CTP Indirect and Cumulative Effects Screening PROCEDURE

(CTP-ICE Product 3)

Transportation Planning Branch OR Project Development and Environmental Analysis Branch



Approved: Insert final approval date Version 1 (The most current version of the procedure will be numbered. Older versions will be archived.)

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Purpose

The purpose of this procedure is to describe how to conduct the Comprehensive Transportation Plan (CTP) Indirect and Cumulative Effects Screening. This screening will assess potential Indirect and Cumulative Effects (ICE) by analyzing the CTP Study Area (plan-level) and/or selected draft project proposals that undergo detailed alternatives analysis in long-range planning (project-level). This assessment will inform the identification and evaluation of alternatives and CTP scenarios in developing the Draft CTP. It may also be used as background documentation for subsequent NEPA-based ICE analysis during project development.

Background

Prior to the Indirect and Cumulative Effects (ICE) screening of the CTP Study Area and/or project proposals, the CTP-ICE Existing Conditions Assessment (Product 1) and the CTP-ICE Future Growth Potential Assessment (Product 2) will have been developed. As the Draft CTP is being developed, project proposals are developed and analyzed to address future transportation needs, given a land use scenario or multiple possible land use scenarios. Draft project proposals may include multi-modal alternatives for highways, public transportation, rail, bicycle, and pedestrian facilities. The CTP-ICE Screening may be conducted at a plan-level for the entire CTP Study Area, as well as for specific project proposals, if warranted.

Responsibility

The Transportation Planning Branch (TPB), Metropolitan Planning Organization (MPO) and/or Rural Planning Organization (RPO) staff will conduct the CTP-ICE Screening and draft the Technical Memoranda summarizing the results. The NCDOT PDEA Human Environment

Section-Community Studies (HES-CS) staff will review the results of the CTP-ICE Screening, including the matrices and Technical Memoranda.

Policy, Regulatory, and Legal Requirements

National Environmental Policy Act (NEPA) <u>http://ceq.hss.doe.gov/</u> State Environmental Policy Act (SEPA) <u>http://www.ncleg.net/EnactedLegislation/Statutes/HTML/ByChapter/Chapter_113A.html</u>

Scheduling and Time Constraints

This CTP Indirect and Cumulative Effects Screening occurs in the CTP Process during the evaluation of CTP scenarios and alternatives (CTP Steps 3c and 3d). As described in the CTP Guidance Manual and process chart (link), identifying and evaluating CTP scenarios and alternatives is based upon:

- Land Use constraints and policies
- Environmental considerations
- Measures of Effectiveness (MOEs) and Performance Targets (reflecting Community Vision and Goals/Objectives)
- Community Impacts
- Indirect/Cumulative impacts
- Other data as deemed appropriate

Procedures

The CTP-ICE Screening will assess the potential indirect and cumulative effects of the various CTP scenarios and alternatives as they are analyzed during development of a Draft CTP. The CTP-ICE Screening for Indirect Effects may be conducted at the plan-level when analyzing multiple land use scenarios, if applicable, and may also be applied at the plan-level to the Draft CTP in order to inform decision-making. The CTP-ICE Screening for Indirect Effects may also be applied to select project proposals that are undergoing detailed alternatives analysis (refer to the 'Alternatives and Scenario Analysis Procedure') prior to development of the Draft CTP. Selection of project proposals for this ICE screening may be based on the scope of the transportation proposals and the likelihood of indirect effects (using results from CTP-ICE Products 1 and 2 and knowledge of the Project Proposal Study Area). The CTP-ICE Screening for Cumulative Effects may be conducted for the Draft CTP (at the time the Indirect Effects screening is being done on the Draft CTP) in order to inform decision-making.

Since the Plan-Level Screening looks at the entire CTP Study Area, the results remain unchanged from the results in Product 1, which also considers the CTP Study Area. If new information is available since Product 1 was completed that changes the result, the Product 1 matrix needs to be changed so that it is consistent with the Product 3 Plan-Level Matrix.

Procedure Input -

- CTP-ICE Existing Conditions Assessment (Product 1)
- CTP-ICE Future Growth Potential Assessment (Product 2)
- Economic development plans and projections
- Draft CTP scenarios and alternatives

Procedure Output -

- CTP-ICE Screening Matrix for Indirect Effects (one matrix for the CTP plan-level screening and one for each alternative studied for each project proposal)
- CTP-ICE Screening Matrix for Cumulative Effects (one CTP plan-level matrix)
- CTP-ICE Screening for Indirect Effects Technical Memorandum (Part 1) (summarizing potential indirect effects for the CTP plan-level and/or specific project proposals studied)
- CTP-ICE Screening for Cumulative Effects Technical Memorandum (Part 2) (summarizing potential cumulative effects at the CTP plan-level)

Steps to Conduct a CTP-ICE Screening

Step	Action
1	The TPB/MPO/RPO staff will collect and review all data (CTP-ICE Products 1 and 2, economic development plans and projections, Draft CTP scenarios and alternatives) needed to conduct the CTP-ICE Screening for the CTP Study Area.
2	When applied to a specific project proposal, the TPB/MPO/RPO will identify and verify a Project Proposal Study Area, which is the area surrounding the project proposal that could possibly be indirectly affected by the proposed project. This area can be defined as the TAZs that encompass the identified potential alternatives for the project proposal. This area will be examined for potential increases in development pressure as a result of land use and transportation interactions.
3	The CTP-ICE Screening Matrix for Indirect Effects (link) will be utilized by the TPB/MPO/RPO staff to assess the CTP Study Area and/or for each alternative for selected project proposals. Note that the CTP-ICE Plan-Level Existing Conditions Matrix (Product 1) serves as the starting point for completing the Matrix for Indirect Effects. When applied at the plan-level (the entire CTP Study Area), the columns of the matrix except for the first two columns ('Scope of Transportation Plan Investments' and 'Macro Change in Accessibility') will be the same as the results from the Product 1 matrix. When applied to specific alternatives for selected project proposals, the ratings from the Product 1 matrix should be reassessed to determine if they are different for the Project Proposal Study Area. Staff will rank the first category in the Screening Tool, "Scope of the Transportation Investments", depending on the magnitude of the project proposal(s) in terms of land use/transportation interactions. Note that when applied at the plan-level this is the sum of all project proposals, but when applied to a project proposal it is only the proposed project being analyzed. The planner will qualitatively rank the category of Scope of Transportation Investment. When being applied at the plan-level the total of all transportation investment may be gauged by considering total lane-miles proposed to be added, cost estimates of total investments, etc. When being applied to a project proposal, major investments such as a new location bypass, major roadway widening, or new rail service would rank higher (more concern). Proposed roadways that are expected to result in greater capacity, increased travel speed, and/or major new access points (such as interchanges) would indicate a higher ranking as well.
4	The TPB/MPO/RPO staff will rank the next category on the Matrix, "Macro Change in Accessibility" in the CTP-ICE Screening Matrix for Indirect Effects depending on the magnitude of change in accessibility. The planner will rank the category of Macro Change in Accessibility qualitatively considering overall macro changes in access likely to result from the overall proposals for transportation investment if applying at the plan-level and from each alternative if applying to specific project proposals. Proposals including major roadway widening with full access control, higher frequency of new interchanges/intersections, and new location highways or freeways, with resulting changes in accessibility lead to a higher ranking (more concern). Proposals resulting in little or no change in access will be ranked in the lowest category.

5	The TPB/MPO/RPO staff will rank the next category on the Matrix, "Forecasted Population Growth" in the CTP-ICE Screening Matrix for Indirect Effects when applying the matrix to specific project proposals. A high ranking is based upon a greater than 3 percent annual population growth rate, and low being no population growth or a decline. When applying to a specific project proposal, this data is analyzed for the Project Proposal Study Area, defined as specific TAZs with potential effects (however, it is the same for each of the alternatives for a given project proposal). Note that when applying the matrix at the plan-level, this category remains unchanged from the results in Product 1 unless new information is available, such as data from the travel demand model or other analysis tool (in which case it needs to be changed in the Product 1 matrix to match what is determined for this matrix).		
	Rating	Forecasted Population Growth	
	High	Greater than 3% annual population growth	
	Medium High	Annual Population Growth >2% - 3%	
	Medium	Annual Population Growth >1% - 2%	
	Medium Low	Annual Population Growth >0% - 1%	
	Low	Annual Population Growth 0% or less (Decline)	
	Growth" in the CTP-ICE Screening Matrix for Indirect Effects when applying the matrix to specific project proposals. A high ranking is based on an employment growth rate greater than 3 percent, and low would be no job growth or job losses. When applying to a specific project proposal, this data is analyzed for the Project Proposal Study Area, defined as specific TAZs with potential effects (however, it is the same for each of the alternatives for a given project proposal). Note that when applying the matrix at the plan-level, this category remains unchanged from the results in Product 1 unless new information is available, such as data from the travel demand model or other analysis tool (in which case it needs to be changed in the Product 1 matrix to match what is determined for this matrix).		
	Rating	Forecasted Population Growth	
	High	Greater than 3% annual population growth	
	Medium High	Annual Population Growth >2% - 3%	
	Medium	Annual Population Growth >1% - 2%	
	Medium Low	Annual Population Growth >0% - 1%	
	Low	Annual Population Growth 0% or less (Decline)	
7	The TPB/MPO/RPO staff will rank the next category on the Matrix, "Available Land" when applying the matrix to specific project proposals. There are two options for developing this ranking. It may be done either qualitatively, using best professional judgment, or quantitatively, using GIS data (refer to the guidance that follows). When applying to a specific project proposal, consider for the corridor established for each alternative as part of the detailed alternatives analysis (usually a 1000-foot corridor). Note that when applying the matrix at the plan-level, this category remains unchanged from the results in Product 1 unless new information is available (in which case it needs to be changed in the Product 1 matrix to match what is determined for this matrix).		
	Available Land is defined to include undeveloped parcels of land (those without building structures) and underutilized parcels. Underutilized parcels are identified by selecting parcels		

	 in which the total value of improvements (i.e. buildings and/or structures) is less than the value of the parcel (i.e. land) without improvements. Available land does not include protected lands such as public parks, Voluntary Agricultural Districts (VADs), NCDOT on-site mitigation properties, or lands managed for conservation and open space. Other land that is not considered developable includes right of ways for roads and rail lines, rivers and streams, floodways and land protected by buffer regulations. Wetlands may be more difficult to develop; however, these are not excluded from the land considered developable, with the exception of tidal coastal wetlands. The TPB/MPO/RPO will rank the matrix based on the acreage provided in the GIS assessment. The qualitative method uses the staff's professional judgment to determine available land. Staff estimates qualitatively the amount of land in the CTP Study Area that is currently developed. Staff would then assess the remaining areas to determine whether the existing land use is likely to change and develop over the planning period. Staff may use aerial photography, the CTP Environmental Features Map, and existing and future land use maps to assist in this task. The qualitative method approximates existing levels of development using the expertise of local staff. The quantitative method uses GIS data to determine approximate acreage of available land. The TPB/MPO/RPO will use the acreage determined from this assessment of GIS data to enter a rating in the matrix, based on the rating categories described in the table below. 			
	Rating Available Land			
	High	60 + percent		
	Medium High	45 – 59 percent		
	Medium	30 – 44 percent		
	Medium Low	15 – 29 percent		
	Low	0 – 14 percent		
8	The TPB/MPO/RPO staff will rank the next category on the Matrix, "Water and Sewer Availability" in the CTP-ICE Screening Matrix for Indirect Effects, with high being ranked based on the provision of service being 100 percent of the municipality and 20 percent of the county, and low being limited or no existing service. Areas served by water and sewer service are determined by utilizing available GIS data, or estimates of available land, and discussions with local contacts to determine the portion of the CTP Study Area currently served and planned extensions of service. When applying to a specific project proposal, consider for the corridor established for each alternative as part of the detailed alternatives analysis (usually a 1000-foot corridor).			
	Note that when applying the matrix at the plan-level, this category remains unchanged from the results in Product 1 unless new information is available (in which case it needs to be changed in the Product 1 matrix to match what is determined for this matrix).			
9	The TPB/MPO/RPO staff will rank the next category on the Matrix, "Market for Development" in the CTP-ICE Screening Matrix for Indirect Effects. This category is more subjective, with information on development trends, and the current development pressures within the CTP Study Area being assessed, along with a review of the land development policies and regulations. A high ranking would denote abundant development activity, while a low ranking would indicate development activity is lacking. A review of building permits and applications and interviews with local zoning and permitting staff and economic development staff can provide information on market trends. Low-growth communities may wish to consider including their economic development strategies in making estimates of future land needs, and make adjustments to address unique community needs and features. When applying to a specific project proposal, consider whether any more specific information is known for the Project Proposal Study Area or the corridor established for the each alternative as part of the detailed alternatives analysis (usually a 1000-foot corridor) compared to how this category was assessed for the CTP Study Area for Product 1. Revise the assessment as appropriate if more specific information is known; otherwise, the result from Product 1 may be applied.			

	Note that when applying the matrix at the plan-level, this category remains unchanged from
	the results in Product 1 unless new information is available.
10	The TPB/MPO/RPO staff will review the rank of the next category on the Matrix, "Public Policy" in the CTP-ICE Screening Matrix for Indirect Effects based on the results from Product 1 and make changes if necessary when applying the matrix to specific project proposals. The highest rank is based on less stringent development policies and regulations, and no growth management plans or policies, and a low rank is based on more stringent policies and growth management. When applying to a specific project proposal, consider whether any more specific information is known for the Project Proposal Study Area. Revise the assessment as appropriate if more specific information is known; otherwise, the result from Product 1 may be applied. Note that when applying the matrix at the plan-level, this category remains unchanged from
11	the results in Product 1 unless new information is available. The TPB/MPO/RPO staff will rank the next category on the Matrix, "Notable Environmental Features" in the CTP-ICE Screening Matrix for Indirect Effects when applying the matrix to specific project proposals. The ranking is based on the sensitivity and abundance of notable environmental resources. Sensitivity of an environmental feature can be determined by consulting local, state, and federal regulations, programs, and agencies overseeing these notable resources such as the NC Division of Water Resources. As this category is qualitative, the staff's best professional judgment should be used to take into account both the sensitivity and abundance of the resource. For example, if there are a few notable environmental features, this category may be given a medium ranking since abundance is low but sensitivity is high. Note that a high ranking would constitute several environmental features that are more sensitive, and a low ranking would indicate that there are very few environmental features that are less sensitive.
	The results from the detailed alternatives analysis should be used to inform this assessment. The level of potential impacts quantified for the corridor (usually the 300-foot center of the 1000-foot corridor) of each alternative is used to rank the magnitude of potential impacts. This information must be combined with a qualitative assessment of how sensitive and abundant the resource is to determine an overall ranking. Note that when applying the matrix at the plan-level, this category remains unchanged from the results in Product 1 unless new information is available. Refer to Product 1 Procedure for additional guidance.
12	Upon completing the individual assessment of each category in the matrix, results of the CTP-ICE Screening Matrix for Indirect Effects are then reviewed comprehensively to evaluate the existing conditions on a macro level. The matrix tool automatically uses the ratings entered for the categories to determine an overall rating of more or less concern, which is shown in the 'Results' column. The completed CTP-ICE Screening Matrix for Indirect Effects results are to be included in the Technical Memorandum developed in Step 13 below. When applied to specific project proposals, the result from the matrix is also to be entered into the 'Potential for Indirect Effects Level' column of the 'CTP Alternatives Studied in Detail Evaluation Table' from Alternatives and Scenario Analysis (ASA) and used in decision-making on the project proposal.
13	The TPB/MPO/RPO staff will draft a Technical Memorandum which will contain the CTP-ICE Screening Matrix for Indirect Effects and narrative summary of the assessment, as it was conducted at the plan-level and/or for specific project proposals. When applied to project proposals, the summary will provide a narrative description of the results of the CTP-ICE Screening Matrix for Indirect Effects for each alternative, a population and employment trends summary; an inventory of notable human and natural environmental features; a summary of existing and planned water and sewer infrastructure; a summary of existing development and environmental regulations; available land calculations; a summary of market for development conclusions; a description of identified Probable Development Areas. The categories listed on the CTP-ICE Screening Matrix for Indirect Effects can influence land development decisions in numerous areas. The measures used to rate the

	impacts from a high concern for indirect effects potential to less concern for indirect effects potential are supported by documentation sections of the Technical Memorandum summary. Each characteristic is assessed individually and the results of the CTP-ICE Screening Matrix for Indirect Effects are evaluated comprehensively to determine the indirect effects potential of the macro-level alternatives. The screening results are summarized in a narrative format and included in the CTP-ICE Screening for Indirect Effects Technical Memorandum (Part 1). The TPB/MPO/RPO staff will highlight the primary factors that affected the screening result in the summary. The intent of the Technical Memorandum is document the rationale behind the analysis.
14	The TPB/MPO/RPO staff, upon completing the CTP-ICE Screening Matrix for Indirect Effects, including the Technical Memorandum (Part 1), may then assess the potential cumulative effects of the CTP utilizing the CTP-ICE Screening Matrix for Cumulative Effects. The CTP-ICE Products 1 and 2 will be utilized to complete Product 3 Cumulative Effects Screening. The CTP-ICE Screening Matrix for Cumulative Effects template (link) will be utilized by the TPB/MPO/RPO staff to complete this assessment on multiple land use scenarios and/or the Draft CTP in order to inform decision-making. Resource agencies will be engaged to help identify 'past actions' that need to be considered in evaluating cumulative effects in the CTP Study. The CTP – ICE Product 3 Part 2 – Cumulative Effects Interview Form (link) is available to assist with the resource agency and municipality interviews.
15	The TPB/MPO/RPO staff will rank the first category in the Screening Tool, "Notable Cultural Features", including past (public and private) actions, current activities and future development on a scale of less concern for features incorporated into local planning and protection, or more concern for unique resources not protected or recognized. "Notable Cultural Features" are generally defined as elements within the community that add to its history, identity, and/or social fabric. For example, cultural features include: museums, historic districts/properties, etc This matrix takes a macro view and by definition will assess the potential for cumulative effects. Therefore, this is a more subjective analysis and will not require a very detailed compilation of past, present and future actions.
16	The TPB/MPO/RPO staff will rank the second category in the Screening Tool, "Notable Community Features", including past actions, current activities and future development on a scale of less concern for features incorporated into local planning and protection, or more concern for unique resources not protected or recognized. "Notable Community Features" are generally defined as resources within the community that serve a function and add to the quality of life, including features such as: community centers, churches, schools, and parks.
17	The TPB/MPO/RPO staff will rank the third category in the Screening Tool, "Notable Water Quality Features", including past actions, current activities and future development on a scale of less concern for features incorporated into local planning and protection, or more concern for unique resources not protected or recognized.
18	The TPB/MPO/RPO staff will rank the fourth category in the Screening Tool, "Notable Natural Habitat Features", including past actions, current activities and future development on a scale of less concern for features incorporated into local planning and protection, or more concern for unique resources not protected or recognized.
19	The TPB/MPO/RPO staff will complete the CTP-ICE Screening for Cumulative Effects Technical Memorandum (Part 2), to include the CTP-ICE Screening Matrix for Cumulative Effects results and a narrative summary. The staff will draft a narrative description of the results of the CTP-ICE Screening Matrix for Cumulative Effects which will indicate that cumulative effects are expected, likely, possible, not likely, or not expected. The categories listed on the CTP-ICE Screening Matrix for Cumulative Effects and the level of concern for those features/resources and the degree to which they are incorporated into local planning and protection will indicate the relative likelihood of the alternative's potential cumulative effects. The measures used to rate the effects from a high concern for cumulative effects potential to less concern are supported by documentation sections of the Technical Memorandum summary. The Technical Memorandum should clearly document input from

	local officials, assumptions made, and rationale in determining the values for the various categories in the matrix. Each of the four categories are assessed for past actions, current activities, and future development and the results of the CTP-ICE Screening Matrix for Cumulative Effects are examined to determine the cumulative effects potential of the macro-level alternatives. The screening results are summarized in a narrative format and included in the CTP-ICE Screening for Cumulative Effects Technical Memorandum (Part 2). The TPB/MPO/RPO staff will highlight the primary factors, key influences that affected the screening result in the summary.
20	The TPB/MPO/RPO staff will transmit Product 3 outputs to PDEA HES-CS Staff Planners for review and comment. TPB/MPO/RPO staff will then receive comments from HES-CS and revise as appropriate the Product 3 matrices and Technical Memoranda. After the CTP-ICE Screening documentation is finalized, it is to be distributed to appropriate recipients and may be used in subsequent steps of the CTP process and the decision-making for the CTP. Ultimately, the CTP-ICE assessment documentation will be included in the final CTP Study Project File and referenced/included in other study documentation, as appropriate. These products may also be used to inform project development (NEPA/Merger process) and would typically be shared during the scoping process.

Resources and Tools

- CTP-ICE Screening Matrix for Indirect Effects (link)
- CTP-ICE Screening Matrix for Cumulative Effects (link)
- CTP ICE Product 3 Part 2 Cumulative Effects Interview Form (link)
- CTP-ICE Screening for Indirect Effects Technical Memorandum Template (Part 1) (link)
- CTP-ICE Screening for Cumulative Effects Technical Memorandum Template (Part 2) (link)
- CTP-ICE Screening for Indirect Effects Technical Memorandum & Matrix Example (Part 1) (link)
- CTP-ICE Screening for Cumulative Effects Technical Memorandum & Matrix Example (Part 2) (link)

Flowchart

Comprehensive Transportation Planning Process

Record of Revision

Version	Section Affected	Description	Effective Date

For more information, refer to the "<u>Revising and Archiving Procedures</u>" procedure.

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