

Collection and Presentation of Environmental Data Procedure

Description

The purpose of this procedure is to provide a consistent methodology for gathering and presenting environmental data. One of the primary products is an Environmental Features Map depicting environmental features that are available as GIS layers. There may also be environmental features that are not available as GIS layers, but that are documented in the Comprehensive Transportation Plan (CTP) report. This environmental data is used during the CTP process to develop and evaluate long range planning transportation solutions, alternatives, and scenarios.

Responsibility

*It is the responsibility of the **TPB Project Engineer (PE)** to:*

- *Collect all applicable environmental GIS layers;*
- *Create an Environmental Features Map of the environmental data, to be used during the CTP process, incorporated into the CTP Report, and shared with Project Development & Environmental Analysis (PDEA).*
- *Consult with local contacts, and the appropriate PDEA staff or environmental agency representative(s), if needed, to identify the potential presence of environmental features that are not available as GIS layers.*

Scheduling and Time Constraints

As part of the CTP study, the PE should collect and map the environmental data at the beginning of the CTP process. This preliminary information is used during the CTP visioning process and, after coordination with appropriate resource agencies, the draft Environmental Features Map can be updated when conducting the needs assessment (prior to alternatives and scenario analysis). By the end of the CTP study, the environmental resources are to be fully documented on the final Environmental Features Map and in the CTP report.

Procedure

Step	Action
1	<p>Collect all available environmental GIS data layers in appropriate folder on the local drive.</p> <ul style="list-style-type: none"> • Open the CTP GIS Data Layers.xls file from the S drive (<i>S:/Shared/TPB Reference/Comprehensive Transportation Plan</i>). Select "Report Maps" tab for "Environmental Features" section highlighted in orange. • Download the primary and secondary data layers directly to your local drive. • Request restricted data layers using the "Restricted Data Request" instructions on the S drive (<i>S:/Shared/GIS Data/CTP GIS Resource Layers</i>).
2	<p>Create the Environmental Features Map in ArcMap (including only non-restricted layers).</p> <p>Multiple maps will likely be required to adequately display the information, resulting in an Environmental Features Map with multiple sheets. Resources</p>

	<p>are currently organized by ‘primary’ and ‘secondary’ features (see note below). However, these features can be separated onto multiple sheets in a way that is logical and enables data to be seen clearly.</p> <ul style="list-style-type: none"> • Open the templates for Primary and Secondary Environmental Features Map from S drive (S:\Shared\TPB Reference\Comprehensive Transportation Plan\CTP Map Templates\Environmental Map Templates). Set the Data Source (go to “Properties”, then “Source”) for all the non-restricted primary and secondary environmental layers listed in the Table of Content to the shapefiles located on your local drive (collected in Step 1). Note: If a particular environmental feature does not occur in your planning area, it should be removed from the map and documented in the CTP project file. • Add your planning area boundary shapefile to the map and clip all remaining layers to your planning area boundary. • Add your CTP road network to the Environmental Features Map(s) as a top layer. • Check to ensure the symbols for all the environmental shapefiles added to the map match the standard environmental symbols from the Template. • Enter the Date of Download as the ‘Map Date’ at the bottom of the legend. • Save each of the created Primary and Secondary Environmental Features Map(s) on your local drive. <p>Note: ‘Primary’ and ‘secondary’ are designations given to environmental resource GIS layers to indicate a general priority in terms of avoidance and minimization. However, this will vary depending on the area, based on uniqueness and quality of the resources, priorities of local features, and other factors. (The meaning and use of these designations will be explained more fully in the Alternatives and Scenario Analysis procedure.)</p>
3	<p>Create the Restricted Environmental Features Map in ArcMap</p> <ul style="list-style-type: none"> • Open the Template for the Environmental Features Map - Restricted, from S drive (S:\Shared\TPB Reference\Comprehensive Transportation Plan\CTP Map Templates\Environmental Map Templates). Set the Data Source (go to “Properties”, then “Source”) for all the restricted environmental layers listed in the Table of Content, to the shapefiles located on your local drive (collected in Step 1). Note: If a particular resource does not occur in your planning area, it should be removed from the map and documented in the CTP project file. • Add your planning area boundary shapefile to the map and clip all remaining layers to your planning area boundary. • Add your CTP road network to the Environmental Features Map(s). • Check to ensure the symbols for all the environmental shapefiles added to the map match the standard environmental symbols from the Template. • Enter the Date of Download as the ‘Map Date’ at the bottom of the legend. • Save Restricted Environmental Features Map(s) on your local drive.
4	<p>Consult with the appropriate local contacts to identify whether there are other GIS-mapped data layers or non-mapped environmental or community resources that would be useful to include.</p> <p>Examples of some layers that may be evaluated are listed under the “Additional Resources” and “Needs” sections at the bottom of the “Report Maps” tab of the <i>CTP GIS Data Layers.xls</i> file. Therefore, the PE should also consult with appropriate local contacts to identify other locally-available GIS layers and the potential presence of environmental/ community features that are not available as GIS layers.</p>

	<p>These features can be mapped or otherwise documented and included with the Environmental Features Map in subsequent analysis and documentation.</p> <ul style="list-style-type: none"> If needed, PDEA staff and/or environmental agency representative(s) may be contacted to discuss the meaning and importance of mapped features (see PDEA Regional Map).
5	<p>Complete Documentation</p> <ul style="list-style-type: none"> After CTP adoption, add final CTP highway layer (lines and points) to each of the Environmental Features Map(s). Insert completed map(s) in the appropriate location(s) in Chapter 1 of the 'CTP Report' and ensure non-mapped features, if any, are described appropriately. Specific environmental features that may potentially be impacted by an alternative should be referenced in the Natural & Human Environmental Context section of the 'Problem Statement' for each CTP recommendation in Chapter 2 of the CTP Report. <p>Note: As the PE completes this procedure, the CTP Closeout procedure should also be followed.</p>

Policy, Regulatory, and Legal Requirements

- [Federal Planning Requirements – 23 USC 134 \(23 CFR 450\)](#)
- [National Environmental Policy Act \(NEPA\)](#)
- [State Environmental Policy Act for North Carolina \(SEPA\)](#)

Resources

- ArcMap (ESRI software)
- [Minimum CTP Standard Report Template](#)
- [Problem Statement procedure](#)
- [Develop CTP Maps procedure](#)
- [PDEA Regional Map](#)
- [CTP Closeout procedure](#)
- [CTP Document – Prepare and Distribute procedure](#)
- CTP GIS Data Layers (*S:/Shared/TPB Reference/Comprehensive Transportation Plan*)
- Restricted Data Request (*S:/Shared/GIS Data/CTP GIS Resource Folder/CTP GIS Data Layers*)
- Environmental Map Templates (*S:\Shared\TPB Reference\Comprehensive Transportation Plan\CTP Map Templates\Environmental Map Templates*)

Background

Consideration of environmental features is critical to the transportation planning process, in accomplishing the goal of addressing transportation needs while considering potential impacts to the natural and built environment. Section 102 of the National Environmental Policy Act (NEPA) requires consideration of impacts to various resources, including wetlands, wildlife, water quality, historic properties, and public lands. While full NEPA evaluations are not typically conducted during CTP development, resources that may potentially be impacted are identified, considered, and documented. The environmental data is used in long range planning during alternatives development and analysis, as well as during CTP goal-setting and land use considerations, such as projecting future socio-economic data. The Environmental Features Map and associated documentation are also shared with project development in order to

demonstrate how environmental issues were considered and impacted decisions during long range planning. In addition, environmental data used during CTP development should be used as the starting point in NEPA/SEPA.

As part of CTP development, this environmental data is used early in the transportation process to avoid and minimize potential impacts, to estimate project proposal impacts, and to consider potential mitigation needs. If impacts are expected to be high, this assessment helps inform stakeholders about the potential for a longer project development process and possible increased project costs due to more detailed analysis being required, difficulty in obtaining approvals, and/ or increased avoidance and minimization measures (such as historic resource mitigation or longer bridge crossings for wetlands, for instance). Knowing about these potential challenges during the CTP process allows the stakeholders to make informed decisions about which project proposals to include in the CTP.

It should be noted that the environmental data collected during the Comprehensive Transportation Planning process is typically limited to what is currently available as GIS layers. Some environmental features cannot be readily mapped using GIS and others have not been mapped due to agency funding constraints. Therefore, the TPB Project Engineer should also consult with appropriate local contacts to identify other locally-available GIS layers and the potential presence of environmental/ community features that are not available as GIS layers. If needed, PDEA staff and/or or environmental agency representative(s) may be contacted to discuss the meaning and importance of mapped features. Any environmental features identified will be included with the GIS-mapped features in CTP analysis and documentation as appropriate.

Record of Revision

The information contained in this procedure is deemed accurate and complete when posted. Content may change at any time without notice. We cannot guarantee the accuracy or completeness of printed copies. Please refer to the online procedure for the most current version. Contact TPB Staff Engineer with all the questions about this procedure.

Version	Section Affected	Description	Effective Date
1.1	Procedures	Overhaul	4/4/11
1.2	Resources and Tools	Added CTP Maps Procedure Adoption	4/4/11
1.3	Procedures	Added "primary and secondary" before describing the environmental layers in throughout procedure Added language in Step 1 about adding date of download in the report In Step 2, added language about downloading the Environmental Style file In Step 2, added language to make sure the environmental style file symbols match the standard environmental symbols Changed Step 3 to Create Restricted Environmental Features Map and added related steps	4/25/12
1.4	Procedures, Resources and Tools	Added note to ensure that the CTP closeout procedure is followed. Move date of download to its own step and add language to add date of download to CTP Full Alternatives Impact Table	6/26/12
2.0	Entire Procedure	New template and major adjustments based on comments from the IIT and ASA Team	11/25/2013

Flowchart/Template

Primary Environmental Features Template	Secondary Environmental Features Template	Restricted Environmental Features Template
<div style="text-align: center;"> <p>Environmental Features Map Planning Area</p> <p>County Name North Carolina</p> <p>Comprehensive Transportation Plan</p> </div> <p>Legend</p> <ul style="list-style-type: none"> Colleges and Universities Schools Hospitals Historic Resources Sites 24k Hydro Lines Critical Habitat Lines Airport Boundary APNEP - Submersed Aquatic Veg. Conservation Tax Credit Prop. Historic Resources Areas Hydrography Areas Land & Water Conservation Funds Landscape Habitat Indicator Guilds Managed Areas National Wetland Inventory NC-CREWS NCDOT Maintained Mitigation Sites Significant Natural Heritage Areas State Parks Target Local Watersheds - EEP Unique Wetlands County Boundary Roads Railroads Municipal Boundaries <div style="text-align: center;"> <p>Sheet # Map Date: XXXXX ##, ####</p> </div>	<div style="text-align: center;"> <p>Environmental Features Map Planning Area</p> <p>County Name North Carolina</p> <p>Comprehensive Transportation Plan</p> </div> <p>Legend</p> <ul style="list-style-type: none"> Beach Access Boating Access Emergency Operation Centers Hazardous Substance Disposal Sites Hazardous Waste Facilities Sewer Treatment Plants Water Distribution Tanks Water Distribution Treatment Plants Water Pumping Stations Anadromous Fish Spawning Areas Bicycle Routes Regional Trails State Natural and Scenic Rivers Trout Streams DWQ Trout Waters WRC Benthic Habitat Fish Nursery Areas Hazardous Substance Disposal Sites High Quality Waters Natural Heritage Element Occurrence Trout Waters WRC Water Supply Watersheds County Boundary Roads Railroads Municipal Boundaries <div style="text-align: center;"> <p>Sheet # Map Date: XXXXX ##, ####</p> </div>	<div style="text-align: center;"> <p>Restricted Environmental Features Map Planning Area</p> <p>County Name North Carolina</p> <p>Comprehensive Transportation Plan</p> </div> <p>Legend</p> <ul style="list-style-type: none"> Archaeological Sites Archaeological Sites Areas County Boundary Roads Railroads Municipal Boundaries <p style="text-align: center;"><i>NOTE: This map includes GIS data layers that have restricted access and is for NCDOT internal use only.</i></p> <div style="text-align: center;"> <p>Sheet # Map Date: XXXXX ##, ####</p> </div>

Approved: 10/20/2010

Revised: 11/25/2013

Version 2