

## ***Problem Statement Guidance***

This guidance has two primary purposes: 1) to help long range transportation planners consistently document the data used to develop the Problem Statement (PS) as part of a Comprehensive Transportation Plan (CTP) study; and 2) to help choose the level of PS and the data needed to support the foundation for the Purpose and Need (PN) when a project is prioritized, goes through additional study, and ultimately into environmental analysis. There is a great deal of work occurring during the CTP study that can be used to support the PN for individual projects. With consistent documentation and format, this crucial information will be more easily and completely carried from long-range plans to individual projects thereby decreasing "redo" during a project's lifecycle.

During the CTP process the PS should describe an identified deficiency in the area's transportation system. The deficiencies are identified by using travel demand modeling and/or forecasting techniques that take into account land development patterns, employment and population projections, and community values. This data is used to analyze the transportation needs of the area and develop a CTP that recommends transportation improvements to alleviate identified deficiencies. The development of these recommendations involves consideration of the physical, natural, social, and economic environment. The CTP process is a cooperative effort between local governments, MPOs, RPOs, FHWA, and NCDOT. The PS is used to develop Purpose and Need statements for projects during the project development stage. The information provided in the PS is intended to help support decisions made in the NEPA/SEPA process.

The sections below describe how to develop a Full Problem Statement, Minimum Problem Statement, or Problem Statement that References a Purpose and Need Underway or Completed.

When developing a PS as part of a CTP, all elements of the Minimum PS should be included in the documentation for each proposed project. As resources allow, additional information should be added from the Full PS guidance. When developing a PS upon request from project development, the Transportation Planning Division (TPD) project engineer should use the Full PS guidance, including all information that is readily available. Refer to the 'Development of Problem Statement' procedure for more information. Following are the criteria for determining which level of Problem Statement to develop for proposed projects as part of the CTP.

### *Criteria for Determining which Level of Problem Statement to Develop for Various Proposed Projects in the CTP*

#### Full Problem Statement

- Time Frame
  - First, select projects from the first 5 years of the State Transportation Improvement Program (STIP). [\*In general, projects in the first 5 years of the STIP should already have PN completed or underway, but these projects should be checked first].
  - Then, add projects from the second 5 years of the STIP.
  - Add additional proposed projects, as resources allow, from the closest interim year(s) in the CTP/MTP (if specified) or from the MPO/ RPO Project Priority List that is submitted as part of NCDOT's biennial prioritization process.
- Scope: Highest priority should be given to projects that are major new location, major multi-lane widening, and other major projects from all modes, as resources allow.
- Whether a project proposal has already been subject of a special study and whether it is controversial should also be considered.

#### Minimum Problem Statement

- Develop at least a Minimum PS for all proposed projects for which Purpose and Need is not currently underway or completed.

Problem Statement that References a Purpose and Need Underway or Completed

- The Problem Statement must reference the Purpose and Need as shown in the following guidance if Purpose and Need concurrence has been achieved or development is underway prior to adoption of the CTP.

This guidance contains descriptions of each section of a PS. The lists of data in each section show the possible types and sources of information to include. However, only include the information that is directly applicable (and additional information may be added if it is relevant). Only project-specific information is to be included. Information that pertains to the entire CTP study is contained elsewhere in the CTP Report. For example, a general description of the public involvement process is contained elsewhere in the CTP Report; only specific issues about the proposed project are to be included in the PS under the Public/ Stakeholder Involvement section. When information is cited from another existing plan or program, include the relevant information and reference that document by official title, author (may be an agency), date, and web link (if available).

## **FULL PROBLEM STATEMENT GUIDANCE**

\*For a given CTP project proposal, the heading is included in gray shaded box and should contain the facility name, Local ID number, improvement description, and 'last updated' date. The gray rectangular box designating this heading should be used for full problem statements only. For full problem statements, at least one map of the proposed project is included. Optionally, aerial maps and/ or photos may also be included. If only one map is used, it should be right justified, and text should begin to the left of the map. In the CTP Report, each full problem statement should be started on a new page. Refer to the 'Development of Problem Statement' procedure for instructions on creating the maps and examples.

**Facility Name (SR #), Local ID: XXXX####-X**

### **IDENTIFIED PROBLEM**

Provide a clear and concise description of the problem; the primary goals the possible solutions are expected to accomplish; and a big picture description of the desired results. There should not be any part of the "Identified Problem" section that would identify or limit potential project alternatives.

### **Justification of Need**

Provide data to support the transportation problem or need. Document any specific information from the analysis that led to identification of the problem, as well as any other factors that led to the proposed project being included on the CTP.

- Concept- general description of the need for the proposed project
- Problem description/ conceptual purpose. To determine the primary purpose(s) (e.g., legislative intent, congestion, safety), refer to the "[AASHTO Practitioner's Handbook – Defining the Purpose and Need and Determining the range of Alternatives for Transportation Projects](#)" (August 7, 2016). Include secondary purpose(s) and/ or other desirable outcomes only if appropriate. Include measurable goals or performance measures if considered as part of the CTP study.
  - Explanation of the system and/ or (sub) area deficiencies, economic development, etc.
  - Description of the purpose(s) for addressing the need(s)
- Transportation deficiency data
  - Safety/ congestion/ economic development/ etc., based on the primary purpose(s)
  - Identification of deficiencies in the CTP study area, which could include system-wide deficiencies related to the proposed project

### **Data:**

- Travel demand data
  - Current and projected traffic volume (provide range or volume by section if needed)
  - Person-trips
  - Prior/ background information (if available)
  - Trip type (s)
  - Average trip length(s)/ travel time(s)
  - Type of traffic/ vehicle mix/ classification
  - Speeds
- Travel analysis
- Measures of effectiveness
- Safety/ crash data and analysis (includes fatality data) \*Note: Based on the initial safety screening conducted as part of the CTP study, contact the NCDOT Traffic Safety Unit to request a crash analysis for location(s) requiring further evaluation. Refer to the 'Collection

and Presentation of Crash Data' procedure. Include safety data in the 'Identified Problem- Justification of Need' section of the problem statement only if the analysis reveals crash rates greater than the critical crash rate and there are potential transportation countermeasures; otherwise the information may be included as supporting data in the CTP Project Proposal- Project Description and Overview' section.

- Need for multi-modal system linkage or access, if it is a modal project proposal or a key part of a highway project proposal's purpose; if possible, quantify how much of the problem will be addressed by the modal solution (for example, what percentage the volume of traffic is expected to be reduced)
- Economic development related data (if part of the purpose), such as state and local economic development plans; information should be specific to the type of economic development the area is looking to attract
- Legislative mandates
- Long-term commitments to maintaining mobility along corridors

**\*Note that Strategic Transportation Corridor (STC) should be referenced in the problem statement, but the underlying problem or need must also be described.**

Meeting the STC vision is not the identified problem- the identified problem is the core need or issue (congestion or safety or system linkage, etc.). Refer to the STC Master Plan if available for more information.

(<https://connect.ncdot.gov/projects/planning/Pages/NCTransportationNetwork.aspx>).

### **Community Vision and Problem History**

Identify important issues, goals and ideas relating to the community's future vision. Include information on how the problem relates to the context or vision of the community it is intended to serve. Document the evolution of the problem over time.

#### Data:

- Reference information from comprehensive plans and local land use plans related to community vision specific to the identified problem, including history/ background of the problem
- Outcomes of the evaluation of the land use plan (from the land use sub-process)
- Identified goals and objectives related to the identified problem
- Description of how the problem relates to the community vision, policies, goals and objectives

### **CTP PROJECT PROPOSAL**

Provide supporting information related to the project that is shown on the CTP. The information should be specific to the project on the CTP. Information related to the overall CTP development and development of solutions (alternatives and scenario analysis) would be located elsewhere in the CTP Report. The categories of information are listed below. While information from a CTP study may fit into multiple sections below, it should be documented in the most appropriate section and not repeated.

- [Project Description and Overview](#)
- [Natural & Human Environmental Context](#)
- [Relationship to Land Use Plans](#)
- [Linkages to Other Plans and Proposed Project History](#)
- [Multi-modal Considerations](#)

➤ [Public/ Stakeholder Involvement](#)

### **Project Description and Overview**

Include a short summary of the concept and justification for the proposed project. Identify users and benefits associated with the proposed project. While projects on the CTP may be interdependent, proposed projects should be able to stand on their own merit. If the benefits relate to other proposed projects, it should be made clear what the benefits are for the given project without the other project(s).

- Concept- general description of the proposed project
- Project concept and justification for concept
  - Description of the problem that this proposed project is intended to solve, possibly in combination with other system plan components (reference measures of effectiveness, as appropriate)
- Benefits
  - Users
  - Safety
  - LOS
  - Nature of demand

#### Data:

- Facility name(s)/ numbering
- Location (county, municipality, or other geographic identifier)
- Beginning and end points
- Traffic (existing and future estimate)
- Facility Type
- Number of Lanes (existing and proposed)
- Multi-modal elements, if proposed
- Area Type
- Sub-area boundary, if the proposed project was studied as part of a sub-area
- Geometric/ design considerations related to the proposed project's purpose
- Other pertinent information, such as interaction with other major proposed project(s) if it directly affects the purpose or implementation of the given proposed project

### **Natural & Human Environmental Context**

Document the identified protected resources and list special physical community attributes desired to be protected or enhanced in the proposed project area. Include information on whether the proposed project is part of conforming transportation plan in an air quality non-attainment/maintenance area, recognizing that any changes in timeline, scope, etc. could impact air quality conformity.

- Unique local assets/ resources important to the community
- Potential natural environmental impacts
- Potential community impacts, such as neighborhoods, sensitive assets, etc.
- If the proposed project is an element of a conforming air quality plan, identify the non-attainment pollutant and specify the assumptions made in the conformity report related to project scope, location, timeframe, etc.

#### Data:

- Description of the level of environmental screening conducted for the proposed project (if different than the general environmental screening conducted for the entire CTP), including any resource agency input for identification of priority avoidance areas or issues of concern

- Listing and locations of physical features of special importance to community in the proposed project area and their source(s), such as a local comprehensive plan, the land use priorities list developed as part of the CTP study, and/ or public involvement
- Natural environmentally sensitive areas in the proposed project area identified in the CTP environmental screening
- Describe findings from the CTP environmental screening- document whether the proposed project directly impacts or is near an environmental feature
- Environmental mitigation opportunities, as appropriate
- Information from NC Department of Environmental Quality – Division of Mitigation Services watershed plans

### **Relationship to Land Use Plans**

Include information specific to the proposed project concerning existing and future land use patterns, and other local priorities, considered in the CTP study.

#### Data:

- Information from the local land use plan(s) (specific to the proposed project and not already provided in the 'Community Vision' section above)
- Information pertaining to socio-economic data projection and inventory
- Information about alternative land use strategies studied
- Documentation of land use priorities that affect the proposed project
- Economic development impact
- Impact/ influence of the proposed project on land use (e.g. commute sheds, travel times for non-developed areas)
- Information from existing land use, environmental constraints and zoning maps
- Information from water and sewer plans

### **Linkages to Other Plans and Proposed Project History**

Include information about the proposed project's linkage to:

- Overall CTP
- Other plans [land use, local transportation, statewide corridors, environmental/conservation, specially administered lands (Federal, parks, etc.), economic development, etc.]
- Other projects (CTP projects, local projects, and/or TIP projects)- clearly state which projects were assumed to be committed, or funded, for the analysis conducted as part of the CTP study
- History/ background of the proposed project- document the evolution of the proposed project over time and previous transportation plan updates.
- Changes to the proposed project from previous recommendations and why the changes were made.

#### Data:

- Description of how the proposed project relates to system-wide goals and priorities, as identified in the CTP
- Proposed project's relationship to other plans (land use, infrastructure, local transportation, adjacent area(s) transportation, statewide corridors, economic development, other agencies' plans including environmental)
- Relationship to corridor/ overlay plans, sign/ setback/ tree ordinances, unified development ordinances, etc.
- Other related needs/ proposed project(s) identified in the CTP
- Relationship/ function/ role of the proposed project and related CTP elements, including how they change over time (evolution)

- Other projects (transportation and non-transportation, including bridge replacements) that should be addressed to fulfill overall CTP goals and address the problem/ need related to the given proposed project (include measures of effectiveness information as appropriate)
- Describe bridges within the proposed project's corridor that are structurally deficient, noting that their improvement should be coordinated with the proposed project
- Proposed project history, including length of time in local area plans, evolution of concept over time, etc.
- History of community support and/ or opposition to the proposed project
- Major past issues concerning the proposed project

### **Multi-modal Considerations**

Document how all modes were considered for the planning area during the CTP development process, as appropriate. Provide information on the type of modal analysis conducted, as it relates to the proposed project. There should also be an explanation if alternative modes were not analyzed as part of the CTP development process. If other modal project proposals are addressing part of the identified need, explain what part and clarify why the subject project proposal is still needed.

#### Data:

- Existing transit service and plans – fixed route and demand response
- Existing rail corridors (distinguish whether active or inactive and specify whether serves freight and/ or passenger rail)
- Statewide bike routes
- Local bike and/ or pedestrian plans
- Information on the modal analysis related to the problem and possible solutions, including demographic profile, population density, etc.
- Reference to local land use plans, as they relate to multi-modal considerations for the problem and possible solutions

### **Public/ Stakeholder Involvement**

Provide details from the public involvement process that relate to the proposed project (information should only be related to this specific problem or CTP project proposal; general CTP public involvement would be located elsewhere in the CTP Report).

- Public involvement feedback related to the proposed project, including description of how the public input was captured
- Description of how the problem statement is based on community values and how input was derived from public involvement efforts

#### Data

- Input received related to the proposed project
- Mechanism(s) for obtaining the input (surveys, public meetings, 'working group(s)' or organized team(s), etc.) including dates

## **MINIMUM PROBLEM STATEMENT GUIDANCE**

**Facility Name (SR #), Local ID: XXXX####-X** (include description of termini if there are multiple problem statements for a single corridor in the CTP area)

Although a 'minimum' problem statement may be concise, be sure to include all known or easily available information. All information that was considered during the decision-making process of the CTP study should be documented. Any relevant local plans should be referenced.

Include a concise description of the *problem* and a summary of the primary purpose(s) and any goals intended to be accomplished. Describe the transportation problem or need, based on deficiency or other data. Include information on how the problem relates to the context or vision of the community it is intended to serve.

Provide a description and known supporting information of the *proposed project* in the CTP, including a summary of the concept of the proposed project. Identify users and benefits associated with the proposed project. Include the following information:

- Document the identified protected resources and list special physical community attributes desired to be protected or enhanced in the proposed project area. Describe findings from the CTP environmental screening; document whether the proposed project directly impacts or is near an environmental feature. Include information on whether the proposed project is part of an air quality conformity determination.
- Include any important information about the proposed project's linkage to overall CTP, other plans, and/ or other projects.
- Document the proposed project's inclusion in previous transportation plans, including any major changes in the concept over time.
- Provide information about any alternative modes that relate to the proposed project.
- Include any important information from the public involvement process that relates to the proposed project (information should only be related to this specific problem or CTP project proposal; general CTP public involvement would be located elsewhere in the CTP Report).

\*Note: Minor project proposals may be grouped and documented together if they have a common need and purpose. This could be done by stating the problem and purpose(s) as described above. Then the specific project proposals may be presented as a bulleted list. This may be appropriate for roadway shoulder widenings or minor bicycle or transit recommendations, for example.

## ***PROBLEM STATEMENT THAT REFERENCES A PURPOSE AND NEED UNDERWAY OR COMPLETED GUIDANCE***

### **Facility Name (SR #), Local ID (TIP No.): X-####**

Include a concise description of the primary goals the proposed project is expected to accomplish and a summary of the concept and purpose. Mention other TIP projects or CTP Project Proposals that are related to this project, as well as any other important information. Include the following appropriate sentence to reference the Purpose and Need underway or completed:

- For projects that are administered by NCDOT's central office  
"For additional information about this project, including the Purpose and Need, contact NCDOT Environmental Policy Unit\*."  
\*Project Management Unit or other NCDOT business unit
- For projects that are administered by the NCDOT Division office  
"For additional information about this project, including the Purpose and Need, contact NCDOT Division "X" Office."

### ***Notes for incorporating Minimum & Reference Problem Statements into the CTP Report:***

\*Refer to the 'Development of Problem Statement' procedure for examples of Minimum and Reference Problem Statements.

- The header should be bold & underlined (do not use the blue rectangular box that is reserved for full problem statement headers).
- Multiple minimum and reference problem statements may be grouped on a page.
- If only one map is used for the PS, it should be right justified, and text should begin to the left of the picture.