

CTP-ICE Existing Conditions Assessment TECHNICAL MEMORANDUM (CTP-ICE Product 1)



Date:	Revision: Date: Date of Original Version:
To:	NCDOT Transportation Planning Branch Regional Unit Head, TPB NCDOT Community Studies Team Leader, HES
From:	Staff, TPB/MPO/RPO
Subject:	CTP-ICE Existing Conditions Assessment and Matrix for the 2009 Eden CTP

This Technical Memorandum documents the Indirect and Cumulative Effects (ICE) Existing Conditions Assessment for the Eden 2009 Comprehensive Transportation Plan (CTP).

Transportation Planning Branch and Metropolitan Planning Organizations (MPOs) and/or Rural Planning Organizations (RPOs) have conducted this existing conditions assessment and produced the CTP-ICE Plan-Level Existing Conditions Matrix and Technical Memorandum. The NCDOT Human Environment Section-Community Studies (HES-CS) planners reviewed the work products and provided comments to the MPO/RPO and TPB Staff to ensure consistency between long-range planning and the NEPA process during project development.

Overview and Characterization of the CTP Study Area

The CTP Study Area (*see CTP Study Area Map(s)*) is approximately 41,800 acres and includes the City of Eden and unincorporated land in Rockingham County. The City is located at the center of the CTP Study Area and has a population of approximately 15,527 people according to 2010 Census. Rockingham County has a population of 93,643. The northern boundary of the CTP Study Area is the North Carolina-Virginia state line. The Dan and Smith rivers are major water bodies that flow through the area. Several state highways are in this region and include: NC 14-87, NC 135, and NC 770.

References: US Census 2010 Demographic Profile

CTP-ICE Plan-Level Existing Conditions Matrix Results

The CTP-ICE Plan-Level existing Conditions Matrix documents the existing conditions within the CTP Study Area and completes a preliminary screening of seven human and environmental factors at the CTP Study Area level. Each of the seven factors received a qualitative ranking, varying from low to high concern, relative to anticipated indirect effects resulting from the seven human and environmental factors. For instance, the Forecasted Employment Growth factor received a medium-low ranking because the population of the CTP Study Area is not expected to grow substantially; therefore indirect effects resulting from a growing population would not be

expected. When rankings from each of the other factors were compiled, the cumulative result was that *indirect effects are likely*. Three factors were ranked with a medium-high concern or greater: available land, water/sewer availability, and notable environmental features. These three factors account for the likely indirect effects that are expected for the CTP Study Area. Additional information on the assessment for each of the seven factors follows.

CTP Plan ICE Screening Tool Matrix Methodology

Product 1: CTP - ICE Plan-Level Existing Conditions Matrix: Eden CTP Study Area								
Rating	Forecasted Population Growth	Forecasted Employment Growth	Available Land	Water/Sewer Availability	Market for Development	Public Policy	Notable Environmental Features	Result
More Concern	> 3% annual population growth	> 3% increase New Jobs Expected	40% or greater of available land*	Services available [muni 100%; county 20% of area]	Development activity abundant	Less stringent; no growth management	Notable Feature(s): Abundant / More Sensitive	
High				X				
Medium-High			X				X	Likely Indirect Effects
Medium						X		
Medium-Low	X	X			X			
Low								
Less Concern	No population growth or decline	No new Jobs or Job Losses	0 - 9% of available land*	Limited or no service available now or in future	Development activity lacking	More stringent; growth management	Notable Feature(s): Minimal / Less Sensitive	

*Refer to Product 1 Procedure for rating descriptions

Figure 1 – See attached matrix for larger image

Forecasted Population Growth

Ranking: Medium Low

Population growth was forecasted for the CTP Study Area using data from the U.S. Census and Transportation Analysis Zones (TAZ). The annualized growth rate for the CTP Study Area including the City and unincorporated land in Rockingham County was determined to be 0.22 percent. This rate compares to the 0.21 percent annualized growth rate estimated by the Eden Thoroughfare Plan adopted by the City in 1996. Given this modest growth rate and the lack of large development projects, *Forecasted Population Growth* was ranked as a medium-low concern.

References: Eden Thoroughfare Plan (1996); Piedmont Triad Regional Council (2007); U.S. Census Bureau (1970-2000)

Forecasted Employment Growth

Ranking: Medium Low

The employment growth for the CTP Study Area is projected to increase from 8,240 jobs in 2007 to 10,854 jobs in 2035, calculated based off an initial growth ratio of 0.323 (2007

employment/population rates). Employment growth is anticipated for 2015 and 2025 at 8,830 and 9,822, respectively. Despite past decreases in employment due to industry closures, rates are expected to plateau before gradually rising to the 2035 projection. Manufacturing, retail trade, and health care/social assistance are the top employment industries in the CTP Study Area. With annual employment growth rates projected to be between zero and one percent for the CTP Study Area, the *Forecasted Employment Growth* was ranked as a medium-low concern.

References: Eden Thoroughfare Plan (1996); Piedmont Triad Regional Council (2007); U.S. Census Bureau (1970-2000)

Available Land

Ranking: Medium High

To evaluate Available Land, existing land use in the CTP Study Area, which includes Eden and unincorporated land in Rockingham County, was assessed. The total area is 41,800 acres. The unincorporated land is within Eden's Extraterritorial Jurisdiction (ETJ). The Rockingham County Land Use Plan, Eden Land Development Plan, zoning ordinances, and aerial photography were used in this qualitative assessment to estimate the amount of available land and regulations pertaining to it.

The City of Eden itself is nearly entirely developed with some opportunity for in-fill development. The City of Eden represents approximately 8,900 acres, or 21 percent of the CTP Study Area. For areas where in-fill development is likely to occur, the City of Eden Land Development Plan advises growth to be compact and urban. Specifically the plan encourages a connected road network, mixed use development, the creation of activity centers instead of strip development, and cluster development where land is preserved as open space. Adopted in 2007 by the Eden City Council, these four principles support sustainable, compact growth and depend on inclusion in Eden's zoning ordinances.

Land outside of Eden's municipal limits is less developed and currently rural in nature. This region constitutes approximately 32,900 acres, or 79 percent of the CTP Study Area. Despite this representing a significant portion of the CTP Study Area with the potential for development, there are a number of growth management provisions guiding its development. The Eden Land Development Plan preserves this area's current land use through Rural Residential (RR) zoning. Under this designation, land is limited to one dwelling unit per acre and is outside city limits and public sewer. This zone effectively limits the development potential of this area for intense uses such as dense neighborhoods, strip malls, or factories.

The Rockingham County Land Use Plan also guides the development of this region. Similar to the Eden Land Development Plan, it seeks managed growth that brings prosperity while conserving the county's natural resources. To accomplish that vision, the Rockingham County Land Use Plan promotes alternatives to suburban sprawl that require less land. As for the unincorporated land within the CTP Study Area, the Rockingham County Land Use Plan classifies it as Urban Transition. Residential densities in this class may be up to 3 to 5 dwellings

per acre. The Rockingham County Land Use Plan permits higher intensity development in this region than that of the Eden Plan. However, this region is within Eden's ETJ so development would likely reflect the stricter zoning in the city's land use/land development plan.

The total amount of available land was approximated to be 24,000 acres or 57 percent of the CTP Study Area according to estimates from aerial photography and the city and county land use plans. Although this amount of available land would typically be ranked as a high concern, *Available Land* was ranked as a medium-high concern given that the adopted land use plans encourage compact urban land use and preserve existing rural lands.

References: City of Eden Land Development Plan (2007); City of Eden Zoning Ordinance (2008); Rockingham County Land Use Plan (2005)

Water and Sewer Availability

Ranking: High

In the CTP Study Area, water and sewer service are provided by the City of Eden. In 2012, the city's total available water supply was 24.17 MGD and total demand 6.06 MGD (25 percent of supply). The total demand reflects Eden's water sales to Dan River Water, Inc. and Henry County, VA. The available water supply is anticipated to remain at 24.17 MGD during the planning horizon (2012 to 2060). During this same period, the total demand is projected to increase from 6.06 MGD in 2012 to 7.04 MGD in 2060, representing an annualized rate of 0.3 percent. This indicates a total increase of 16.2 percent. The City operates 170 miles of distribution lines currently. Dan River Water, Inc. has plans to extend water service outside of the city. According to both capacity figures and the Eden Land Development Plan, there is an adequate water supply for the city currently and for future development.

The sewer system for the City of Eden consists of more than 161 miles of gravity and 19.4 miles of force main pipelines. The Mebane Bridge Wastewater Treatment Plant handles all wastewater for Eden and is permitted for 13.5 MGD. In 2012, its average annual daily discharge was 2.98 MGD. Future projections for wastewater were not available, but similar to projected water use, wastewater is not expected to increase substantially either. There are currently no plans to expand the wastewater treatment facilities. This capacity is adequate for existing and future development.

Rockingham County purchases water from the City of Reidsville and Town of Madison, and then distributes water to residents outside of these municipalities. Wastewater for these residents is treated by the City of Eden and the Town of Madison. These residents are not located in the CTP Study Area.

Given that water and sewer service is provided in 100 percent of the City of Eden and over 20 percent in Rockingham County, a high rank was given to *Water and Sewer Availability*. This ranking was also based on the large capacity for future water and sewer demand.

References: Eden Land Development Plan (2007), Water and Sewer Map (Page 33, 34); NC Center for Geographic Information and Analysis: Type A Future Public Water Systems (2006); NC Water, ncwater.org; Rockingham County Land Use Plan (2005)

Market for Development

Ranking: Medium Low

According to the U.S. Census, the populations of Eden and the CTP Study Area have remained relatively constant over the past few decades and are not expected to increase significantly. The CTP Study Area population is projected to grow only 0.22 percent per year. The number of households required by this growth was also projected from Transportation Analysis Zones (TAZ) data. Using historical persons per dwelling unit ratios, the number of households is forecasted to increase from 10,628 in 2007 to 12,169 in 2035, representing an annual growth rate of 0.49 percent. According to the Rockingham County Land Use Plan, there was a decline in new housing development from 2000 to 2005. Of the residential construction that has occurred, most has been in the southwestern part of the county, which is outside of the CTP Study Area. Out of the 60 major subdivisions built from 1995 to 2005, only one was in the CTP Study Area.

The market for commercial or industrial development is currently low and not expected to increase substantially. The annual employment growth rate is projected to be between zero and one percent for the 2035 planning horizon. Given that minimal development is occurring and that the trend is expected to continue, *Market for Development* is ranked as a medium-low concern.

References: Rockingham County Land Use Plan (2005); Piedmont Triad Regional Council (2007); U.S. Census Bureau (1970-2000)

Public Policy

Ranking: Medium

The City of Eden presently adheres to moderate growth management policies employing two main policy tools: zoning and subdivision ordinances. Zoning ordinances for the City are the primary tool used to ensure land uses and densities are controlled while also providing access to adequate public services. The City currently operates under a *general use* type of zoning ordinance that corresponds with the existing city limits and the ETJ. Subdivision ordinances are used extensively in the City as a way to coordinate proposed and existing development, ensure adequate facilities and conditions for subdivisions, and protect the option to subdivide land. The City of Eden also has a flood damage prevention ordinance in effect that provides additional health and safety standards in flood prone areas.

The City aims to implement more stringent development policies as the area grows. Zoning ordinances and subdivision regulations are recommended to be used as they correspond to

land use provisions and the ability to encourage future road construction and expansion. Key elements to manage growth for the future include:

- Protecting right-of-ways for future potential development and transportation improvements
- Expansion of the ETJ boundary to better control land development and streamlining zoning districts to allow for increased mixed-use development
- Preservation of open space, greenways, and riparian buffers
- Increased development of Planned Unit Developments (PUDs), mixed-use developments, and preservation of traditional neighborhood development
- Increased regional coordination with surrounding jurisdictions (Rockingham County) to ensure mutually supporting growth including transitional and conservation areas

Public Policy was given a medium ranking for the City and County's moderately stringent policies and regulations for development in the CTP Study Area. With existing zoning and subdivision ordinances, the City and County have dedication to growth management, but until more stringent regulations are enacted, the effectiveness of *Public Policy* is ranked as medium.

References: City of Eden Zoning Ordinance (2008); Rockingham County Land Use Plan (2005)

Notable Environmental Features

Ranking: Medium High

The CTP Study Area has an abundance of notable environmental features with more sensitivity including natural heritage areas officially designated as Registered Heritage Areas by the North Carolina Natural Heritage Program. Seven heritage areas are recognized, of which only two are officially registered and the remaining five are privately owned. The US Fish and Wildlife Service is the monitoring agency for wetland areas throughout Eden. The North Carolina Agricultural Extension Service has documented high-quality soil for farmland use and is an important natural feature in the City of Eden. The rivers and streams in the area are also of high quality and are not included in North Carolina's 303(d) list of impaired streams. Regionally, it is recognized that the Smith and Dan Rivers require water quality improvements due to historic industrial use of the water systems. Many of these environmental areas are also home to Federally Listed Threatened and Endangered Species.

Because of the relative abundance and sensitivity of natural environmental features, this category has been given a medium-high ranking.

References: Environmental Features Map; North Carolina Agricultural Extension; North Carolina Natural Heritage Program, <http://www.ncnhp.org/>