Investigation

Duration: 180 Days
Predecessors: Stage 2 – Preliminary Plans
Successor: Pavement Design
Critical Path Element: Yes, if required

See Section 3-1.18 for details. Most of the work types that fall within the Preventive Maintenance category are covered in Section 107-2.0 of the IDM and will neither require a waiver nor investigation.

1. **Pavement Preservation Projects:**
   For Pavement projects that fall into the Preventive Maintenance category, a limited geotechnical investigation will be required. Pavement coring and limited roadway borings will be required to complete the pavement design.

   Getting an early start on geotechnical investigations (coring and boring activities) will aid in getting the proper information to begin the pavement design process.

   INDOT Office of Geotechnical Engineering in most cases will assign this work in-house or to one of their existing on-call contracts without a formal request from the designer. The PM should coordinate with the Office of Geotechnical Engineering to ensure this work is in queue, deliverables are met, and communication is maintained throughout the development team.

5-1.13 Pavement Design

Duration: 120 Days
Predecessors: Geotechnical Report (if applicable)
Successor: Stage 3 – Final Plans
Critical Path Element: Depends on work type

See Section 3-1.19 for details

1. **Pavement Preservation Projects:**
   For these projects that fall into the Preventive Maintenance category, pavement design is frequently a critical path item that can have significant impacts to project scope, budget, and

schedule. Getting a Pavement Designer assigned early in project development can head off last minute project surprises.

Data gathering is completed by the Pavement Designer and includes compiling the following information:

a. Traffic forecasts
b. FWD (Falling Weight Deflectometer) testing and results
c. Coring/boring information from Geotech section
d. Pavement History
e. Patching Locations

INDOT Office of Pavement Engineering in most cases will assign this work in-house or to one of their existing on-call contracts without a formal request from the designer. The PM should coordinate with the Office of Pavement Engineering to ensure this work is in queue, deliverables are met, and communication is maintained throughout the development team.

5-1.14 Final Field Check

Duration: 60 days (although actual meeting is a one day event)
Predecessor: Stage 2 – Preliminary Plans
Successor: Stage 3 – Final Plans (sometimes precedes Final Field Check)
Critical Path Element: No

Purpose of Task:
To hold an on-site meeting with a broad group of project stakeholders to collect, share and distribute information pertaining to the project prior to final design plans.

Deliverables:
Final Field Check (FFC) meeting minutes to be compiled by the Designer and distributed to the FFC attendees. Both plans and minutes should be a part of the project file. This submittal does not go through a formal review.

Task Summary:
Field checks provide affected parties, such as utilities, railroad, construction, environmental, and right-of-way personnel, the opportunity to ensure that all concerns are addressed and to help prevent unnecessary design changes late in plan development and to avoid construction change orders.

Final Field Checks are not always required, but are most helpful when there has been some amount of time (generally 18 months or more) since the scoping field check. There are times that land use changes or new utility facilities may be present that will need to be updated on the plans. Verifying these items in the field are critical for minimizing change orders in construction.

The final field check can be held either prior to or after Stage3 – Final Plans, and the Project Manager should work with the development team to determine the best time to schedule this meeting, if applicable.

Resource People:
Project Designer
Construction Area Engineer
District Asset Engineer
Utility/Railroad Coordinator
Utility Companies
Other Technical support staff

Process Details:
A Final Field Check (FFC) should be conducted either virtually or on the project site. The FFC is essentially for gathering all affected parties of the project to assess field conditions and determine potential conflicts; especially involving constructability, environmental, traffic, utilities, and right-of-way. It is essential that the FFC meeting be coordinated through the INDOT Construction Area Engineer. It is the responsibility of the designer to prepare and submit the FFC notification meeting calendar invite and plans a minimum of 2 weeks prior to the field check. The District Traffic Engineer should be invited to validate the Maintenance-of-Traffic (MOT) plan.

Potential Obstacles:

- Lack of attendance of critical personnel at the meeting – Best practice is to schedule these field checks around the Construction Area Engineer and District Asset Engineer, as these two individuals generally provide significant insight to the design team.
- Making sure the minutes of the meeting get read and actioned. Ensure the designer responds to comments and suggestions brought up in the meeting. The team can catch a mistake or risk in the meeting and document it, but if it's never followed up on, it can get a project into trouble.
- Land use changes, geometric changes, utility changes, and other site changes not captured on the current set of plans can get missed if a substantial amount of time has occurred since the scoping field check and a final field check is not held.

5-1.15 Stage 3 – Final Plans

Duration: 95 days (60 days for plan submittal, 35 days for review)
Predecessor: Design Approval**,** Stage 2 – Preliminary Plans (if applicable), Final Environmental Document, Final Field Check
Successor: Final Field Check (if applicable), Final Tracings
Critical Path Element: Occasionally

Purpose of Task:
To submit a set of final plans with supporting documentation, that details all elements of the final design, final cost estimate, and all special provisions to ensure applicable federal and state laws, regulations and design standards are followed.

Deliverables:

For Bridges:

- Deliverable will be a Set of Stage 3 – Final Plans along with supporting documentation in accordance with Chapter 14-2.05(04) of the IDM.

All other projects:

- Deliverable will be a Set of Stage 3 – Final Plans along with supporting documentation in accordance with Chapter 14-2.03(10) of the IDM.

For all plan review:

- Marked up Stage 3 – Final Plans with reviewer's comments attached to the plans. Comments should generally be incorporated into the next plan submittal. Reviewer to complete Part 1 of the PE&E Checklist.

Task Summary:
The designer is responsible for the preparation and delivery of all plan sheets, design computations, special provisions, cost estimates and contract documents.

Plan development is intended to be concurrent with several other project development tasks. Many tasks have to be coordinated to ensure that as conditions change, other tasks adjust to the modifications.

Resource People:
The Project Manager has a responsibility to contact all the individuals on the team to ensure the project is delivered successfully. The entire development team will need to be contacted throughout the development phase as appropriate. A concise list of resource people may include:

- Central Office Bridge Department Staff
- District ERMS Coordinator
- Construction Area Engineer
- District Bridge Asset Engineer
- Designer
- Utility/Railroad Coordinator
- various Technical Staff

Process Details:

Stage 3 Plans

Stage3 - Final Plans are submitted through the department's Electronic Record Management System (ERMS) by the Designer and routed through the District ERMS Coordinator. Once submitted to the District ERMS Coordinator:

- The PM is notified by the Coordinator that the submittal has been received by INDOT
- PM reviews submittal to ensure adherence to scope, schedule, and budget
- SPMS is updated to reflect the submittal's latest cost estimate
- District ERMS Coordinator sends the submittal to District Review or Central Office Bridge Review depending on work type and bridge color coding system.

Stage 3 Review

The INDOT District ERMS Coordinator is the initial contact for all design submittals. The submittal will then be forwarded to the District Design Manager or Central Office ERMS Coordinator depending on work type and bridge color coding system for final concurrence and sign off.

The total review time should be less than 35 days for plan submittals. The Project Manager should review the supporting documents at each submittal to validate that scope, schedule and budget are within acceptable ranges.

Once complete, the marked up plans are put back in ERMS and the District ERMS Coordinator is notified by the appropriate Central Office ERMS Coordinator to let the PM know the review is complete.

Bridge Preventive Maintenance Projects will have varying degrees of oversight and review. The Project Manager will need to reference the Color Coding System for Development of Bridge Preventive Maintenance Projects document for more information.

In cases of extreme urgency, an expedited review may be requested. All requests should be directed through the manager of Bridge Design. Proactive communication is encouraged in these types of situations.

Constructability review of the plans should be happening concurrently with this review.

Potential Obstacles:

- Last minute design changes can have deleterious effects on utility coordination, r/w acquisition, and environmental document compliance. Keeping the project stakeholders involved and in contact through project development can minimize the amount of last minute changes.
- Scope Creep –The design should focus on the primary objective of the project. It is easy to incrementally add elements to the project. Be sure the proposed design reflects the intent of the project.
- Delays in transitioning documents to review staff
- Excessive markups on plans that necessitates a re-submittal of Stage 3 plans
- Incomplete Stage 3 plan set and supporting documents
- Expedited review requests sent in at last minute
- PM not tracking review times – Agency reviews can bust a schedule if not monitored and accounted for in the project schedule.

5-1.17 Final Tracings

See Section 3-1.30 for Details

5-1.18 Ready for Contracts (RFC)

See Section 3-1.31 for Details

6-1.0 References

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Indiana Design Manual (IDM)

INDOT Professional Services Contract Administration Manual

INDOT Consultant Prequalification Manual

INDOT Engineering Assessment Manual

INDOT Computer Aided Drafting (CAD) Standards

INDOT Hydraulics Website

INDOT Ecology Manual

INDOT Permit Manual

INDOT Procedural Manual for Environmental Studies

INDOT Categorical Exclusion (CE) Preparation Manual

INDOT Cultural Resources Manual

Historic Bridge Preservation Programmatic Agreement

Historic Bridge Alternatives Analysis Template

INDOT Public Involvement Manual

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INDOT Utility Accommodation Policy

INDOT Utility Coordination and Design Manual

INDOT Railroad Coordination Website

INDOT Geotechnical Design Manual

INDOT Waterway Permit Manual

INDOT Right-Of-Way Engineering Manual

INDOT Real Estate Manual, FHWA Acquisition Brochure

INDOT Design Manual Editable Documents

INDOT Final Tracings Checklist

Glossary

NTP – Notice to Proceed. Official notice to consultant to commence work on providing their services.

FMIS – Federal Highway's (FHWA) Financial Management Information System. On all federal aid projects, requests for federal monies must be entered in FMIS and approved by FHWA before a Purchase Order can be created.

Work Order – workflow request to start the process of obtaining a Purchase Order.

PO – Purchase Order – A financial instrument for procuring professional services. POs must be created prior to authorizing a consultant to begin their work.

RFP – Request for Proposals – Qualifications-based performance rating system to procure professional services.

LOI – Letter of Interest – Consultant proposal in response to advertised RFPs indicating their qualifications and interest in the proposed project.

TIP – Transportation Improvement Plan – Multi-year project plan developed by Local Metropolitan Planning Organizations (MPO) as a requirement for federal aid participation. Includes all INDOT and local federal aid projects planned in the MPO area.

STIP – State Transportation Improvement Plan – INDOT's TIP that includes all state projects. Must reference projects included in MPO TIPs.

Scoping Engineer – refers to the one who prepares the Engineer's Report, or initiates the project at the district level. The Engineer's Report may be written by a consultant and in that instance the consultant as well as the INDOT Scoping Engineer shall be included. .

Engineering Assessment – process that involves the development and comparison of alternatives, final selection, and documentation of a project.

Engineer's Report – document that summarizes the engineering assessment process that guides project development.

LCRS Plat: Location Control Route Survey Plat

LGC and LGCS: Local Ground Coordinate System.

SPC and SPCS: State Plane Coordinate System (Indiana is divided into two zones, Indiana East, Zone 1301, and Indiana West, Zone 1302).

IDM – Indiana Design Manual

ERMS – Electronic Records Management System – digital warehouse for plan submittals and final project documentation.

PFC – Preliminary Field Check

NEPA – National Environmental Policy Act. Law that requires environmental studies for federally funded works projects.

ESD – Environmental Services Department – INDOT's central office Environmental department

RFI – Red Flag Investigation. Initial environmental risk assessment of project impacts to cultural and natural resources.

SAM (environmental) – Site Assessment & Management Department. Division of ESD. Handles Red Flag Investigation Review, Site Assessment, Hazardous Materials, etc.

CE – Categorical Exclusion.

EWPO – Ecology & Waterway Permitting Office – Division of ESD specializing in ecology and waterway permitting.

CRO – Cultural Resources Office – Division of ESD.

SHPO – State Historic Preservation Office

TMC – Traffic Management Center

IHCP – Interstate Highway Congestion Policy

Abstract (Title Abstract) – This is the condensed report of the legal ownership history of a parcel as determined by a thorough search of the existing public record. In the case of abstracts prepared for INDOT parcels the report will need to go back at least twenty years and/or to the last good transfer depending upon INDOT's impact on the property and whether or not INDOT will retain permanent ownership of the land upon completion of the project.

Abstractor – The individual who compiles the Abstract.

Encumbrance – Any ownership interest such as a mortgage, tax, or judgment lien, an easement or any restriction of use on a piece of land that may affect the use of the property.

Fee Owner (Property Owner) – Last person who received valid title on a property.

Fee Simple – This means that someone owns a piece of property in total… and thus enjoys all of the rights and privileges associated with that ownership. Fee simple ownership is usually obtained through a Warranty Deed.

Judgment – Court ruling that places a financial lien on a title. INDOT must address all liens on a property before taking possession and a comprehensive Abstract should list them.

T&E (Title and Encumbrance) report – See Abstract.

Temporary right-of-way – Right-of-way which allows INDOT access to a piece of property for the duration of a project.

Title – The right to and ownership of, a given piece of property.

Warranty Deed – A legal instrument that not only transfers a piece of property from one party to another but also promises that said property is free of any third party claims and promises to defend the successor in title if such claims were to arise.

Alignment: See Location Control Route Survey (LCRS).

Appraisal Problem Analysis (APA): Not an appraisal of value but rather a field work sheet that defines the type of appraisal that will be needed for a given acquisition. Ultimately it is an estimating/review tool. While appraisals cannot commence until after the completion of The NEPA document (see the right-of-way Appraisal chapter) APAs can be completed very early in the project process before NEPA as they are not in fact appraisals. Usually they will require at least stage one plans to complete.

Constructive notice: Publically available evidence of a property transaction. In Indiana if a property transaction is not recorded in the recorder's office, with the clerk of courts or specifically evidenced in official records, the title is generally not considered to have transferred.

DLGF: Department of Local Government Finance.

Engineering Packet: A collection of documents that will be forwarded on to Appraising and then Buying which will contain all of the survey/legal information for INDOT to acquire a parcel.

Parcel Packet (sometimes just Parcel): All of the documents that will be incorporated into a parcel as it makes its way through the Acquisition process. This will include the Abstract, the Engineering Packet and will also include documents produced in the subsequent steps such as the Appraisal and the Buyer's report(s).

Parcel Plat (Exhibit B): A graphic representation that supplements the Legal Description by which INDOT purchases property. The Parcel Plat contains the affected or created Tax ID numbers, known Easements on a parcel and a coordinate chart that references that parcel back to the LCRS.

PER (Presently Existing right-of-way**):** Right-of-way that was purchased years or decades earlier but was not recorded in a "timely manner" (within a year or two of purchase) and thus was not evidenced by constructive notice (see above definition). Prompted by a number of court cases that have established that INDOT needs to repurchase Right Of Way that was not recorded in a timely manner it has become standard practice at INDOT to include old right-of-way that was not recorded in a timely manner in the legal description for the new taking. In some instances, though we may not be acquiring any "new" right-of-way, it may be necessary to generate new parcels solely for this purpose

Tax ID Number (Tax Key or just Key number): A number by which a county auditor geographically identifies a given piece of property. Per the DLGF legal descriptions (and a parcel plat) need to be produced for every Tax ID number INDOT will impact and listed on the corresponding legal descriptions.

Assessed Value: Value determined by a county assessor for tax purposes sometimes related to but often very different from the appraised value as determined by a qualified appraiser

Assemblage: The combining of two or more pieces of land into a larger, single parcel. With real property sometimes two parcels combined may have a higher sum total than the two parcels might if sold separately. In certain instances if a change in parcel ownership is uncovered in the buying process and it is found that a single property owner owns and has combined two contiguous parcels the appraisal may need to be revisited as the new value of the parcels may not simply be the sum total of the two if they were owned by separate entities.

Cost to Cure (CTC): Items in the proposed right of way that a property owner will be paid to remove.

Highest and best use: The most profitable, legally permitted, economically feasible, and physically possible use of a piece of property. Often a property may be more valuable to an owner than its current use would indicate, such as a residential property with a lot of frontage on a major highway in an area zoned commercial. In such cases the property appraised simply as a residence might not accurately reflect the just compensation that would be due to a property owner.

Long Form Appraisal: The long form appraisal has no specific dollar form and is appropriate for takings with some complex damages. In general this and the specialty report will be the most costly appraisal type.

Long Form Narrative Report: This type of report is utilized on multi-family dwellings, commercial and industrial facilities and for some unique types of structures like churches, whose value is difficult to quantify in market terms.

Market Data: Values established by sales a similar to a subject property as possible, often taken from the same neighborhood as the subject property if sales of similar property types and relatively recent data is available.

Fair Market Value: The most probable price that a property should bring in a competitive and open market.

Review Appraisal: Report completed by a seasoned appraiser that evaluates the conclusions and reasoning of the appraiser that has completed the original appraisal of a parcel. Other than Waiver Valuations all appraisals will require a review and will incur a separate charge for this service.

Sell-Off and or Subdivision: In contrast to assemblage (see above) a parcel sell-off or the process of subdivision (breaking a large parcel into two or more smaller parcels) may also impact value. As with assemblage if a sell-off is found after an appraisal is completed the appraisal may need to be revisited as new parcels and may not simply be the sum difference in value per/acre between the remainder parcels.

Setback Damages: A decrease in a property's value because its' dwelling is closer to the road than a typical residence in the area. It is paid to a property owner in addition to the land value of the acreage INDOT is acquiring as it represents a loss in the overall value of what they own.

Short Form Appraisal: This appraisal is intended to develop a supported estimate of value for only the right-of-way to be acquired and may be used for either a partial or total property acquisition. There is no dollar limitation on the short form and it does allow for "minor damages". This report will be more expensive than a Waiver Valuation or Value finding Report.

Value Finding Report: Used for un-complicated acquisitions of property valued at less than $20,000. Value finding cannot be used when relocation is involved. The report itself will cost more than a Waiver Valuation.

Waiver Valuation: The most basic type of valuation for a property generally only considered for simple acquisitions and often pointed out that it is not technically "an appraisal" that do not include any setback damages and are valued at less than 10,000 dollars.

Zoning: Local government regulation of the use of a given property. Zoning will be a key factor in determining if a property may have a more valuable Highest and Best Use than its current one.

Appurtenance: Structures and rights associated with a piece of property

Asbestos: Environmental contaminant found in the building materials of some (generally "older") structures. Certain types of asbestos will require a special plan for cleanup called "Abatement".

Buyer: Consultant or INDOT staffer who has been trained on right-of-way negotiation practices and the applicable state and federal laws to which INDOT must adhere. All buyers must pass a comprehensive test showing their competence and knowledge of our processes. INDOT's Buying manager will have a list of all the buyers who have passed this test and are certified to purchase property for INDOT projects.

Buyer's Report: A thorough narrative of all interaction between a property owner and an INDOT certified buyer (negotiator) and/or other relevant parties at INDOT. While the appraisal and legal description may be the most technically scrutinized documents in the event of a Condemnation the Buyer's Report will be considered a full accounting of what transpired between the two parties. Thoroughness and comprehensiveness of this report are crucial.

Certified with Exception: Discouraged practice in which "most parcels" are certified clear with the provision that remaining parcel(s) will be cleared by a specified date.

Clear: This is the point when property owner has been paid and all obstructions (private property) cost to cure items have been removed from the right-of-way.

Clear Prime: A property owner has been paid to remove a given item but the item is still in the right of way and will be added as a pay item for removal by the contractor that constructs the job.

Condemnation: A process by which INDOT can take property through legal proceedings if a mutually agreed settlement cannot be reached by the R/W Buyer.

Easement: A non-possessory interest in land that needs to be released in order for INDOT to take possession of a given piece of property.

Eminent Domain: The legal authority for a public entity to take property through condemnation proceedings.

Property Management: Division of INDOT real estate that will ensure that all personal property is cleared from the right-of-way or addressed so that right-of-way can be cleared for construction.

Real Estate: The physical land and appurtenant structures on a piece of property.

Real Property: Both the Real Estate and all of the rights and ownership privileges (such as access) that come along with owning a piece of land.

Relocation: Financial assistance given to displaced property owners and/or occupants. This will be applicable to both Business and Residential owners and may end up being a very significant cost in the case of multi-tenant buildings or heavy industrial facilities who have a lot of equipment to move.

Secured: This is the point at which a property owner has signed their acceptance of the offer presented to them.

Tax Lien: A financial lien placed on a piece of property that prevents it from being transferred. Tax liens must be removed (usually paid) before INDOT can take possession of a piece of property.

Turn Key: Contract in which the consultant is responsible for all of the steps in the right-of-way process and parcels are not turned in to the Buying section until “Secured”.