PURPOSE & OVERVIEW

The purpose of this guide is to provide NCDOT Project Managers with a standardized reference tool to help guide them through the steps of the NCDOT project development process.

Who is this guide for?

- NCDOT Project Managers
- Private Engineering Firm (PEF) Project Managers that work on behalf of NCDOT

How to use this guide

This guide contains informational text, diagrams, and links to other policy and procedures documents, work product templates, and other useful resources.

This guide outlines the current project development process. This process is being evaluated to identify efficiencies and streamlining opportunities, and updates to the process will be incorporated into this guide. Also note that this guide provides the process for a typical project, but each project should be evaluated as some sections may not be needed or applicable to all projects. If you have questions as to whether a certain aspect is needed for your project, please contact the Environmental Policy Unit.

This guide is an interactive PDF - buttons are hyperlinked – click on them to navigate within the document and to access additional resources.
OVERVIEW OF THE PROJECT DEVELOPMENT PROCESS

Years of extensive planning, study, and work occur before the N.C. Department of Transportation ever begins building a roadway. The process, known as the Project Development Process, begins with NCDOT assisting municipalities and regions to develop long-term plans that identify area transportation needs and priorities.

Once a project is programmed for funding, NCDOT initiates studies and the project enters into an environmental analysis and planning phase – a process that includes getting feedback from the public and analyzing how a proposed road might affect people living and working in the area as well as its impact on the environment.

Once development is complete and engineers have determined the final design, how and exactly where a road will be built, NCDOT begins acquiring any necessary property to accommodate the project and then awards a construction contract.

Only then does construction begin.

NCDOT’s Project Development Process can be described in three primary phases:

1. Project Planning Phase
2. Project Development Phase
3. Post-Design Phase

Click on the buttons above for more information about each phase.
Project Planning is the initial step in the life of a project. Problems and needs related to the transportation system are identified at the local level and included in a Comprehensive Transportation Plan (CTP). The public, local government, or NCDOT Board of Transportation Member may request that NCDOT further investigate a project from the CTP. NCDOT completes a Feasibility Study (now referred to as the Project Scoping Process) and feeds information from this process into the Strategic Transportation Initiative (STI) Prioritization Process (known as SPOT). If the project scores well in SPOT, it will be added to the State Transportation Improvement Program (STIP) and allocated funding for preliminary engineering and environmental assessment, right of way acquisition, and construction.

The CTP is a mutually-adopted document between the State and local area that represents the community’s future transportation system (including the existing system and improvements) needed to support anticipated growth and development of approximately a 25-30 year timeframe. Although the document represents the State’s concurrence with the identified transportation needs and proposed recommendations, it does not commit the State to funding or constructing those projects.

The Project Scoping Process takes a recommendation from the CTP and develops it into a candidate project so it may be evaluated and ranked for potential funding. The Project Scoping Process is completed in two phases: Express Design Evaluation and Project Scoping Report.

- **Express Design Evaluation** investigates conceptual design option(s) for a candidate project and prepares costs and other information needed for the prioritization process (SPOT). If the project scores well enough compared to other projects across the state, it will be added to the STIP.
- **Project Scoping** is initiated if the project scores well in SPOT to provide project background, more detailed environmental screening data, and documentation for NCDOT management to use in determining how the project will proceed into the next phase of project development.

The Strategic Transportation Investments (STI) Law established the Strategic Mobility Formula, which funds projects in three categories: Division Needs, Regional Impact, and Statewide Mobility. Projects are ranked based on a combination of criteria including: congestion, safety, benefit-cost, and local priorities. Prioritization occurs approximately every 2 years.

The STIP is a 10-year State and Federal-mandated plan that identifies the construction funding for and scheduling of transportation projects throughout the state. Once project scores and rankings are determined through SPOT, NCDOT develops the STIP, the official listing of project schedules and funding.
Once a project is added to the STIP and allocated funding for preliminary engineering and environmental studies, the Project Development Phase is initiated, and the project is assigned to an NCDOT Project Manager, either in the Project Management Unit or in a Division Office. In the Project Development Phase, environmental documentation for a project is prepared, including: evaluating alternatives for meeting the purpose and need for a project; assessing potential impacts of those alternatives on the natural, cultural, and human environments; and gathering input from stakeholders, the public, and environmental resource and regulatory agencies. The results of these studies are documented and disclosed in accordance with federal (National Environmental Policy Act/NEPA) or state (North Carolina Environmental Policy Act/SEPA) requirements. The type of project and potential for impacts determine the level of documentation required.

This guidance provides a framework and process mapping for the Environmental Documentation process for a typical project that would be documented using a federal Categorical Exclusion (CE). Projects should be evaluated on an individual basis to determine which steps in this process are applicable to the project. For instance, steps associated with the NCDOT NEPA/Section 404 Merger Process are noted but may not be required for all projects.

Future versions of this guidance will include suggestions for streamlining this phase of the project, as well as process mapping for Environmental Assessments/Findings of No Significant Impact (EA/FONSI) and Environmental Impact Statements.

Final Design is the preparation of detailed plans for the roadway approved in the Environmental Documentation. Many technical disciplines are involved in final design, including roadway, structures, hydraulics, erosion control, traffic management, signing and pavement markings, signals, geotechnical, and pavement.
The Post-Design Phase includes acquisition of right of way and relocation of utilities needed to construct a project, as well as constructing the project and then operating and maintaining the project once it is complete and open to traffic.

Right of Way Acquisition

Right of way acquisition is the process of obtaining property needed to complete roadway projects and is the last major step before a project is released to bidders for construction. The NCDOT Right of Way Branch is responsible for purchasing necessary property and right of way for state construction projects. This includes appraising property, providing relocation advisory services and property management.

Once the final plans are complete and property has been acquired, the project is advertised to contractors for bid. The construction contract is awarded to the lowest responsible bidder, and construction begins.

Construction

NCDOT monitors construction of the project to ensure that the project is constructed in accordance with applicable NCDOT standards.

Operations & Maintenance

Once a project is open to traffic, NCDOT continues to work to ensure that its roadways and bridges are properly maintained and running smoothly.
Project Development Process Mapping

PROCESS MAPPING

Process mapping uses flowcharts to visually describe the flow of a process. It illustrates the sequence and interactions of related process steps, activities, or tasks that make up a process, from beginning to end. Process maps are comprised of lines and specifically-defined symbols that comprise a universally accepted mapping framework.

Click here to view symbology and definitions used in process maps

How to use the process maps in this guide

The process maps in this guide are intended to provide an outline of the project development process, including major processes and milestones, interactions between NCDOT units, and the relative order in which activities need to occur. They are not an exhaustive accounting of every activity or task that occurs during project development.

NCDOT’s Project Development Process has been mapped using a series of flowcharts to show the overall process, each of the three phases of project development, and key subprocesses within each phase. The process maps are interactive, with links between related flowcharts as well as links to guidance documents and templates where available.

Click here to jump to Project Development Process Overview process map
The following symbols are used in the process maps in this guide:

- **Process Start/End**: the start or end of a process
- **Data or Input**: input (data or information) that comes into the process
- **Task**: a single step in the process
- **Subprocess**: a process that has multiple steps
- **Public Involvement**: a point in the process that involves public involvement
- **Decision**: a decision point within the process
- **Report/Deliverable**: a document or report that is produced by a task or subprocess
- **Connector**: the relationship between pieces of the process

*Click on these boxes to link to guidance documents and more information of these subprocesses*

*Click here to jump to Project Development Process Overview process map*
Essential to completing any project is knowing what tasks are required, the order in which they must be completed, how long it each task will take, and the interrelationship of tasks. The Critical Path Method (CPM) of scheduling can greatly improve the Project Manager's odds of delivering a project on time and within budget. This section provides definitions of commonly used scheduling terms, describes how to use a Gantt Chart schedule to manage the project development process, and includes a schedule template showing the order and relationship of tasks that make up the Environmental Analysis & Development and Final Design phases of project development.

Definitions used in scheduling:
- **Critical Path:** the sequence of stages determining the minimum time needed for an operation
- **Duration:** the length of time that is expected to complete a project task
- **Float:** the amount of time that a task in a project network can be delayed without causing a delay to subsequent tasks or project completion
- **Gantt Chart:** a type of bar chart that illustrates a project schedule
- **Lag (+):** the amount of time the successor activity can be advanced with respect to a predecessor activity
- **Lead (-):** the amount of time a successor activity can be advanced with respect to a predecessor activity
- **Milestone:** a critical point or achievement in a project
- **Process Map:** the sequence and interactions of related, activities or tasks that make up an individual process, from beginning to end
- **Predecessor:** an activity that must be completed before a specified activity can begin
- **Successor:** an activity whose start or finish is controlled by the start or finish of a predecessor
- **Task Dependencies:** the relationship between two activities
  - Finish-to-Finish (FF): the first activity (predecessor) in a relationship must finish before the second activity (successor) can finish
  - Finish-to-Start (FS): the second activity (successor) in a relationship can not begin until the first task (predecessor) finishes
  - Start-to-Start (SS): the first activity (predecessor) must start before the second activity (successor) can start
PROJECT SCHEDULING USING CRITICAL PATH METHOD

Critical Path Method (CPM) is a mathematically-based algorithm for scheduling a set of project activities. The essential technique for using CPM is to construct a model of the project that includes the following:

- A list of all activities required to complete the project
- The dependences between the activities
- The estimate of time (duration) that each activity will take to completion

Using these values, CPM usually calculates the longest path of planned activities to the end of the project, and the earliest and latest points that each activity can start and finish without making the project longer. This process determines which activities are “critical” (i.e., on the longest path) and which have “total float” (i.e., can be delayed without making the project longer).

The MS Project Schedule Template provided in this guidance uses CPM to illustrate a schedule for a typical project that would be evaluated using a Categorical Exclusion from Consultant NTP at the beginning of the Environmental Analysis & Planning Phase through the Final Design Phase to project let. The Template is included in this guidance as a pdf to show the series of tasks, relationships between tasks, and required predecessors. The MS Project Schedule Template is available for Project Managers to edit on a project-by-project basis.

Click here to jump to MS Project Schedule Template

Example of CPM Schedule Gantt Chart

Critical Path Method in Project Management is as Easy as 1,2,3
By Andrew Filev, September 27, 2017 https://www.wrike.com/blog/critical-path-is-easy-as-123/
GUIDANCE AND RESOURCES – PROJECT PLANNING PHASE

Guidance documents, policies and procedures manuals, and other useful references are hyperlinked throughout this guide. This page includes a consolidated list of documents and templates available.

Click on the buttons below to link to resources.

Click here to jump to Project Development Process Overview process map
GUIDANCE AND RESOURCES – PROJECT DEVELOPMENT PHASE

Guidance documents, policies and procedures manuals, and other useful references are hyperlinked throughout this guide. This page includes a consolidated list of documents and templates available for the Project Development Phase.

Click on the buttons below to link to resources.

Click here to return to Environmental Documentation process map
Coming Soon
Acronyms

Acronyms used in this guidance include:

- CCR – Community Characteristics Report
- CIA – Community Impact Assessment
- CP – Concurrence Point
- CTP – Comprehensive Transportation Plan
- ETRACS – Environmental Tracking & Coordination System
- LUSA – Land Use Scenario Assessment
- MPO – Metropolitan Planning Organization
- MTP – Metropolitan Transportation Plan
- NRTR – Natural Resources Technical Report
- NTP – Notice to Proceed
- P&N – Purpose & Need
- PEF – Private Engineering Firm
- ROW – Right of Way
- RPO – Rural Planning Organization
- SOS – Start of Study
- SPOT – Strategic Prioritization Office
- STIP – State Transportation Improvement Program
- T&E – Threatened & Endangered (species)
- USACE – United States Army Corps of Engineers
Project Development Process Maps

Project Development Overview

PROJECT PLANNING PHASE

1. MPO/RPO/NCDOT Transportation Planning Division
   - CTP/MTP

2. NCDOT Feasibility Studies Unit
   - Express Design Evaluation & Project Scoping

3. NCDOT Strategic Prioritization Office
   - STIP

   NCDOT Central or Division Managed?

   - STIP

   NCDOT Project Management Unit, Technical Services Units, Highway Divisions

   Right of Way Acquisition

   NCDOT Right of Way Branch

   LET

   Construction

   NCDOT Construction Unit, Highway Divisions

   Operations & Maintenance

   NCDOT Maintenance & Operations Sections, Highway Divisions

PROJECT DEVELOPMENT PHASE

Environmental Documentation

Final Design

NCDOT STIP

Post-Design Phase

HOME
Guidance & Resources
NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
Project Development Process Maps

Project Initiation & Data Collection

- Start Project Initiation & Data Collection
  - Data from Express Design Evaluation & Project Scoping

- Prepare Project Study Area
  - Initiate Data Requests to Other Technical Units

- Prepare CCR
  - ETRACS request for Historic Architecture Screening
  - ETRACS request for Archaeology Screening

- End of Project Initiation & Data Collection
  - CCR

- Submit Traffic Forecast Request to NCDOT Planning & Forecasting Unit
  - Submit GeoEnvironmental Screening Request to NCDOT GeoEnvironmental Unit

- Submit request for Crash Data & Analysis to NCDOT Traffic Safety Unit

NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
Click here to return to Environmental Documentation process map

NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
Click here to return to Environmental Documentation process map

NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
Preliminary Designs & Technical Studies

Start Preliminary Design & Technical Studies

- Develop Design Criteria
- Determine Hydraulic Requirements
- Build Traffic Capacity Report
- Prepare Build Traffic Capacity Analysis
- Prepare Preliminary Designs
- Prepare Quantities and Cost Estimate Requests
- Prepare Other Technical Studies
- NCDOT Prepare Cost Estimates
- NCDOT Prepare Relocation Report
- Public Meeting #2
- Request Final Surveys
- End of Preliminary Design & Technical Studies

Data from Project Initiation and Data Requests

Data from Project Coordination

Hydraulic Aspects Report

NRTR

CP2A

Other Technical Studies (as needed)
- Categorical Exclusion
- Section 4(f) Evaluation
- LUSA
- Cultural Resources
- Traffic Noise Report
- Biological Assessment
- Historic Architecture Report
- Public Meeting #2

NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS

Click here to return to Environmental Documentation process map
Categorical Exclusion


Click here to return to Environmental Documentation process map

NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
**Project Development Process Maps**

**Final Design**

- **Final Design Consultant NTP**
  - 15% Plans
  - Preliminary Pavement Design
  - Traffic Management
  - Staging Narrative
  - Structure Recommendations

- **63% Plans**
  - Hydraulics Redlines
  - Traffic Management Plans
  - Geotechnical Recommendations
  - Erosion Control Plans
  - Structural Prelim
  - General Drawings
  - Utility PUEs

- **ROW Plans (75%)**
  - Utility Relocation
  - Right of Way Acquisition
  - Pavement Markings
  - Signing
  - Signals
  - Municipal Agreements

- **90% Plans**
  - Combined Field Inspection

- **100% Final Plans**
  - LET

- **Specifications**
  - Special Provisions
  - Bid Documents

- **Utility PUEs**

**NOTE:** ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
15% Plans

- Start 15% Plans
  - Preliminary Designs from Environmental Analysis & Planning Phase
- Prepare Design Assumptions
- Prepare 15% Roadway Design Plans
  - Request Pavement Design from NCDOT Pavement Design & Collection
  - 15% Roadway Design Submittal
- Receive Final Surveys

End of 15% Plans

25% Plans

Click here to return to Final Design process map

NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
25% Plans

Start 25% Plans
- Prepare 25% Roadway Design Plans
- Receive Preliminary Pavement Design
- Prepare Structure Recommendations
- Prepare Traffic Management Staging Narrative
- Prepare Design Exception Checklist

25% Plan Submittal

25% Plan Approval
- Distribute Approved Plans to NCDOT Hydraulics, Geotechnical, and Utilities

End of 25% Plans

15% Plans

65% Plans

NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
65% Plans

Start 65% Plans

25% Plans

Request Hydraulic Pre-Design Meeting

Prepare 65% Roadway Plans

Receive Roadway Geotechnical Recommendations

Prepare Hydraulic Redlines

Hydraulic Redlines Approval

CP4B

Request Combined Field Inspection

CP4C

Receive and Incorporate Comments on 65% Plans

Prepare Traffic Management Plans (Mid-Point Submittal)

65% Project Design Submittal

Request Combined Field Inspection

Combine Field Inspection Plan Submittal and Distribution

Permit Application

End of 65% Plans

ROW Plans (75%)

NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
ROW Plans (75%)

- Start ROW/75% Plans
- Prepare 75% Roadway Design Plans
- 75% Submittal
- Receive and Incorporate Comments on 75% Plans
- Right of Way Plan Submittal and Distribution
- End of ROW/75% Plans
- 90% Pre-Final Plans

- Comments from Combined Field Inspection
- Right of Way Authorization
- Utility Authorization
- Utility Relocation

Click here to return to Final Design process map

NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
Project Development Process Maps

90% Pre-Final Plans

Start 90% Pre-Final Plans

- ROW Plans (75%)
- Prepare 90% Roadway Design Plans
- Prepare 90% Structure Plans
- Prepare Pavement Marking and Signing Plans
- Prepare Signals Plans
- Prepare Utility Design Plans

End of 90% Pre-Final Plans

90% Plan Submittal

100% Final Plans

Click here to return to Final Design process map

NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
Click here to return to Final Design process map

NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS
Deliverables List for a Projects Covered by a Type III Categorical Exclusion

This document shows the deliverables that are required to develop a project covered by a Type III Categorical Exclusion (CE) from Notice to Proceed (NTP) through project letting. Note: This document is presented as an aid in the overall project development process, it is not intended to explain how to develop each deliverable. Its purpose is to help avoid missing steps and maintain project schedules.

NCDOT has a training on how to develop a Type III CE document, which can be found by clicking here: [NCDOT CE Checklist Training](#). The training includes information on how to fill in the CE checklist and how to comply with the requirements of the National Environmental Policy Act (NEPA). Other guidance materials cover the other deliverables mentioned for this document. Training for state-funded projects can be found [here](#).

In this document, deliverables are broken down by discipline:

- Start of Study
- Traffic
- Roadway
- Planning
- Hydraulics
- Merger
- Permits
- Geoenvironmental and Geotechnical
- Other Design components
- Turnpike Projects

Deliverables are also shown by deliverable type:

- Request
- Report
- Design and Data (permit drawings or data files)
- Agreement
- Permit

When you click on a deliverable on the interactive chart on page 2, the following information will be displayed:

- Description: What is this? Is there a template that could be used?
- Applicability: Is this done for all projects, or only certain types of projects?
- Predecessor / Successor: What is required before this deliverable can be finalized/what can only be finalized after this deliverable is complete?
- Developer: Who generally develops this deliverable?
- Reviewer / Approver: Who generally reviews or approves this deliverable?
- Review Timeframe: How long should you expect before a review or approval takes place?
- Where Stored on Sharepoint: Where should the deliverable be stored on the project Sharepoint site?
- Common Issues: What is a common issue that often delays finalizing this deliverable?
- Suggested improvements: This row is left blank. We are asking NCDOT Project Managers to share with us their suggestions on how each deliverable could be developed more efficiently. Please go to the following email address (LIST EMAIL ADDRESS) with your suggestions on how to develop these deliverables earlier and more efficiently.
Description: Materials sent to NCDOT units, state and federal agencies, planning organizations, and local governments to determine what is required, and what is not required, to deliver a proposed project. Refer to NCDOT Scoping.

Applicability: All Projects – includes Start of Study Letters, ETRACS requests, Vicinity Map, Environmental Features Map, background information, and proposed schedule. Merger Screening may be included for simple projects. May be sent out as a letter. For more complex projects, a scoping meeting may be required.

Predecessor / Successor: NTP / All other tasks

Developer: NCDOT or Consultant

Reviewer / Approver: NCDOT PM; package sent to NCDOT, stakeholders, and agencies

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Project Management > PM Topic: Scoping

Common Issues: Incomplete or missing information

Suggested Improvements: To be added
**Orthophoto Request**

**Description:** Aerial photogrammetric surveys flown to provide topographic and development information for a proposed project.

**Applicability:** Sometimes county-level data may be readily available, otherwise a request is required.

**Predecessor / Successor:** NTP / generally used for 25 percent design if more detailed surveys are not available

**Developer:** Request should be submitted by NCDOT, can be prepared by Consultant, approved by Central NCDOT

**Reviewer / Approver:** PM review, NCDOT Photogrammetry Unit receives request and schedules flights

**Review Timeframe:** One week or less for NCDOT PM review; Sites are flown in winter to minimize vegetative obstruction

**Where Stored on SharePoint:** Disciplines > Project Management -> PM Topic: Scoping

**Common Issues:** Incomplete or missing information in form

**Suggested Improvements:** To be added

[Return to Main Chart]
Description: A description of the communities and community resources in the project demographic study area.

Applicability: Projects with only one build alternative or very simple projects; complex projects may also utilize CCRs to uncover potential issues.

Predecessor / Successor: Determination of Study Area / Generally sufficient to develop determinations for environmental document. If critical human or endangered species impacts, Public Involvement Plan or Indirect and Cumulative Effects Report may be required.

Developer: NCDOT or Consultant

Reviewer / Approver: NCDOT EAU, Public Involvement, Community Studies and Visualization, approved by Central NCDOT

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Human Environment

Common Issues: Failure to reach agreement with reviewer on Direct Community Impact Area, failure to check on latest guidance, missed resources

Suggested Improvements: To be added
**Community Impact Assessment (CIA)**

**Description:** A report developed to assess the impacts of different alternatives on identified communities and community resources.

**Applicability:** The report is used to evaluate the human environmental effects of projects with multiple alternatives; can also be used for projects with single build alternatives to document human environment impacts.

**Predecessor / Successor:** Determination of Study Area / Generally sufficient to develop determinations for environmental document. If critical human or endangered species impacts, Public Involvement Plan or Indirect and Cumulative Effects Report may be required.

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT EAU, Public Involvement, Community Studies and Visualization, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Human Environment

**Common Issues:** Failure to reach agreement with reviewer on Direct Community Impact Area, failure to check on latest guidance, missed resources

**Suggested Improvements:** To be added

[Return to Main Chart]
Public Involvement Plan

**Description:** A plan developed to help address potential impacts to specific stakeholders within a demographic study area.

**Applicability:** For projects with impacts to specific communities, most commonly Environmental Justice communities.

**Predecessor / Successor:** CCR or CIA / Environmental Document

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT EAU, Public Involvement, Community Studies and Visualization, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Human Environment

**Common Issues:** Coordination on outreach approach, stakeholder buy-in

**Suggested Improvements:** To be added
Description: An evaluation of the potential long-term development effects of a transportation project on future land use, as well as how a project, and other past, present, and reasonably foreseeable future projects may change area land use.

Applicability: This determination is generally part of the screening with a CCR or a CIA, can require a separate document if there are potential adverse effects to certain endangered species. Separate documents are very rarely used for CE level projects.

Predecessor / Successor: CCR or CIA

Developer: NCDOT or Consultant

Reviewer / Approver: Reviewed and approved by NCDOT EAU, Public Involvement, Community Studies and Visualization and NCDOT EAU, Environmental Coordination and Permitting, approved by Central NCDOTs

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Human Environment

Common Issues: Transparency in methodology, potential litigation

Suggested Improvements: To be added
**Natural Resource Technical Report**

**Description:** A description of the natural resources present within the project study area; can be scaled to the size of the project.

**Applicability:** All projects

**Predecessor / Successor:** Determination of Study Area / Environmental Document, WET file

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Division Environmental Officer or NCDOT EAU, Environmental Coordination and Permitting

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Natural Environment > NE Topic: Environmental Coordination and Permitting (ECAP)

**Common Issues:** Changes in study area, need to accommodate narrow T&E survey windows, insufficient documentation for review

**Suggested Improvements:** To be added

[Return to Main Chart]
**WEX File**

**Description:** A CAD file of preliminary determination of waterbodies within a project study area.

**Applicability:** All projects with potential stream and/or wetland impacts.

**Predecessor / Successor:** Natural Resources Technical Report / Preliminary Jurisdictional Determination Package

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT EAU, Environmental Coordination and Permitting

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Natural Environment > NE Topic: Environmental Coordination and Permitting (ECAP)

**Common Issues:** Incomplete submittals

**Suggested Improvements:** To be added
Description: Materials sent to US Army Corps of Engineers to allow preliminary review of stream and wetland impacts in a project study area; includes the WEX file.

Applicability: Applies to all projects with stream or wetland impacts.

Predecessor / Successor: WEX File / WET File

Developer: NCDOT or Consultant

Reviewer / Approver: NCDOT EAU, Environmental Coordination and Permitting, USACE

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Natural Environment > NE Topic: Environmental Coordination and Permitting (ECAP)

Common Issues:

Suggested Improvements: To be added
**Description:** A file of waterbodies in a project study area that has undergone a preliminary jurisdictional determination by the US Army Corps of Engineers (USACE).

**Applicability:** Applies to all projects with stream or wetland impacts.

**Predecessor / Successor:** Preliminary Jurisdictional Determination Package / 404 Permit, Environmental Document

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT EAU, Environmental Coordination and Permitting

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Natural Environment > NE Topic: Environmental Coordination and Permitting (ECAP)

**Common Issues:** File not updated to reflect design changes

**Suggested Improvements:** To be added
Biological Assessment

**Description:** A report developed by NCDOT and FHWA when a project has an adverse effect on a federally threatened or endangered species as determined under the Endangered Species Act. This material is provided to the relevant resource agency so they can prepare a Biological Opinion (BO) on the anticipated effects. Refer to [FHWA Endangered Species](#).

**Applicability:** Applies to projects that require formal consultation with US Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) for impacts to federally protected species.

**Predecessor / Successor:** Natural Resources Technical Report (NRTR) / Biological Opinion (BO)

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT EAU, Environmental Coordination and Permitting followed by applicable federal agency, approved by Central NCDOT

**Review Timeframe:** Agency has up to 6 months for review

**Where Stored on SharePoint:** Disciplines > Natural Environment > NE Topic: Biological Survey Group

**Common Issues:** Changes in design during development

**Suggested Improvements:** To be added

[Return to Main Chart](#)
**Biological Opinion**

**Description:** A report developed by US Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) when a project will adversely affect a federally threatened or endangered species.

**Applicability:** Applies to projects that require formal consultation with US Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) for impacts to federally protected species.

**Predecessor / Successor:** Biological Assessment (BA) / Environmental Document

**Developer:** USFWS or NMFS (whichever agency has jurisdiction)

**Reviewer / Approver:** NCDOT receives the BO from the lead federal agency, coordinate with Central NCDOT

**Review Timeframe:** Received within six months of submittal of the BA

**Where Stored on SharePoint:** Disciplines > Natural Environment > NE Topic: Biological Survey Group

**Common Issues:** Changes in design during development

**Suggested Improvements:** To be added

[Return to Main Chart]
Description: A review of any Type I federal aid project as per FHWA guidelines, refer to NCDOT Traffic Noise Policy.

Applicability: Any Type I Project federal aid project as per FHWA guidelines (adds capacity or cuts the distance from roadway to receptors by 50 percent), MCDC projects that increase capacity on access controlled US routes.

Predecessor / Successor: Designs sufficient for Environmental Document (generally 25 Percent Plans) / Generally sufficient to develop determinations for Environmental Document

Developer: NCDOT or Consultant

Reviewer / Approver: NCDOT Noise, Air Quality, and Cultural Resources, approved by Central NCDOT

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Human Environment > Traffic Noise & Air Quality

Common Issues: Insufficient model validation

Suggested Improvements: To be added
Description: An assessment of impacted noise receptors identified in the Traffic Noise Report (TNR) that potentially meet criteria for a noise wall.

Applicability: Applies to projects with impacted noise receptors found in the TNR that potentially meet criteria for a noise wall.

Predecessor / Successor: Traffic Noise Report, 65 Percent Plans (Post-NEPA) / 75 Percent Plans, benefitted receptor voting process

Developer: Design Build Team or Consultant

Reviewer / Approver: NCDOT Noise, Air Quality, and Cultural Resources, approved by Central NCDOT

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Human Environment > Traffic Noise & Air Quality

Common Issues: Obtaining public input (voting) on noise walls

Suggested Improvements: To be added
**Description:** An evaluation of the effects of a project on air quality. Refer to [NCDOT Air Quality](#).

**Applicability:** A Qualitative Mobile Source Air Toxics (MSAT) analysis is needed for projects with less than 140,000 annual average daily traffic (AADT); a quantitative analysis is needed for projects over 140,000 AADT.

**Predecessor / Successor:** Scoping, alternatives analysis / Environmental document

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Noise, Air Quality, and Cultural Resources, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Human Environment > Traffic Noise & Air Quality

**Common Issues:** Not following template language

**Suggested Improvements:** To be added
**Historic Architecture Screening / Report**

**Description:** A review of resources in the Area of Potential Effect to identify those historic architecture resources on or potentially eligible for listing on the National Register of Historic Places as well as potential impacts to these resources.

**Applicability:** All projects

**Predecessor / Successor:** After the project study area determined (note: if study area changes, may need to redo) / Environmental Document

**Developer:** Requested via ETRACS, developed by NCDOT Human Environment or Qualified Historian

**Reviewer / Approver:** NCDOT Noise, Air Quality, and Cultural Resources (also NC State Historic Preservation Office if resources impacted). FHWA approval for adverse effects for federally funded projects, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Human Environment > Historic Architecture

**Common Issues:** Study Area Map, GIS or CAD file with study area is needed to expedite review, need US Geologic Survey Quad Map name; if a significant resource is impacted by a project, a Section 4(f) evaluation may also be required.

**Suggested Improvements:** To be added

[Return to Main Chart]
Description: A review of resources in the Area of Potential Effect to identify those archaeological resources on or potentially eligible for listing on the National Register of Historic Places as well as potential impacts to these resources.

Applicability: All projects

Predecessor / Successor: After the project study area determined (note: if study area changes, may need to redo) / Environmental Document

Developer: Requested via ETRACS, developed by NCDOT Human Environment or Qualified Historian

Reviewer / Approver: NCDOT Noise, Air Quality, and Cultural Resources (also North Carolina Office of State Archaeology if resources impacted). FHWA approval for adverse effects for federally funded projects, approved by Central NCDOT

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Human Environment > Archaeology

Common Issues: Study Area Map, GIS or CAD file with study area is needed to expedite review, need US Geologic Survey Quad Map name; if a significant resource is impacted by a project, a Section 4(f) evaluation may also be required.

Suggested Improvements: To be added
**Section 4(f) Evaluation**

**Description:** Developed for projects that have adverse effects to publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historic sites on or eligible for listing on the National Register of Historic Places, based on Section 4(f) of the U.S. Department of Transportation Act of 1966. Refer to FHWA 4(f).

**Applicability:** Applies to federal aid transportation projects that have adverse effects to 4(f) properties.

**Predecessor / Successor:** 25 Percent Plans / final agreement included in Environmental Document

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Noise, Air Quality, and Cultural Resources, Federal Highway Administration, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Project Management > Final Planning Document

**Common Issues:** Waiting to approve MOA, need minimization measures and avoidance documented, include evaluation of avoidance alternative

**Suggested Improvements:** To be added

[Return to Main Chart]
**Section 106 Memorandum of Agreement**

**Description:** An agreement reached between FHWA and consulting parties to mitigate adverse effects to historic properties Under Section 106 of the National Historic Preservation Act. Refer to [FHWA Guidance](#).

**Applicability:** Applies when there is an adverse effect to a property listed in or eligible for the National Register of Historic Places (NRHP).

**Predecessor / Successor:** Effects determination meeting / Environmental Document and Permitting

**Developer:** NCDOT

**Reviewer / Approver:** NCDOT Noise, Air Quality, and Cultural Resources, and North Carolina State Historic Preservation Office, FHWA, and any consulting parties (tribes, property owners, local preservation groups, National Parks Service, US Forest Service, etc.), approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Human Environment > Historic Architecture

**Common Issues:** Ensure responsible party for mitigation is identified as well as a timeframe for mitigation; there must be an opportunity for public comment

**Suggested Improvements:** To be added

[Return to Main Chart](#)
**Description:** Developed for projects that effect parks, recreation areas, and wildlife refuges that have used Land and Water Conservation Act Funding. Refer to [Land and Water Fund](#).

**Applicability:** Applies to projects that acquire right of way from park or public recreation facilities purchased all or in part using Land and Water Act Conservation Fund.

**Predecessor / Successor:** Identify during development of Environmental Features Map, conclude prior to finalizing document

**Developer:** NCDOT or Consultant; NCDOT submits to North Carolina Parks and Recreation

**Reviewer / Approver:** US Department of Interior has final approval once submitted through North Carolina Parks Service

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Human Environment > NE Topic: Environmental Coordination and Permitting (ECAP)

**Common Issues:** Identifying replacement parcels

**Suggested Improvements:** To be added
**Type III Categorical Exclusion Document**

**Description:** The type of environmental document developed for federally funded projects which individually or cumulatively have no significant impacts on the human or natural environment. Refer to [NCDOT CE Checklist Training](#).

**Applicability:** Applies to Federal Aid Projects where there is a very limited possibility of significant environmental impacts.

**Predecessor / Successor:** 25 Percent Plans, Merger Concurrence Point CP3 / Permitting, 75 Percent Plans, Construction

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT or Consultant, and FHWA

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Project Management > Final Planning Document

**Common Issues:** Missing documentation, inconsistency between determinations in the checklist and the information in the NRTR or scoping notes

**Suggested Improvements:** To be added

[Return to Main Chart]
**Construction Consultation**

**Description:** A review that is conducted when there is a gap in the project timeline to determine if any changes have taken place which could require additional study. Refer to [NCDOT Connect](https://www.ncdot.gov/).

**Applicability:** Needed if there is more than one year between CE signature and right of way acquisition or right of way acquisition and start of construction.

**Predecessor / Successor:** CE or right of way / right of way or construction

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** FHWA for Type III CEs

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Project Management > Reevaluations & Consultations

**Common Issues:** Changes to protected species listed in county

**Suggested Improvements:** To be added
**Description:** A summary of the characteristics that will be used to develop a new or improved facility; includes such information as typical section, design speed, largest accommodated design vehicle, and classification type.

**Applicability:** All projects

**Predecessor / Successor:** Project Scoping / 15 Percent or 25 Percent Roadway Plans

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT or Consultant

**Review Timeframe:** One to two weeks

**Where Stored on SharePoint:** Disciplines > Roadway Design > Precon Phase

**Common Issues:** Changes during design process that require rework

**Suggested Improvements:** To be added
**Description:** A functional-level design that is developed to balance potential impacts and obtain Department or regulatory input prior to developing 25 percent roadway plans.

**Applicability:** Applies to projects with competing resources or design constraints; uncommon currently.

**Predecessor / Successor:** Design Criteria / 25 Percent Plans

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT or Consultant

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Roadway Design > Precon Phase

**Common Issues:** Incomplete scoping notes, thorough review of submissions required to move ahead efficiently

**Suggested Improvements:** To be added
**Description:** A Design exceptions are requests to avoid following all parts of the current AASHTO roadway design manual; generally to minimize impacts.

**Applicability:** Applies to projects with exceptional design constraints.

**Predecessor / Successor:** Design Criteria or 15 Percent Plans / 25 Percent Roadway Plans

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Roadway Design reviews with the project team, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines -> Roadway Design -> Precon Phase

**Common Issues:** Potential issues not defined early in the roadway design phase and coordinated with NCDOT Roadway

**Suggested Improvements:** To be added
Description: Roadway design plans that include sufficient information to summarize the effects of a project in the environmental document.

Applicability: All projects


Developer: NCDOT or Consultant

Reviewer / Approver: NCDOT Roadway Design or Consultant

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Roadway Design > Precon Phase

Common Issues: Inconsistency between traffic, design, and other disciplines, failure to follow NCDOT protocols, thorough review of submissions required to move ahead efficiently

Suggested Improvements: To be added
**Description:** A request to estimate the construction costs of a project based on the design at that point in the project delivery process.

**Applicability:** All projects

**Predecessor / Successor:** Can be done for any level of design, primarily done after 25 Percent Plans / Environmental Document

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT or Consultant, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Roadway Design > Precon Phase

**Common Issues:** Cost estimates at 25 Percent Plans have a contingency for other design elements, may over or underestimate costs

**Suggested Improvements:** To be added
**Description:** A summary of the pavement and subgrade thickness and materials required to account for the anticipated physical demand on the facility due to traffic.

**Applicability:** All projects

**Predecessor / Successor:** Geotechnical investigations, 25 percent design / 65 percent design

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT or Consultant

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Roadway Design > Precon Phase

**Common Issues:** Delay in requesting

**Suggested Improvements:** To be added
**Right of Way and Relocation Estimate**

**Description:** An estimate that is developed to determine the amount of right of way that NCDOT is anticipated to need to develop the proposed project, as well as the number and type of relocations associated with the current level of design.

**Applicability:** Applies to all projects; note that if this estimate is done at 25 Percent Roadway Plans, it will not have all potential impacts associated with drainage and utilities, etc.

**Predecessor / Successor:** 25 Percent Plans / Environmental Document

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Right of Way > ROW Topic: DOT Transmittals

**Common Issues:** Design changes

**Suggested Improvements:** To be added

[Return to Main Chart]
**Description:** An estimate of the number, type, and cost to relocate existing utilities to accommodate a proposed project.

**Applicability:** Applies to all projects, estimate may be revised at 65 Percent Plans.

**Predecessor / Successor:** 25 Percent Plans / Environmental Document

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Utilities Unit or Consultant

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Utilities > UT Topic: Hearing Maps

**Common Issues:** Changes at 65 Percent Plans can cause issues making right of way date

**Suggested Improvements:** To be added
Public Hearing Map

**Description:** A plotted map that shows 25 percent roadway designs and parcel information to allow the public to see the potential impacts of a proposed project at a public hearing.

**Applicability:** Applies to any project where detailed information about the project will be shared with the public.

**Predecessor / Successor:** Can be done for any level of design, typically done after 25 Percent Plans / public hearing or public meeting

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Roadway Design or Consultant

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Roadway Design > RDY Topic: Hearing Maps

**Common Issues:** Right of way may be changed later after drainage and utilities added

**Suggested Improvements:** To be added
**Value Engineering Recommendation**

**Description:** A review by a team of design experts to review proposed designs and explore new concepts and potential efficiencies.

**Applicability:** Generally for complex projects; often but not exclusively for interchange projects.

**Predecessor / Successor:** Most commonly after 75 Percent Plans / 90 Percent Plans

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Roadway Design, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Roadway Design > Precon Phase

**Common Issues:** May require substantial re-design if major changes found

**Suggested Improvements:** To be added
**Description:** A request to add improvements (such as lighting, sidewalks, or multi-use paths) to a proposed project.

**Applicability:** Could apply to any project, most common for projects within municipalities if improvements to existing amenities are requested by a jurisdiction.

**Predecessor / Successor:** The jurisdiction can request at any time (most commonly requests happen at internal scoping or prior to local officials informational meeting) / final design

**Developer:** NCDOT or Consultant develops to provide a cost estimate for the amenity(ies) and the estimated costs and cost share; municipality must sign an agreement before amenities are included on maps

**Reviewer / Approver:** Signed agreement needed

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Roadway Design > Precon Phase

**Common Issues:** Questions over costs, changing municipality leadership can change goals for project

**Suggested Improvements:** To be added
Description: A plan set that adds hydraulic designs to 25 Percent Roadway Plans.

Applicability: All projects

Predecessor / Successor: 25 Percent Plans and hydraulics report / Field inspection

Developer: NCDOT or Consultant

Reviewer / Approver: NCDOT Roadway Design or Consultant

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Roadway Design > RDY Topic: PDF Plans

Common Issues: Issues with drainage may require redesign of roadway

Suggested Improvements: To be added
**Description:** A plan set that is reviewed in the field to examine potential required design modifications or fatal flaws.

**Applicability:** All projects

**Predecessor / Successor:** Done twice at 65 Percent Plans and 90 Percent Plans / 75 Percent Plans and Final Design

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Roadway Design or Consultant

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:**

**Common Issues:** Can lead to typical section changes or pavement design changes

**Suggested Improvements:** To be added
Description: A plan set developed to allow for acquisition of right of way for a project.

Applicability: All projects

Predecessor / Successor: Done after 65 Percent Plans and field inspection / 90 Percent Plans and ROW acquisition

Developer: NCDOT or Consultant

Reviewer / Approver: NCDOT Roadway Design or Consultant

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Roadway Design > RDY Topic: PDF Plans

Common Issues: Design changes not previously requested

Suggested Improvements: To be added
**Structure Design**

**Description:** Designs for culvert and bridges.

**Applicability:** Could apply to any project with structures

**Predecessor / Successor:** 65 percent design, 90 percent design

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT, Central NCDOT approval required

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Structure Design > Precon Phase

**Common Issues:** Questions over costs, changing municipality leadership can change goals for project

**Suggested Improvements:** To be added
90 Percent Plans

Description: Updated plan sets include updates from the right of way plans, including quantity updates, structures, and changes from other disciplines.

Applicability: All projects

Predecessor / Successor: 75 Percent Plans

Developer: NCDOT or Consultant

Reviewer / Approver: NCDOT Roadway Design or Consultant

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Roadway Design > RDY Topic: PDF Plans

Common Issues: Design changes, ensuring designs from other disciplines are the latest version and compatible with existing design

Suggested Improvements: To be added
**100 Percent Plans**

Sealed but not signed design

**Description:** Finalized plan sets incorporating all updates from 90 Percent Plans that are provided for final reviews.

**Applicability:** All projects

**Predecessor / Successor:** 90 Percent Plans / Final Sealed Plans

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Roadway Design or Consultant

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Roadway Design > RDY Topic: PDF Plans

**Common Issues:** Multiple rounds of comments may be required

**Suggested Improvements:** To be added

Return to Main Chart
Description: Construction plans.

Applicability: All projects, may include plan checking for larger projects (over $5 million).

Predecessor / Successor: 100 percent plans / Plan Specification and Estimate (PS&E)

Developer: NCDOT or Consultant

Reviewer / Approver: NCDOT or Consultant

Review Timeframe: Final document, not reviewed

Where Stored on SharePoint: LET Preparation > Final Plans > Locked

Common Issues: Ensure designs, etc. consistent between disciplines

Suggested Improvements: To be added
Plan Specification and Estimate (PS&E)

**Description:** Certifications made by the contracting agency that clearances have been made so as not to delay the construction contractor by delays due to inadequate coordination of right-of-way, utility relocations, railroad relocations, NEPA clearances, and other pro-construction coordination.

**Applicability:** All projects

**Predecessor / Successor:** Final Sealed Plans / Project letting

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT or Consultant

**Review Timeframe:** Final document, not reviewed

**Where Stored on SharePoint:** LET Preparation > Final Plans > Locked

**Common Issues:** Ensure designs, etc. consistent between disciplines and no additional clearances needed

**Suggested Improvements:** To be added
**Final Survey**

**Description:** Data from field surveys, generally provided when a preferred alternative is selected.

**Applicability:** All projects

**Predecessor / Successor:** Can be requested any time, needed when final alternative selected / 25 Percent Plans

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Location and Surveys Unit or Consultant

**Review Timeframe:** Generally considered a final deliverable when received

**Where Stored on SharePoint:** Disciplines > Location and Surveys > LS Topic: Final Surveys

**Common Issues:** Design changes require additional surveys

**Suggested Improvements:** To be added
**Description:** Plans developed to lay out lane closure and other traffic control measures that will be undertaken during construction.

**Applicability:** Projects with over 7,500 ADT and either lane closures or detours (check with Work Zone Traffic Control Unit).

**Predecessor / Successor:** 25 Percent Plans, Environmental Document, may be done after 65 Percent Plans if hydraulics issues are complex / Field Inspection after 65 Percent Plans, 90 Percent Work Zone Plans

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Work Zone Traffic Control Unit

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Work Zone Traffic Control > WZ Topic: PDF Plans

**Common Issues:** Make sure consistent with current roadway design and hydraulic design; Congestion, bike and pedestrian effects

**Suggested Improvements:** To be added
Description: Developed to address comments on work zone and traffic control plans.

Applicability: All projects with Work Zone Concept Plans.

Predecessor / Successor: Work Zone Concept Plans, 75 Percent Roadway Plans / 90 Percent Field Inspection

Developer: NCDOT or Consultant

Reviewer / Approver: Work Zone Traffic Control Unit

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Work Zone Traffic Control > WZ Topic: PDF Plans

Common Issues: Make sure quantities and special provisions are included, consistent with structure design and signals; make sure there is coordination with Geotech on the need for temporary shoring

Suggested Improvements: To be added
**100 Percent Work Zone Plans**

**Description:** Final plans for work zone and traffic control, suitable for construction.

**Applicability:** All projects with 90 Percent Work Zone Plans.

**Predecessor / Successor:** 90 Percent Work Zone Plans / DocuSign Plan Set

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Work Zone Traffic Control Unit

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** LET Preparation > Final Plans > Locked

**Common Issues:** Ensuring all designs current and previous changes made

**Suggested Improvements:** To be added
**75 Percent Signal Plans**

**Description:** Plans to address the need to move or install traffic signals or underground cables.

**Applicability:** All projects with traffic signals or cable routing.

**Predecessor / Successor:** 65 Percent Roadway Plans / 75 Percent Roadway Plans

**Developer:** Consultant

**Reviewer / Approver:** Division Traffic Engineer, Regional Traffic Engineer, sometimes Central Signals & ITS (if requested)

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Intelligent Traffic Systems and Signals

**Common Issues:** Coordination with other disciplines

**Suggested Improvements:** To be added
**Description**: Addresses comments to 75 Percent Signal Plans and is delivered with 75 Percent Roadway Plans.

**Applicability**: All projects with traffic signals or cable routing.

**Predecessor / Successor**: 75 Percent Roadway Plans / 90 Percent Roadway Plans

**Developer**: Consultant

**Reviewer / Approver**: Division Traffic Engineer, Regional Traffic Engineer, sometimes Central Signals & ITS (if requested)

**Review Timeframe**: No regulatory requirement

**Where Stored on SharePoint**: Disciplines > Intelligent Traffic Systems and Signals

**Common Issues**: Changes in project design

**Suggested Improvements**: To be added
**Description:** Final plans for signals, suitable for construction.

**Applicability:** All projects with traffic signals or cable routing.

**Predecessor / Successor:** 90 Percent Roadway Plans / 100 Percent Roadway Plans

**Developer:** Consultant

**Reviewer / Approver:** Division Traffic Engineer, Regional Traffic Engineer, sometimes Central Signals & ITS (if requested)

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Intelligent Traffic Systems and Signals

**Common Issues:** Coordination between disciplines, addressing previous comments

**Suggested Improvements:** To be added
25 Percent Guide Signing and Routing Review

Description: Concept plans for constructing projects with Type A, B, and D signs. Refer to NCDOT Signing.

Applicability: Projects with Type A, B, and D signs.

Predecessor / Successor: 25 Percent Roadway Plans / 65 Percent Plans

Developer: Consultant

Reviewer / Approver: Division Traffic Engineer, Regional Traffic Engineer, sometimes Central Signing (if US or Interstate)

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Signing and Delineation

Common Issues: Nonconformance with standards and practices

Suggested Improvements: To be added
**Description:** Concept plans for siting signs. Refer to [NCDOT Signing](#).

**Applicability:** Projects with overhead sign structures.

**Predecessor / Successor:** 25 Percent Roadway Plans / 65 Percent Plans

**Developer:** Consultant

**Reviewer / Approver:** NCDOT and Utilities

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Signing and Delineation

**Common Issues:** Failure to account for overhead signs

**Suggested Improvements:** To be added
Description: Concept plans developed to address signals and stop bars locations for projects.

Applicability: All projects with existing or new signals.

Predecessor / Successor: 65 Percent Roadway Plans / 75 Percent Plans

Developer: Consultant

Reviewer / Approver: NCDOT Signals Design Section

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Signing and Delineation

Common Issues: Coordination issues

Suggested Improvements: To be added
50 Percent Signing and Delineation Plans

**Description:** Updated signing and delineation plans developed to address comments to 65 Percent Roadway Plans.

**Applicability:** All projects

**Predecessor / Successor:** 75 Percent Roadway Plans / 90 Percent Plans

**Developer:** Consultant

**Reviewer / Approver:** Division Traffic Engineer and Regional Traffic Engineer, Central NCDOT for interstates and US routes

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Signing and Delineation

**Common Issues:** Comments that modify previous designs

**Suggested Improvements:** To be added
90 Percent Signing and Delineation Plans

**Description:** A plan set developed to address comments to the 50 percent signing and delineation plans.

**Applicability:** All projects

**Predecessor / Successor:** 75 Percent Roadway Plans / 100 Percent Roadway Plans

**Developer:** Consultant

**Reviewer / Approver:** Division Traffic Engineer and Regional Traffic Engineer, Central NCDOT for interstates and US routes

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Signing and Delineation

**Common Issues:** Coordination between disciplines

**Suggested Improvements:** To be added
**100 Percent Signing and Delineation Plans**

**Description:** Final plans for signing and delineation, suitable for construction.

**Applicability:** All projects

**Predecessor / Successor:** 90 Percent Roadway Plans / 100 Percent Roadway Plans

**Developer:** Consultant

**Reviewer / Approver:** Division Traffic Engineer and Regional Traffic Engineer, Central NCDOT for interstates and US routes

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Signing and Delineation

**Common Issues:** Ensuring comments are addressed

**Suggested Improvements:** To be added

[Return to Main Chart]
**Utility Construction Plan**

**Description:** Final plans for “dry” utilities, which NCDOT generally moves; suitable for construction (for example: power lines). Refer to [NCDOT Utility Policy Manual](#).

**Applicability:** All projects with “dry” utilities.

**Predecessor / Successor:** 65 Percent Roadway Plans / 75 Percent Roadway Plans

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Utilities

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Utilities

**Common Issues:** Missing or incomplete information on existing utilities

**Suggested Improvements:** To be added

[Return to Main Chart](#)
Utilities by Others Plans

**Description:** Final “wet” utility plans moved by utility companies, suitable for construction. Refer to [NCDOT Utility Policy Manual](#).

**Applicability:** All projects with “wet” utilities.

**Predecessor / Successor:** 65 Percent Roadway Plans / 75 Percent Roadway Plans

**Developer:** Utility Company

**Reviewer / Approver:** Received from utility company, incorporated into 75 Percent Roadway Plans

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Utilities

**Common Issues:** Utility company not responsive

**Suggested Improvements:** To be added

[Return to Main Chart](#)
**Utility Construction Request**

**Description:** A request developed to initiate utility construction or relocation, developed prior to utility construction permit.

**Applicability:** All projects with utilities.

**Predecessor / Successor:** 90 Percent Roadway Plans / 100 Percent Roadway Plans

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Utilities

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Utilities

**Common Issues:** Incomplete submittals

**Suggested Improvements:** To be added
401 Permit (Water Quality Authorization)

**Description:** A certification required for any project that discharges into Waters of the United States. Refer to [NCDOT Permitting](#).

**Applicability:** Applies to all projects with stream or wetland impacts.

**Predecessor / Successor:** WEX file with approved jurisdictional stream and wetland impacts / Construction

**Developer:** NCDOT

**Reviewer / Approver:** Approved by NC Department of Water Resources

**Review Timeframe:** 30 days

**Where Stored on SharePoint:** Disciplines > Natural Environment > Environmental Coordination and Permitting (ECAP)

**Common Issues:** Ensure all design comments are incorporated into permit drawings

**Suggested Improvements:** To be added

[Return to Main Chart]
Section 10  
Navigable Waters Permit

**Description:** A permit required for projects that impact navigable waters as defined by the US Army Corps of Engineers (USACE). Refer to [NCDOT Permitting](#).

**Applicability:** Projects that impact navigable waters.

**Predecessor / Successor:** Identify issue when developing Environmental Features Map / coordination through final design

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** US Army Corps of Engineers, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Natural Environment > Environmental Coordination and Permitting (ECAP)

**Common Issues:** Check with Coast Guard before submitting

**Suggested Improvements:** To be added
**USACE Certification**
*(404 Permit: Nationwide or Individual)*

**Description:** A certification required for any project that requires the discharge of dredged or fill material into waters of the United States, including wetlands. Refer to [NCDOT Permitting](#).

**Applicability:** Projects that have impacts to jurisdictional streams and wetlands.

**Predecessor / Successor:** WEX file with approved jurisdictional stream and wetland impacts / Construction

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** US Army Corps of Engineers

**Review Timeframe:** 120 days for an individual permit, 45 days for a nationwide permit

**Where Stored on SharePoint:** Disciplines > Natural Environment > Environmental Coordination and Permitting (ECAP)

**Common Issues:** Ensure address for an individual permit is included and it includes mandatory public notice minimum 15 days to 30 days.

**Suggested Improvements:** To be added
Coast Guard Permit

**Description:** Refers to projects that cross tidally influenced or deep, unobstructed waters. Also known as a Section 10 Permit. Refer to NCDOT Permitting.

**Applicability:** Bridges that cross tidally influenced or deep, unobstructed waters.

**Predecessor / Successor:** Identify issue when developing Environmental Features Map/coordination through final design

**Developer:** NCDOT or Consultant, coordinate with FHWA

**Reviewer / Approver:** Coast Guard, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Natural Environment > Environmental Coordination and Permitting (ECAP)

**Common Issues:** Ensure public notice is included

**Suggested Improvements:** To be added

[Return to Main Chart]
**Coastal Area Management Act (CAMA) Permit**

**Description:** A permit required for projects that impact Coastal Area Management Act (CAMA) action areas. Refer to [NCDEQ CAMA](https://www.ncdeq.gov/).  

**Applicability:** Applies to projects with Impacts to CAMA action areas in 20 coastal counties covered in CAMA (Currituck, Camden, Pasquotank, Perquimans, Chowan, Gates, Hertford, Bertie, Washington, Tyrrell, Dare, Hyde, Beaufort, Pamlico, Carteret, Craven, Onslow, Pender, New Hanover, and Brunswick).

**Predecessor / Successor:** Environmental Document / Letting  

**Developer:** NCDOT or Consultant  

**Reviewer / Approver:** North Carolina Division of Coastal Management  

**Review Timeframe:** No regulatory requirement  

**Where Stored on SharePoint:** Disciplines > Natural Environment > Environmental Coordination and Permitting (ECAP)  

**Common Issues:** Includes 30-day public notice period  

**Suggested Improvements:** To be added  

[Return to Main Chart](#)
Federal Energy Regulatory Commission (FERC) Permit

**Description:** A permit required for projects in the area of influence of a Federal Energy Regulatory Commission (FERC) dam.

**Applicability:** Applies to projects in the area of influence of a FERC dam; if the dam or associated recreational features unaffected, it’s a FERC conveyance; if changes take place affecting the FERC license, application filed with FERC in Washington, DC.

**Predecessor / Successor:** Identify issue when developing Environmental Features Map / coordination through final design

**Developer:** NCDOT

**Reviewer / Approver:** A conveyance is approved by Central NCDOT and the relevant Utility. Impacts to the dam or associated recreational features requires Federal Energy Regulatory Commission

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Natural Environment > Environmental Coordination and Permitting (ECAP)

**Common Issues:** Failure to identify impacts to FERC influenced waters early in project development

**Suggested Improvements:** To be added
**TVA Permit**

**Description:** A permit developed for projects that impact land or lakes under the control of the Tennessee Valley Authority.

**Applicability:** Only applies in Division 14* -Includes portions of Fontana Lake, Lake Hiwassee, and Chatuga Lake.

**Predecessor / Successor:** Environmental Document (submitted same time as 401/404 permits) / Letting

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Approved by Central NCDOT, TVA

**Review Timeframe:** 60 days

**Where Stored on SharePoint:** Disciplines > Natural Environment > Environmental Coordination and Permitting (ECAP)

**Common Issues:** Number of potential lakes and areas has been reduced, don’t apply for TVA permit unnecessarily

**Suggested Improvements:** To be added
**Description:** A Memorandum of Agreement (MOA) that indicates, based on preliminary designs and hydraulic modeling, that a project will not increase 100-year base flood elevations (BFE). Refer to [NCDOT Floodplain Program](#) and [Hydraulics Deliverables](#).

**Applicability:** All projects that have stream impacts but do not increase the 100-year base flood elevation (BFE).

**Predecessor / Successor:** WET file / Construction

**Developer:** NCDOT or Consultant, generally submitted by NCDOT

**Reviewer / Approver:** Approved by Central NCDOT, North Carolina Floodplain Mapping Program

**Review Timeframe:** 90 Days

**Where Stored on SharePoint:** Disciplines > Hydraulics

**Common Issues:** Insufficient documentation of modeling results

**Suggested Improvements:** To be added
Description: Developed for projects that will result in an increase in the 100-year base flood elevation (BFE) and require a FEMA Conditional Letter of Map Revision (CLOMR). Refer to NCDOT Floodplain Program.

Applicability: Projects that will result in an increase in the 100-year BFE.

Predecessor / Successor: WET file / Letter of Map Revision (LOMR)

Developer: NCDOT or Consultant, generally submitted by NCDOT

Reviewer / Approver: North Carolina Floodplain Mapping Program and the Federal Emergency Management Agency (FEMA)

Review Timeframe: Nine to twelve months

Where Stored on SharePoint: Disciplines > Hydraulics

Common Issues: Not including the 65 Percent plans or a list of affected property owners

Suggested Improvements: To be added
Description: A post construction evaluation that produces a Letter of Map Revision (LOMR) to document increases to 100-year base flood elevation (BFE). Refer to NCDOT Floodplain Program.

Applicability: All projects with a Conditional Letter of Map Revision (CLOMR) will require a Letter of Map Revision (LOMR) after construction.

Predecessor / Successor: CLOMR, Project Construction / No follow up activity once accepted

Developer: NCDOT or Consultant

Reviewer / Approver: North Carolina Floodplain Mapping Program

Review Timeframe: Must be submitted within six months of construction

Where Stored on SharePoint: Disciplines > Hydraulics

Common Issues: Not including the As-Built plans or a list of affected property owners

Suggested Improvements: To be added

Return to Main Chart
**Description:** An authorization to acquire right of way within a protected riparian buffer area. Refer to [NCDOT Permitting](#).

**Applicability:** All projects in the following river basins or watersheds: Neuse, Tar-Pamlico, Catawba, Randleman, Jordan, or Goose Creek.

**Predecessor / Successor:** Environmental Document, supplied with 401 permit / Construction

**Developer:** Approved by Central NCDOT

**Reviewer / Approver:** North Carolina Department of Environmental Quality Water Quality Committee

**Review Timeframe:** Minor projects: two to four weeks. For major projects, goes in with permit

**Where Stored on SharePoint:** Disciplines > Natural Environment > Environmental Coordination and Permitting (ECAP)

**Common Issues:** Proper determination of buffer impact types and zones, easy to double count effects

**Suggested Improvements:** To be added

---

**Return to Main Chart**
State Storm Water Permit

**Description:** Ensures that NCDOT projects are in compliance with the Department's National Pollution Discharge Elimination System Statewide Stormwater Discharge Permit. Refer to [NCDOT Stormwater](#).

**Applicability:** All projects that increase discharges to surface waters.

**Predecessor / Successor:** Final Sealed – DocuSign Plan Set / Project letting

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Roadside Environmental, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Natural Environment > Environmental Coordination and Permitting (ECAP)

**Common Issues:** Incomplete submittal

**Suggested Improvements:** To be added
**Utility Construction Permit**

**Description:** A permit required to move or relocate utilities.

**Applicability:** Utilities have to ask for a permit, typically included with 404 permit package; may be needed early to accommodate some utility movement.

**Predecessor / Successor:** 75 percent design / 90 percent design (varies by project)

**Developer:** Consultant

**Reviewer / Approver:** ECAP Review, NCDOT Utilities, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Utilities

**Common Issues:** Failure to coordinate up front

**Suggested Improvements:** To be added
Merger Screening

**Description:** A meeting held between NCDOT, FHWA, US Army Corps of Engineers and NCDENR to determine if the project should follow the Section 404/NEPA Merger Process; key questions are amount of stream/wetland impacts and the presence of competing resources. Refer to [NCDOT Merger](#).

**Applicability:** All projects

**Predecessor / Successor:** Can be done with scoping package or as a stand-alone meeting / Develop Environmental Document or go through Section 404/NEPA Merger Process

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Reviewed and approved by Merger Team, USACE often makes final decision

**Review Timeframe:** Generally, agreement reached during meeting or subsequent to the meeting via email

**Where Stored on SharePoint:** Team Collaboration

**Common Issues:** Limited information for project definition

**Suggested Improvements:** To be added
**Merger Concurrence Point 1**

**Purpose and Need and Study Area Defined**

**Description:** Documents project Purpose and Need and a study area to be evaluated for potential effects.

**Applicability:** Merger Projects only (generally due to competing resources); Can be combined with CP2.

**Predecessor / Successor:** Merger Screening, information to document Purpose and Need, Logical Termini, and Independent Utility / Merger Point CP2 or CP2A

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Reviewed by NCDOT Environmental Policy Unit, approved by Merger Team

**Review Timeframe:** Generally, agreement reached during meeting, subsequent to the meeting via email, or with a second Merger Team meeting

**Where Stored on SharePoint:** Collaboration > External Collaboration > EXT Topic: Merger Coordination

**Common Issues:** Failure to agree on Purpose and Need or Logical Termini

**Suggested Improvements:** To be added
Detailed Study Alternatives Carried Forward

**Description:** Determines the alternatives to be carried forward for detailed study (which alternatives satisfy the Purpose and Need of the Project and will be studied in sufficient detail to ensure good transportation and permit decision-making).

**Applicability:** Merger Projects only

**Predecessor / Successor:** CP1 Concurrence (or Merger Screening if combined with CP1), may be combined with CP2A / CP2A or CP3

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Reviewed by NCDOT Environmental Policy Unit, approved by Merger Team

**Review Timeframe:** Generally, agreement reached during meeting, subsequent to the meeting via email, or with a second Merger Team meeting

**Where Stored on SharePoint:** Collaboration > External Collaboration > EXT Topic: Merger Coordination

**Common Issues:** Disagreement on whether an alternative could be a potential LEDPA

**Suggested Improvements:** To be added
**Description:** Identifies major (greater than 6-foot in diameter culverts) bridge and culvert locations and their approximate lengths and dimensions and reviews the preliminary alignment for each alternative carried forward for detailed study.

**Applicability:** Merger Projects only; may be combined with CP 2.

**Predecessor / Successor:** Hydraulics Report, CP2 Concurrence (or Merger Screening if CP 2 combined with CP1) / Environmental document, CP3

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Reviewed by NCDOT Environmental Policy Unit, approved by Merger Team

**Review Timeframe:** Generally, agreement reached during meeting, subsequent to the meeting via email, or with a second Merger Team meeting

**Where Stored on SharePoint:** Collaboration > External Collaboration > EXT Topic: Merger Coordination

**Common Issues:** Insufficient information on required bridge or culvert lengths

**Suggested Improvements:** To be added
**Description:** NCDOT, FHWA, and regulatory agencies meet to determine the alternative that is selected as the Least Environmentally Damaging Practicable Alternative (LEDPA), through the project development and permitting process. Note: if agreement on LEDPA cannot be reached, there is a dispute resolution process within the merger process.

**Applicability:** Merger Projects only, sometimes combined with CP4A.

**Predecessor / Successor:** CP2A Concurrence, sometimes combined with CP4A / CP4A or CP4B

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Reviewed by NCDOT Environmental Policy Unit, approved by Merger Team

**Review Timeframe:** Generally, agreement reached during meeting, subsequent to the meeting via email, or with a second Merger Team meeting

**Where Stored on SharePoint:** Collaboration > External Collaboration > EXT Topic: Merger Coordination

**Common Issues:** Insufficient information to quantify human and natural environmental impacts

**Suggested Improvements:** To be added
Description: NCDOT, FHWA, and regulatory agencies meet to document past measures to avoid and minimize impacts for the LEDPA and to evaluate other practicable measures that could reduce impacts while optimizing project benefits.

Applicability: Merger Projects only, may be combined with CP3.

Predecessor / Successor: CP3 Concurrence (or CP2A concurrence if combined with CP3) / CP4B

Developer: NCDOT or Consultant

Reviewer / Approver: Reviewed by NCDOT Environmental Policy Unit, approved by Merger Team

Review Timeframe: Generally, agreement reached during meeting, subsequent to the meeting via email, or with a second Merger Team meeting

Where Stored on SharePoint: Collaboration > External Collaboration > EXT Topic: Merger Coordination

Common Issues: Insufficient documentation of minimization steps developed throughout the project, design changes

Suggested Improvements: To be added
30 Percent Hydraulic Review

**Description:** A review of the development of the stormwater best management practices and hydraulic design.

**Applicability:** Merger Projects Only

**Predecessor / Successor:** Hydraulics Design, CP4A / Permit Drawings, CP4C

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Reviewed by NCDOT Environmental Policy Unit, approved by Merger Team

**Review Timeframe:** Generally, agreement reached during meeting, subsequent to the meeting via email, or with a second Merger Team meeting

**Where Stored on SharePoint:** Collaboration > External Collaboration > EXT Topic: Merger Coordination

**Common Issues:** Design changes

**Suggested Improvements:** To be added
**Merger Concurrence Point 4C**

**Permit Drawings in Review**

**Description:** A review of the completed permit drawings after the hydraulic design is complete and prior to the permit application.

**Applicability:** Merger Projects only

**Predecessor / Successor:** Permit Drawings, CP4B / 404 Permit Application, 401 Permit Application

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Reviewed by NCDOT Environmental Policy Unit, approved by Merger Team

**Review Timeframe:** Generally, agreement reached during meeting, subsequent to the meeting via email, or with a second Merger Team meeting

**Where Stored on SharePoint:** Collaboration > External Collaboration > EXT Topic: Merger Coordination

**Common Issues:** Design changes

**Suggested Improvements:** To be added

[Return to Main Chart]
Description: A review of stream crossings that would require a culvert 72 inches or more in diameter to convey; the report evaluates the watershed and recommends stream crossing structures (culverts or bridges). Refer to **Hydraulics Deliverables**.

Applicability: Applies to all projects with major stream crossings.

Predecessor / Successor: Natural Resources Technical Report / 65 Percent Roadway Plans

Developer: NCDOT Hydraulics Unit or Consultant

Reviewer / Approver: NCDOT Hydraulics Unit

Review Timeframe: No regulatory requirement

Where Stored on SharePoint: Disciplines > Hydraulics > HYD Topic: Consultant Submittals

Common Issues: Changes in design may require addenda or re-evaluations if the crossing location changes

Suggested Improvements: To be added
Red Line Drainage Plans

**Description:** The initial submittal of hydraulic designs that are submitted for review and comment. Refer to [Hydraulics Deliverables](#).

**Applicability:** All projects with stream impacts or drainage design needs.

**Predecessor / Successor:** 25 Percent Plans / 65 Percent Plans

**Developer:** Consultant

**Reviewer / Approver:** NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Hydraulics > HYD Topic: Drainage

**Common Issues:** Insufficient ditch design

**Suggested Improvements:** To be added

[Return to Main Chart](#)
**Description:** A review of proposed culvert design that includes and addresses any comments on the proposed structure. Refer to [Hydraulics Deliverables](#).

**Applicability:** Applies to all projects with major stream crossings.

**Predecessor / Successor:** HEC-RAS model, Stormwater Drainage Plan, can be submitted with the Stormwater Management Plan / No-Rise Certification or Conditional Letter of Map Revision, or construction

**Developer:** NCDOT Hydraulics Unit or Consultant

**Reviewer / Approver:** NCDOT Hydraulics Unit

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Hydraulics > HYD Topic: Consultant Submittals

**Common Issues:** Make sure to include work map with contours and response letters (if applicable)

**Suggested Improvements:** To be added
**Bridge Survey Report (BSR)**

**Description:** A review of proposed culvert design that includes and addresses any comments on the proposed structure. Refer to [Hydraulics Deliverables](#).

**Applicability:** Applies to all projects with major stream crossings.

**Predecessor / Successor:** HEC-RAS model, Stormwater Drainage Plan, can be submitted with the Stormwater Management Plan / No-Rise Certification or Conditional Letter of Map Revision, or construction

**Developer:** NCDOT Hydraulics Unit or Consultant

**Reviewer / Approver:** NCDOT Hydraulics Unit

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Hydraulics > HYD Topic: Consultant Submittals

**Common Issues:** Make sure to include work map with contours and response letters (if applicable)

**Suggested Improvements:** To be added

**Return to Main Chart**
**Description:** Designs developed after red line drainage plans that include recommended stormwater best management practices.

**Applicability:** Applies to all projects that increase impervious surface.

**Predecessor / Successor:** 65 Percent Plans / 75 Percent Plans or 90 Percent Plans, depending on complexity

**Developer:** Consultant

**Reviewer / Approver:** NCDOT Roadside Environmental and Hydraulics Unit, or Division

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Hydraulics > HYD Topic: Drainage

**Common Issues:** Missing best management practices (BMPs), must show existing drainage pattern

**Suggested Improvements:** To be added
**Crash Analysis**

**Description:** A statistical analysis of crash data for a proposed project, compared with similar facilities, generally covers the most recent 5-year period.

**Applicability:** Any project with perceived accident concerns, projects with bad geometry or congestion concerns.

**Predecessor / Successor:** Pre-scoping or after scoping / Traffic Forecast, Roadway Design, Planning Document

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** Generally, no review required

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Congestion Management > CM Topic

**Common Issues:** Study area changes could require re-analysis

**Suggested Improvements:** To be added
Traffic Forecast

**Description:** An estimate of current and future year traffic volumes in the project study area.

**Applicability:** Any project with anticipated capacity issues, new location projects; used to determine future base year and future year traffic volumes.

**Predecessor / Successor:** Scoping / Traffic Analysis

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Congestion Management or Consultant

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Congestion Management > CM Topic: Forecast

**Common Issues:** Design Changes, changes to project termini, issues with input data

**Suggested Improvements:** To be added

Return to Main Chart
**Traffic Analysis**

**Description:** An analysis of the operations of existing, no-build, and/or build condition traffic forecasted for a project. Performance indicators evaluated could include level of service, average traffic speeds, vehicles processed during peak periods, or other measure.

**Applicability:** Applied to projects to determine future level of service (LOS) and laneage needs.

**Predecessor / Successor:** Traffic Forecast / Roadway Design Criteria, Environmental Document, IAR (if needed)

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT Congestion Management or Consultant

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Congestion Management > CM Topic: Analysis

**Common Issues:** Design changes

**Suggested Improvements:** To be added
Description: An analysis developed to show how projects that impact interstate highways (including ramps) would affect interstate highway operations.

Applicability: Applies to projects that involve interstates or interstate ramps.

Predecessor / Successor: Traffic Analysis / Letting (can be completed before or after the environmental document)

Developer: Consultant

Reviewer / Approver: Approved by Central NCDOT and FHWA

Review Timeframe: Two weeks local review by FHWA, then 4 weeks for FHWA’s DC office

Where Stored on SharePoint: Disciplines > Congestion Management > CM Topic: IAR

Common Issues: Design changes not incorporated

Suggested Improvements: To be added
**Description:** A report that identifies potential hazardous waste sites in a project study area based on a preliminary desktop evaluation.

**Applicability:** Applies to projects that acquire right of way.

**Predecessor / Successor:** Request at Scoping / if potentially contaminated sites found, a detailed Phase I Site Assessment may be required prior to completion of the Environmental Document

**Developer:** NCDOT Geoenvironmental, approved by Central NCDOT

**Reviewer / Approver:** Generally provided by NCDOT and not reviewed

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Geoenvironmental> GE Topic: NCDOT Transmittals

**Common Issues:** Changes to study area require revisiting

**Suggested Improvements:** To be added
Phase I Site Assessment

**Description:** An evaluation of potential hazardous waste sites in the project study area.

**Applicability:** Applies to all projects that have potentially contaminated sites.

**Predecessor / Successor:** Geoenvironmental Report / Environmental Document

**Developer:** NCDOT or Consultant

**Reviewer / Approver:** NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Geoenvironmental > GE Topic: NCDOT Transmittals

**Common Issues:** Changes to study area

**Suggested Improvements:** To be added
**Description:** An evaluation of the geotechnical factors that could impact a project, can provide various products including a Roadway Subsurface Inventory, Geotechnical Roadway Recommendations, Structure Subsurface Inventory (for bridges, retaining walls, sound walls and culverts), Geotechnical Structure Recommendations, Design Build Inventory and various planning or environmental reports. Refer to [NCDOT Geotechnical](#).

**Applicability:** All projects with structures, retaining walls, or large cuts into bedrock.

**Predecessor / Successor:** 75 Percent Roadway Plans / 90 Percent Roadway Plans

**Developer:** Consultant

**Reviewer / Approver:** NCDOT Geotechnical Engineering Unit, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Geoenvironmental > GE Topic: NCDOT Transmittals

**Common Issues:** Not engaging Geotech in areas with large cut areas to determine optimal cut slopes

**Suggested Improvements:** To be added
Traffic and Revenue Study

**Description:** A report on the number of trips that could be anticipated for a proposed toll facility, and the toll rates that would be required to pay for its operations and maintenance to determine the viability of the facility as a toll road.

**Applicability:** Projects under consideration as toll projects.

**Predecessor / Successor:** Should be evaluated pre-scoping

**Developer:** North Carolina Turnpike Authority or Consultant

**Reviewer / Approver:** NCTA, approved by Central NCDOT

**Review Timeframe:** No regulatory requirement

**Where Stored on SharePoint:** Disciplines > Project Management

**Common Issues:** Coordination on traffic models and ensuring most recent version of models used

**Suggested Improvements:** To be added