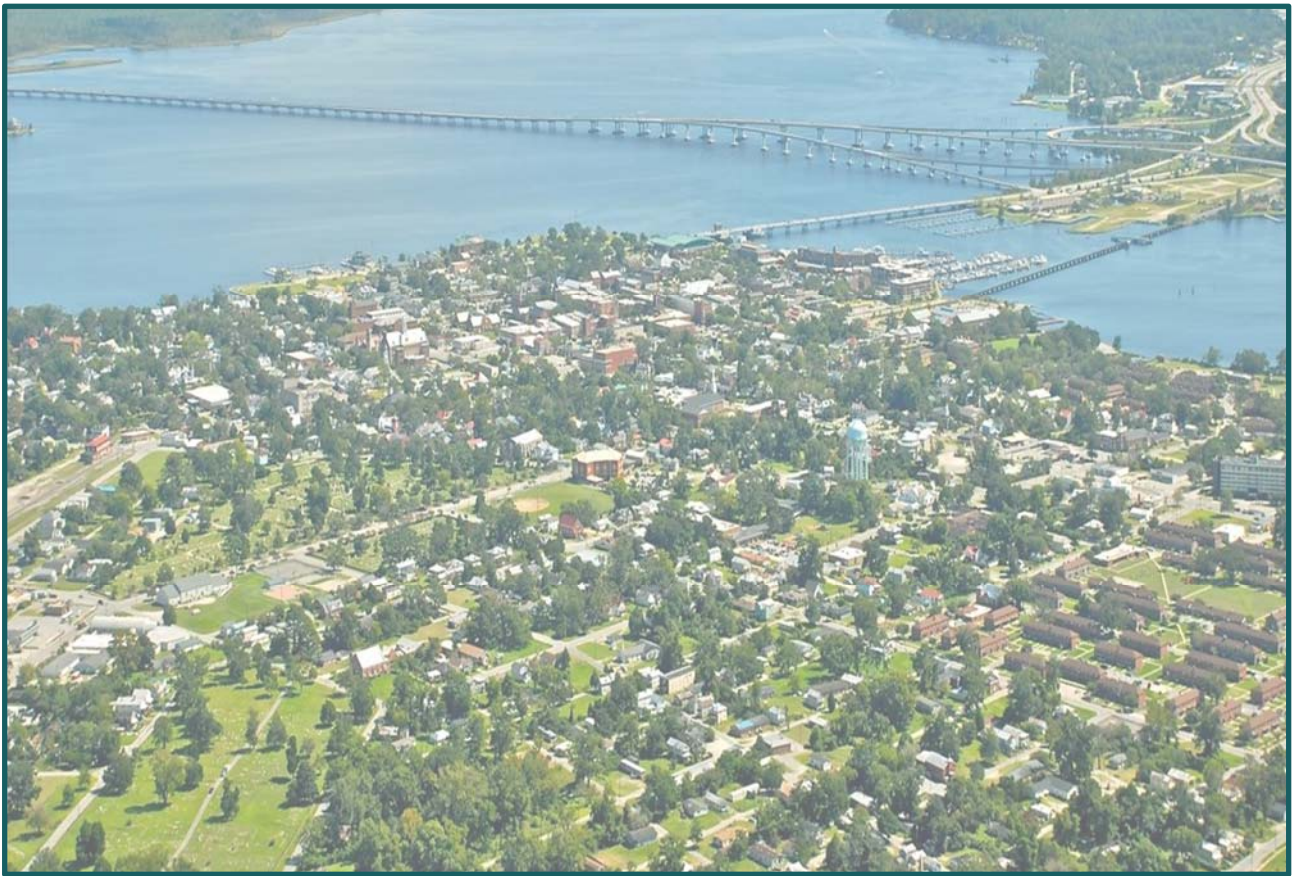


NBAMPO Indirect and Cumulative Effects Assessment for the New Bern Area MPO 2040 Metropolitan Transportation Plan (Destination 2040)



February 12, 2016



Executive Summary

The North Carolina Department of Transportation's (NCDOT's) Transportation Planning Branch (TPB), in partnership with the New Bern Area Metropolitan Planning Organization (NBAMPO), completed an Indirect and Cumulative Effects (ICE) Assessment as part of the NBAMPO's 2040 Metropolitan Transportation Plan (MTP) development process. Four primary products were prepared as part of the ICE Assessment, with each product building off of one another, as follows:

- Product 1: Existing Conditions Assessment
- Product 2: Future Growth Potential Assessment
- Product 3: Indirect and Cumulative Effects (ICE) Screening
- Product 4: Best Management Practices Recommendations

These products were prepared based on the guidance included in NCDOT's draft *CTP-ICE Procedures and Tools*, revised July 2014, and coordination with regulatory and jurisdictional agencies (details included in Attachment 1). This effort is one part of a larger NCDOT initiative to integrate the long-range planning process with the environmental review process (i.e., National Environmental Policy Act [NEPA]/State Environmental Policy Act [SEPA]). As the MTP development process provides a comprehensive and integrated plan for an area's future transportation needs, incorporating the evaluation of potential indirect and cumulative effects (i.e., impacts caused by a plan or project which occur later, or are removed in distance, but reasonably foreseeable; and incremental impacts of a proposed action added to other past, present and future actions) at this stage provides value to, and consistency between, long-range planning and project development.

NBAMPO 2040 Metropolitan Transportation Plan (MTP)

The NBAMPO MTP Study Area evaluated in the ICE Assessment was approximately 106,221 acres and included the City of New Bern, Town of River Bend, Town of Trent Woods, Town of Bridgeton, and unincorporated land in a portion of Craven County. The MTP identifies future transportation deficiencies and investments and system improvement recommendations for all modes of transportation necessary to meet the transportation needs of the region through the design year of 2040. The projects proposed in the MTP are varied in scope, purpose and need, and location. The majority of the projects are related to existing location roadway improvements and those on new location. These roadway projects represented the MTP scenario analyzed in the ICE Assessment. In addition, the MTP includes projects related to other modes of transportation such as public transit, rail, bike and pedestrian.

ICE Assessment

Product 1 – Existing Conditions Assessment

The MTP-ICE Plan-Level Existing Conditions Assessment (Product 1) documented a preliminary screening of seven human and environmental factors at the MTP Study Area geography, including forecasted population and employment growth, available land, water and sewer availability, market for development, public policy, and notable environmental features. Each of the variables received a qualitative rating, varying from “lesser likelihood” to “greater likelihood”, relative to anticipated indirect effects resulting from the human and environmental factors. After compiling the ratings from each of the factors, the cumulative result was determined to be “possible” indirect effects. The great amount of notable environmental features in the MTP Study Area weighed heavily in this result, as did the amount of land available for development and the availability of water and sewer services, each representing a higher likelihood for indirect effects. However,

the forecasted population and employment growth, along with the more stringent local growth management policies (rating at a lesser likelihood) offset categories of higher likelihood.

Product 2 – Future Growth Potential Assessment

Product 2 is an assessment of the potential for growth in the MTP Study Area and could be used to inform the MTP planning process, including the development of land use scenarios and alternatives. Product 1 was used as a baseline, and the comprehensive and land use plans of the various jurisdictions within the MTP Study Area were evaluated to identify land use, zoning, water and sewer infrastructure, development limitations, and natural and cultural features. These factors, when assessed together, provided insight into future growth potential. Socioeconomic data from the New Bern MPO travel demand model for each of the Traffic Analysis Zones (TAZ) on forecasted population and employment growth was analyzed for the MTP Study Area to determine the areas of future growth potential, both short-term (within the next 10 years) and long-term (>10 years).

Growth in the MTP Study Area was expected to continue based on the socio-economic data projections for the MPO travel demand model and local plans. Craven County and the City of New Bern are actively promoting economic development and growth, the cultural and natural resources continue to attract people to the area, and infrastructure capacity exists. Furthermore, the positive economic trends in the area, quality of life, employment opportunities, and rail access are important drivers in the projected growth. The numerous natural resources and conservation efforts, in combination with the presence of regulatory policies and growth management, are expected to focus development and growth into specific areas.

Product 3 – ICE Screening

The ICE Screening (Product 3), using the results of Products 1 and 2, is an assessment of the potential indirect and cumulative effects of the NBAMPO MTP (plan-level) scenario and four selected proposed projects. The plan-level of the MTP proposed projects resulted in a rating of “likely” indirect effects. While the proposed projects vary in size, scope, purpose and impact, the combination would result in changes to accessibility, capacity, and travel patterns within the MTP Study Area. These potential changes combined with the area’s available land, water and sewer service, and sensitivity and abundance of notable environmental features were the drivers for the indirect effects screening results, as detailed in Product 3.

The screening of cumulative effects for the overall MTP plan, when considered in the context of other past, present, and future actions resulted in a rating of “possible” cumulative effects to the area’s community and natural features. The potential direct natural environmental impacts by the proposed projects would require avoidance, minimization, and mitigation, consistent with prevailing regulations and coordination with environmental resource agencies. In addition, the MTP’s proposed projects and future development would be required to follow federal, state and local regulations for protecting resources.

Product 4 – Best Management Practices Recommendations

Overall, the findings of the ICE Assessment indicated a rating of “possible” cumulative effects to notable community features and natural features in the MTP Study Area. Product 4 outlines planning guidance and tools that could be used by the local jurisdictions within the MTP Study Area to assist in minimizing potential indirect and cumulative effects from proposed projects in the 2040 NBAMPO MTP. Some examples of these tools include Smart Growth policies, zoning ordinance revisions, transfer of development rights (TDR) programs for farmland protection, and green infrastructure planning.

Implementing one or more of these strategies to protect important natural and community resources may assist in streamlining future transportation project delivery, as project permitting focuses on avoiding and minimizing effects to resources in the vicinity of proposed projects. Some resources provide not only planning guidance, but funding opportunities, and grant-writing assistance for local communities. Using these resources, which provide lessons learned and example documents from similar communities, would assist in reaching the goals in the MTP Study Area.

Set the Scene - Technical Memorandum for 2040 New Bern MTP –ICE

(Destination 2040)

Existing Conditions Assessment and Matrix

(MTP-ICE Product 1)

Revision Date: February 12, 2016

Date of Original Version: October 20, 2015

This Technical Memorandum documents the Indirect and Cumulative Effects (ICE) Existing Conditions Assessment for the 2040 New Bern Area Metropolitan Transportation Plan (MTP). This Technical Memorandum was prepared with the assistance of the New Bern Area Metropolitan Planning Organization (NBAMPO), NCDOT Transportation Planning Branch (TPB), and NCDOT Human Environment Section-Community Studies group (HES-CS). This coordination is intended to ensure consistency between long-range planning and the requirements of the National Environmental Policy Act (NEPA) during project development.

Overview and Characterization of the MTP Study Area

The MTP Study Area (see Figure 1) is approximately 98,577 acres (see Table 1 for definition) and includes the City of New Bern, Town of River Bend, Town of Trent Woods, Town of Bridgeton, and unincorporated land in a portion of Craven County. The remaining portion of Craven County is part of the Down East Rural Planning Organization. As shown in Table 2, jurisdictions within the MTP Study Area have populations ranging from 454 people (Town of Bridgeton) to 103,505 people (Craven County – a portion of this total is included in the MTP Study Area).

The City of New Bern is located at the center of the MTP Study Area. The northern and southern boundaries of the MTP Study Area include some of the unincorporated parts of Craven County (the remainder of the County is not included in the NBAMPO). Pamlico County borders to the east, and Jones County borders to the west of the NBAMPO. The Neuse River and Trent River are major water bodies that flow through the area into the Pamlico Sound. Two US highways and two state highways are in this region: US 17, US 70, NC 55, and NC 43.

New Bern is rich in history and culture. The City is the second-oldest colonial town in North Carolina, was the capital of the North Carolina colonial government, and was the state capital for a short period of time. The award-winning museums, art galleries, historic resources and Swiss influences make New Bern a culturally diverse place. In part because of New Bern's appeal, it has become an attractive retirement destination. In addition, agriculture, particularly timbering, is present in the MTP Study area.

The MTP Study Area is also rich in notable natural features, including the Croatan National Forest and surrounding water bodies, the Neuse and Trent Rivers. Located between New Bern and Emerald Isle, the Croatan National Forest is made up of 161,000 acres and features coastal and inland swamp habitats. The forest is expansive and undeveloped and spreads in an area between Morehead City, Cape Carteret and New Bern. The waterfronts, history, entertainment, highway access, and the Coastal Carolina Regional Airport attract tourists throughout the year.

Figure 1. MTP Study Area

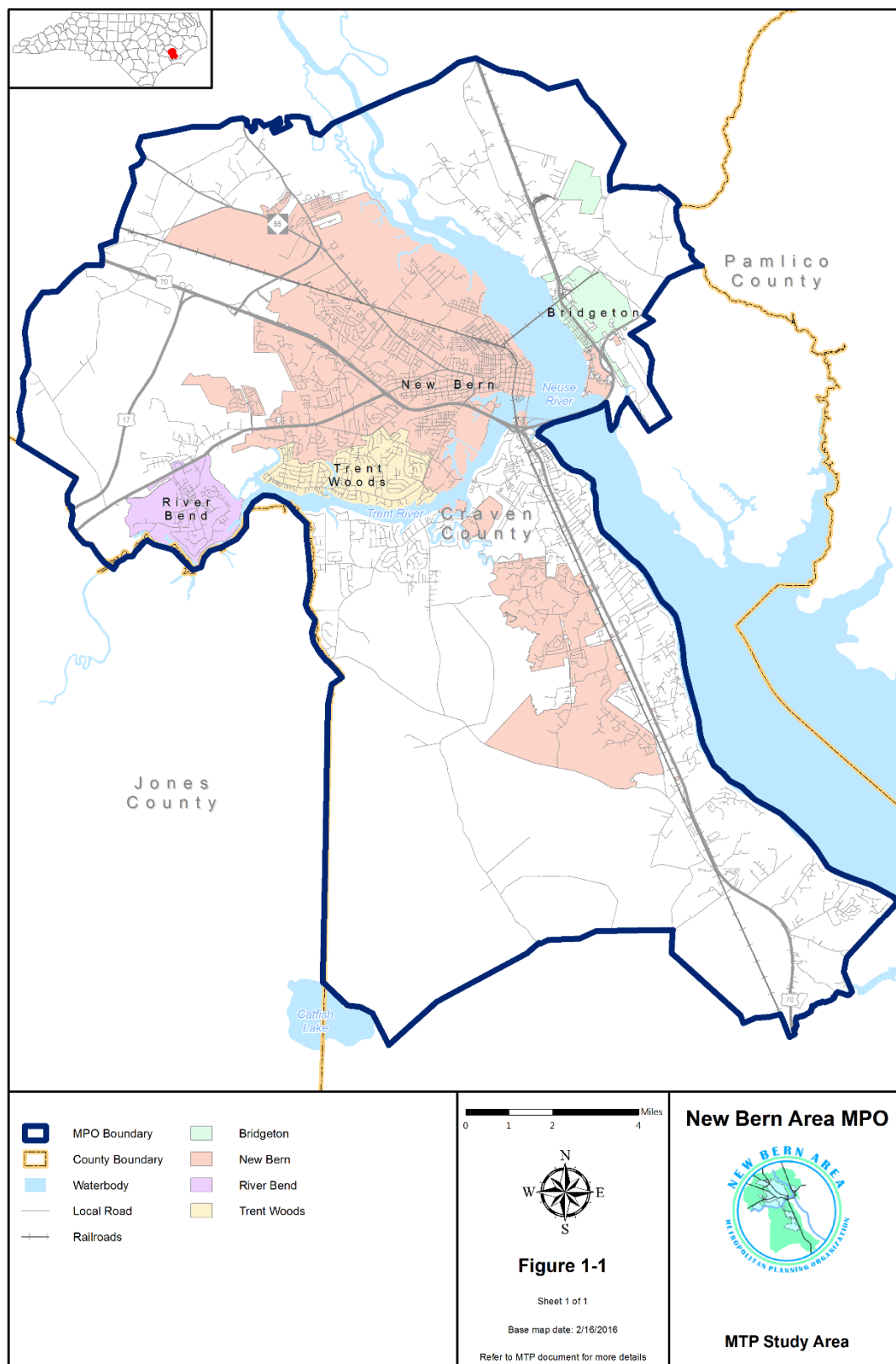


Table 1. MTP Study Area

Criteria	Acres
MTP Study Area (total)	98,577
Water, tidal wetlands*, and transportation infrastructure right-of-way (roads, rail lines)	10,346
MTP Study Area without water, tidal wetlands, and transportation right-of-way	88,231

* Tidal wetlands areas were calculated based on the NC Natural Heritage Program's coastal wetlands layer – estuarine classification.

Table 2. 2010 Population

Geography	2010 Population
City of New Bern	29,524
Town of River Bend	3,119
Town of Trent Woods	4,155
Town of Bridgeton	454
Craven County ¹	18,502

¹Approximately 80% of Craven County is within the MTP Study Area. The 2010 population for the unincorporated County area is based on the socioeconomic data provided in the New Bern Area travel demand model excluding municipalities.

MTP-ICE Plan-Level Existing Conditions Matrix Results

The MTP-ICE Plan-Level Existing Conditions Matrix documents a preliminary screening of seven human and environmental factors at the MTP Study Area level. Each of the seven factors received a qualitative rating, varying from 'lesser likelihood' to 'greater likelihood', relative to anticipated indirect effects resulting from the seven human and environmental factors based on guidance from NCDOT and local planners. For instance, the Forecasted Population Growth factor received a 'not likely' rating because the population of the MTP Study Area is not expected to grow substantially until the horizon year of the MTP; therefore indirect effects resulting from an increased population are not likely. When ratings from each of the other factors were compiled, the cumulative result is that there are 'possible' indirect effects. The great amount of notable environmental features in the MTP Study Area weighed heavily in this result, as did the 'likely' ratings for the amount of land available for development and the availability of water and sewer services. However, the forecasted population and employment growth, along with the more stringent growth management factors offset categories of higher likelihood. These factors in combination account for the rating of 'possible' indirect effects that are expected for the MTP Study Area.

Figure 2 illustrates the results of the preliminary screening. Additional information related to the assessment for each of the seven factors follows.

Figure 2. Preliminary MTP-ICE Plan-Level Existing Conditions Matrix

Product 1: MTP - ICE Plan-Level Existing Conditions Matrix: New Bern MTP Study Area								
Rating	Forecasted Population Growth	Forecasted Employment Growth	Available Land	Water/Sewer Availability	Market for Development	Public Policy	Notable Environmental Features	Result
Greater Likelihood	> 3% annual population growth	> 3% increase New Jobs Expected	60% 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	
Expected							X	
Likely				X				
Possible		X	X		X			Possible Indirect Effects
Not Likely	X							
Not Expected						X		
Lesser Likelihood	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	

Forecasted population and employment growth were calculated for the MTP Study Area using the Traffic Analysis Zones (TAZ) level socioeconomic data from the New Bern Area travel demand model. The socioeconomic data in the model was forecasted using a "top-down, bottom-up approach". A county-level control total projection was established as the basis for all forecasting. TAZ-level data was used to distribute the growth within the MPO (inside and outside of the model area) for each model year.

Forecasted Population Growth

Rating: Not Likely

The annualized population growth rate for the MTP Study Area was determined to be 0.8 percent through 2040. According to the guidance from NCDOT and local planners, this level of growth is categorized as a medium-low rating. Based on review of local land use plans, the overall MTP Study Area has grown at a moderate rate in recent decades, with some areas such as New Bern and Trent Woods experiencing higher growth rates. Given the anticipated modest growth rate (0.8 percent annually) for the area and lack of large planned development projects, *Forecasted Population Growth* is rated as 'not likely', for its part in affecting the overall rating of the potential for indirect effects.

The areas that had the highest population densities in 2010 are shown in Figure 3.

Forecasted Employment Growth

Rating: Possible

The employment growth for the MTP Study Area is projected to grow at a faster rate than the population. With annual employment growth rates projected to be approximately 1.3 percent for the MTP Study Area, the *Forecasted Employment Growth* is rated as 'possible', for its part in affecting the overall rating of the potential for indirect effects. According to the guidance from NCDOT and local planners, this level of employment growth is categorized as a medium rating.

The areas that had the highest employment densities in 2010 are shown in Figure 4.

Figure 3. 2010 Population Density

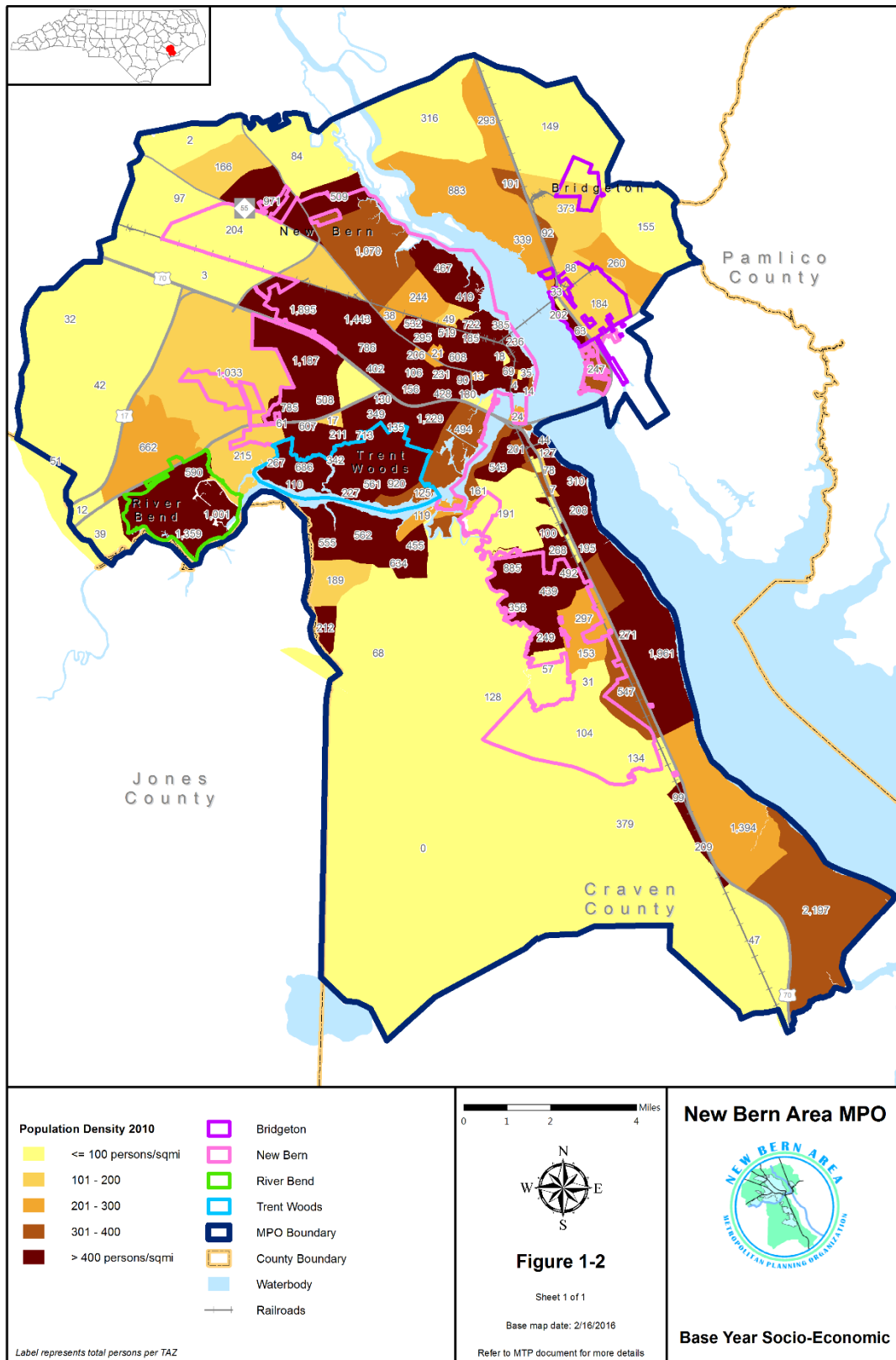
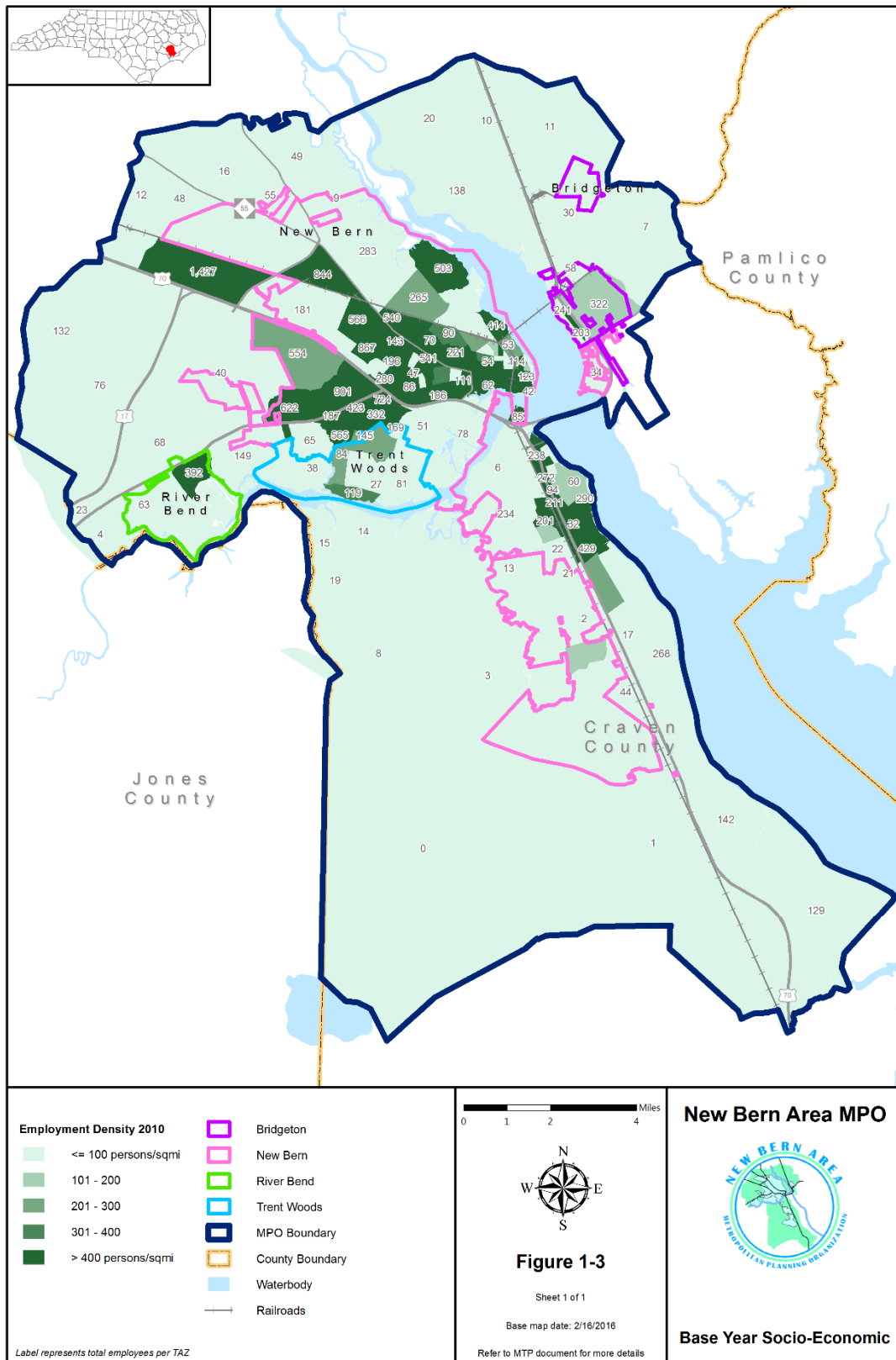


Figure 4. 2010 Employment Density



Available Land

Rating: Likely

To evaluate available land, existing land use in the MTP Study Area was assessed using GIS data to perform a quantitative analysis for its developability. The total land area (excluding water, tidal wetlands, and transportation right-of-way) of the NBAMPO is 88,231 acres.

Each TAZ was assessed to determine if it was developable or was fully developed and utilized. Building permit and developable parcel data was used to identify where current growth is occurring and how future growth might occur, especially in rural areas that are in close proximity to urban areas and/or planned roadway improvements. After this initial assessment, non-developable land such as public parks, voluntary agricultural districts (VADs), NCDOT mitigation properties, managed areas (including the Croatan National Forest), floodways, and buffer protection areas were removed from the available category. Overall, this non-developable land (approximately 49,157 acres) represents 55.7 percent of the land in the MTP study area.

The Town of Trent Woods has the least amount of developable land (14 percent) and has a low rating for available land for development. The Town of River Bend and the City of New Bern both have a medium rating with 37 percent each of available land for development. The areas with the most amount of available land for development is the Town of Bridgeton (85 percent developable) and the unincorporated areas of the MTP Study Area (61 percent developable). Bridgeton and unincorporated Craven County have high ratings for available land for development.

Overall, there are more than 39,000 acres of land available for development in the MTP Study Area; approximately 44.3 percent of the land is categorized as developable. Based on the available information and that 44 percent of the MTP Study Area is available for development, the factor of *Available Land* is assigned a rating of 'possible' for its influence on the overall potential for indirect effects. However, it should be noted that 44 percent is at the very top of the range for possible indirect effects.

The areas of developable land are shown on Figure 5.

Water and Sewer Availability

Rating: Likely

Areas served by water and sewer service were determined by utilizing available GIS data and discussions with local contacts to determine the portion of the MTP Study Area currently served and planned extensions of service. In the majority of the MTP Study Area, water and sewer services are provided by the City of New Bern. Drinking water is provided for residents of New Bern, Carolina Colours, Clarks, Cove City, the Craven County Industrial Park, Taberna, and Trent Woods. Total water usage for 2014 was 1.253 billion gallons (3.43 million gallons per day). The City's Water Treatment Division has 20 wells, a filter/softener water treatment facility, three ground storage tanks, five booster pump stations, and six elevated storage tanks to provide up to 8.65 million gallons of water per day and 9.7 million gallons of finished water storage.

The municipal areas have close to 100 percent water and sewer coverage, while the county has some areas with service. Water and sewer is available in most areas of the MTP Study Area north of the Trent River/west of the Neuse River. Water and sewer services are not available in the far northwest (north of NC 55) nor west of US 17 (west of Trent Woods and River Bend). To the south of the Trent River, water and sewer are available in the developed areas on the southern side of the river and along US 70 south to the MTP Study Area boundary. South of the Trent River and west of Brice Creek, water and sewer service is not available. On the east side of the Neuse River, water and sewer is provided throughout Bridgeton by First Craven Sanitary.

Given that approximately 100 percent of the City of New Bern and approximately 15 percent of the county has water and sewer available and there is ample ability to expand, a ‘likely’ rating is given to *Water and Sewer Availability* for this factor’s part in the overall potential for indirect effects.

Market for Development

Rating: Possible

This category is more subjective, with information on development trends, and the current development pressures within the MTP Study Area that were assessed, along with a review of the land development policies and regulations. Based on the TAZ-level projections, both population and employment in the NBAMPO are expected to increase, each with an annual growth rate of 0.8% and 1.3%, respectively. The MPO has a large tourism based economy in addition to several anchor institutions and companies, such as Craven Community College, UPS, MOEN, and healthcare providers. In addition, both Craven County and the City of New Bern, the two largest jurisdictions within the MTP Study Area, have economic development offices with staff focused on attracting businesses. A public-private economic development partnership exists between Craven County and the cities of New Bern and Havelock (the Craven 100 Alliance) to plan for long-term economic development.

Overall, the market for commercial, industrial and residential development continues to grow within the MTP Study Area. As such, the impact of *Market for Development* on the overall assessment of the potential for indirect effects is rated as ‘possible’.

Public Policy

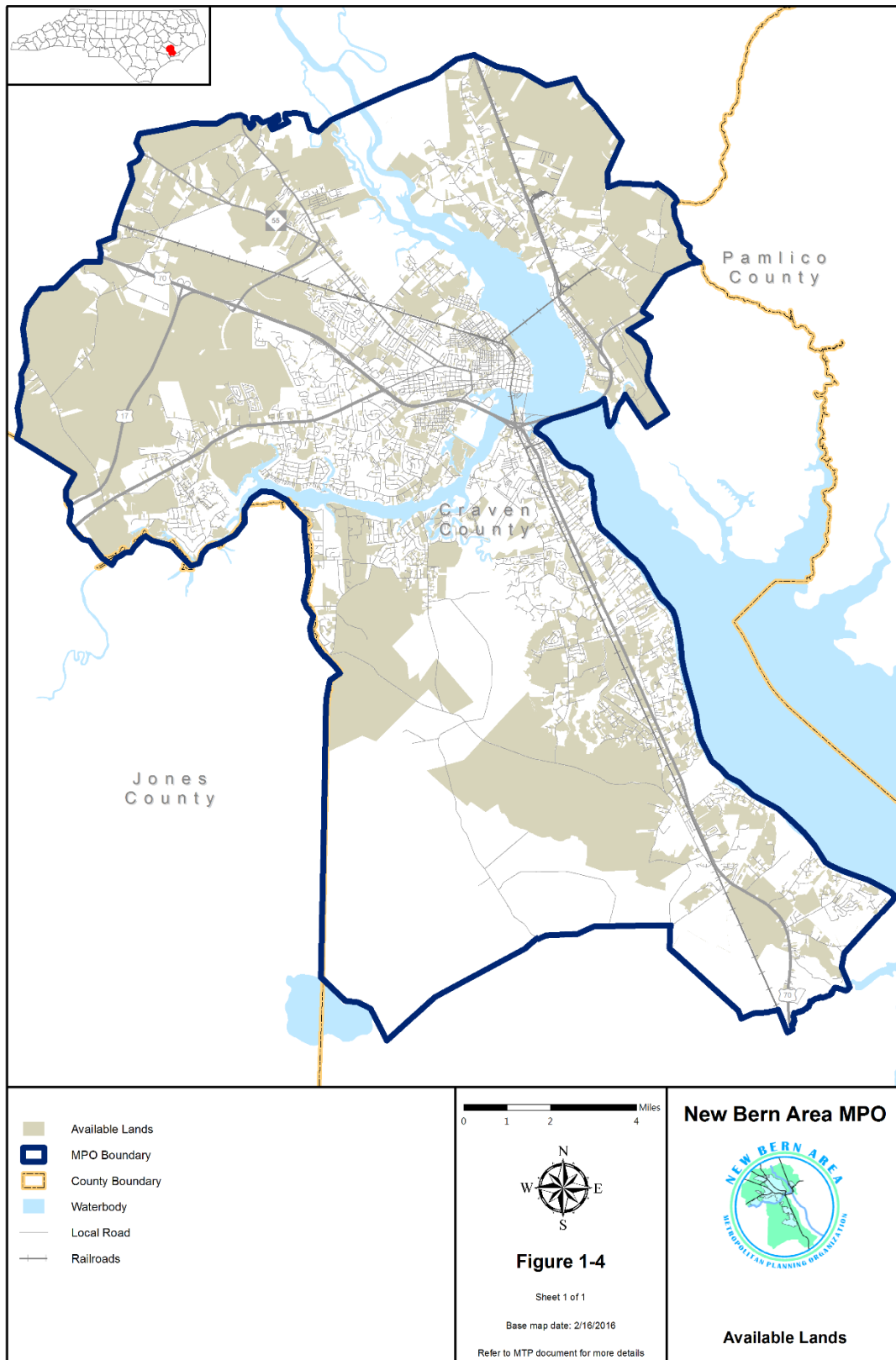
Rating: Not Expected

The assessment of growth management included the degree to which the protection of resources is incorporated into existing environmental regulations at the state, local and/or federal level. A review of development ordinances and land use plans provided information on public policy pertaining to growth and the level of existing resource protection.

The NBAMPO, as illustrated in Figure 1, is situated along the eastern coast of North Carolina with two major waterbodies traversing the MTP Study Area. Communities are linked by bridges, and there are notable wetlands, conservation areas, and agricultural land. The MPO communities, recognizing the sensitivity of the area and development constraints, have adopted growth management policies described in multiple land use plans. These plans include Coastal Area Management (CAMA) land use plans, the 2002 Eastern Carolina Joint Land Use Study, the Craven County Agricultural Development Plan, historic preservation plans, bike and pedestrian plans, hazard mitigation plans, and urban design plans. For example, there are management policies for public access, land use compatibility, conservation, stormwater control, infrastructure carrying capacity, water quality and appearance. In addition, each of the municipalities adhere to zoning ordinances to guide growth and development.

Public Policy is given a rating of ‘not expected’ in terms of possible indirect effects, due to the presence of numerous policies and regulations of the jurisdictions within the MTP Study Area, which signifies more stringent growth management.

Figure 5. Areas with Available Developable Land



Notable Environmental Features

Rating: Expected

This category was assessed based on the sensitivity and abundance of notable environmental resources. Sensitivity of environmental features was determined by consulting data from local, state, and federal regulations, programs, and agencies overseeing these notable resources such as the NC Division of Water Resources. The Environmental Features Map was used in this assessment, as well as discussion with local representatives knowledgeable of area resources.

The MTP Study Area has an abundance of sensitive notable environmental features, as illustrated on the Environmental Features Maps, Figure 6 and Figure 7. There are several historic resources in downtown New Bern, Trent Woods, and near US 70 south of the Coastal Carolina Regional Airport. Approximately 39 percent of the MTP Study Area is wetlands. There is a Natural Heritage Area south of the Trent River, near the Reedy Branch Creek. There are Land and Water Conservation Funds properties at the northern end of the MTP Study Area on both sides of the Neuse River. A smaller area at the southern end of the MTP Study Area is also Land and Water Conservation Funds property. The southern end of the MTP Study Area contains large parcels of managed land, some of which is also Conservation Tax Credit Property. There is an area of managed land to the north of downtown New Bern along the Neuse River. A large portion of New Bern, Trent Woods, River Bend, and Bridgeton are Targeted Local Watersheds, which represent opportunities for watershed improvements. Many areas have been identified in the Natural Heritage Program as having the potential for occurrences of rare plants and animals, and/or unique natural communities. There is also a sizable amount of agricultural land in the MTP Study Area.

Because of the abundance and sensitivity of natural environmental features in the MTP Study Area, this category has been given a rating of ‘expected,’ for its influence on the overall rating of the potential for indirect effects.

Figure 6. Environmental Features Map #1

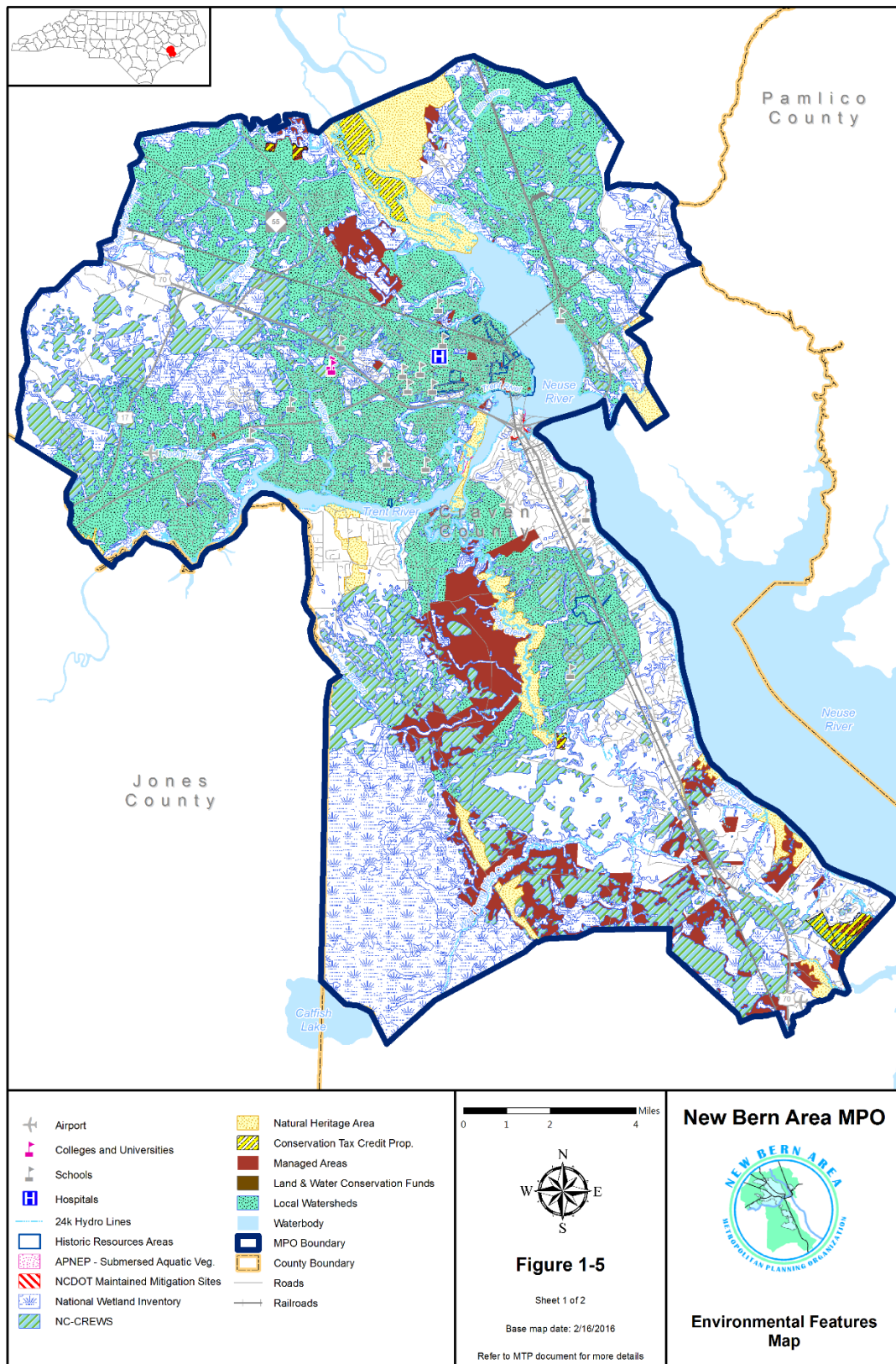
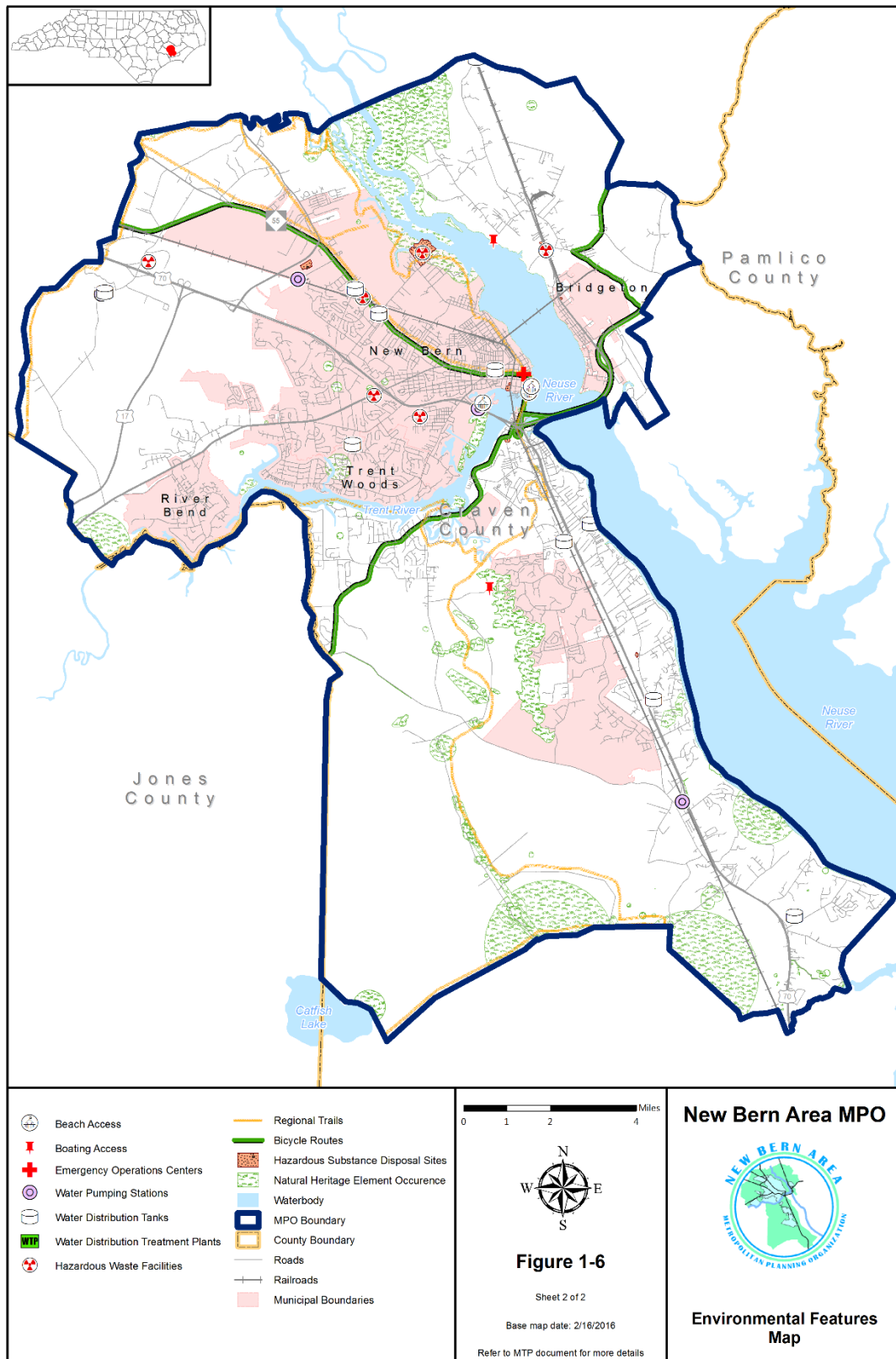


Figure 7. Environmental Features Map #2



Summary

Based on this evaluation of existing social and economic variables within the NBAMPO MTP Study Area, this area has a positive growth trend, which could reasonably be expected to continue in the future.

Approximately 44 percent of the MTP Study Area is land available for development, water and sewer infrastructure exists in all the municipalities and a portion of the County, and there is some market for development. The growth opportunities of these existing conditions, combined with the presence of notable environmental features, resulted in an overall rating of ‘possible’ for the potential for indirect effects.

Overall, these existing characteristics of the MTP Study Area will provide the baseline foundation and context for identifying future growth potential areas and evaluating the desired transportation projects in the next steps of the ICE assessment.

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Technical Memorandum for 2040 New Bern MTP–ICE
(Destination 2040)
Future Growth Potential Assessment
(MTP-ICE Product 2)

Revision Date: February 12, 2016

Date of Original Version: October 23, 2015

This Technical Memorandum documents the Indirect and Cumulative Effects (ICE) Future Growth Potential Assessment for the 2040 New Bern Area Metropolitan Transportation Plan (MTP). This Technical Memorandum was prepared with the assistance of the New Bern Area Metropolitan Planning Organization (NBAMPO), NCDOT Transportation Planning Branch (TPB), and NCDOT Community Studies group (HES-CS). This coordination helps ensure consistency between long-range planning and the National Environmental Policy Act (NEPA) process during project development.

MTP-ICE Future Growth Potential Mapping

The comprehensive and land use plans of the various jurisdictions within the MTP Study Area document historical, existing, and future land use as well as factors that determine land use patterns such as zoning, water and sewer infrastructure, development limitations, and natural and cultural features. These factors, depicted on the environmental features maps and evaluated in Product 1, when assessed together, provide insight into future growth potential. Socioeconomic data from the New Bern MPO Model Development, prepared by Clearbox Forecast Group, PLLC, for each of the Traffic Analysis Zones (TAZ) on forecasted population and employment growth was combined for the MTP Study Area to determine the areas of future growth potential. Figure 1 illustrates the future growth potential of the MTP Study Area in the next 10 years (short-term) and longer-term growth potential (>10 years).

Overview and Characterization of the Land Classification System

The MTP Study Area is comprised of several municipalities and unincorporated areas in the County. An existing land use map was created from parcel data from these entities (see Figure 2). The parcel data included 116 land use types, which were concentrated into eight main categories to provide consistency throughout the overall MTP Study Area, including: agricultural, commercial, industrial, recreation, residential, services (i.e., institutional, medical, religious, and government-owned), utilities, and vacant. Existing comprehensive and land use plans were reviewed and compared to the future growth potential map to determine if any major changes in land use categories are expected in the future. For the purposes of this report, it was assumed that the overall types of land uses would remain the same in the future.

Utility Service Areas

In the majority of the MTP Study Area, water and sewer services are provided by the City of New Bern. Drinking water is provided for residents of New Bern, Carolina Colours, Clarks, Cove City, the Craven County Industrial Park, Taberna, and Trent Woods. The central, eastern and northern areas of the MPO are currently served by water and sewer. The northwestern area and southwestern area are not completely served by water and sewer. Based on the growth potential areas, utility service areas may be expanded in the future to accommodate the anticipated growth.

Available Lands

As documented in Product 1, approximately 39,000 acres or 44 percent of the MTP Study Area is land available for development. Although there are pockets of available land within the municipalities in the MTP Study Area that provide opportunities for in-fill development, most of the available land is outside the municipal boundaries. The Town of Bridgeton and the unincorporated areas have the highest percentage of available land. Much of this available land is identified as agricultural or services in the parcel-level existing land uses (see Figures 1 and 2), which will not have the same development potential as available land situated within more urban areas or along transportation corridors. For example, the land in the northeast and northwest portions of the MTP Study Area (north of Bridgeton and north of River Bend, respectively) are defined as available. However, the land is currently zoned and used for agricultural purposes, which permits low-density development.

While development is not specifically restricted just because land is zoned as or used for agricultural purposes, the unique character of the MTP Study Area is important when evaluating these lands for development. Based on information from the NC Agriculture and Consumer Services, Craven County has approximately 286 farms (70,886 acres). In addition, Craven County has 275,100 acres of timber land (approximately 62 percent of the total land in Craven County). Many of the land use plans in the area prioritize agricultural operations. Specifically, Craven County's *Comprehensive Economic Development Strategic Plan*, July 2013 (*Economic Development Plan*), identifies agribusiness as a collaborative target – recommending that the County support agricultural operations, diversify the agricultural sector, and partner with the Craven County Cooperative Extension Center, stating that “the diversification and expansion of agriculture and related industries will provide the County with business development potential far into the foreseeable future”. The County also prepared the *Craven County Agricultural Development Plan (Agricultural Plan)* through a grant provided by the NC Department of Agriculture and Consumer Services, which provides recommendations for addressing opportunities and challenges related to agriculture in the County. The *Agricultural Plan* stated that the County's agriculture and forestry contributed cash receipts over \$33.6 million for crops and \$20.5 million for livestock in 2010, ranking sixth in the State for timber harvested and delivered.

In addition, Craven County is home to Marine Corps Air Station Cherry Point, and according to the County's *Economic Development Plan*, the Department of Defense (DoD) accounts for over 61 percent of the County's employment. Agriculture is a compatible use for military operations, and the DoD plays an active role in preserving agricultural land. For example, the DoD provides funds through the NC Foundation for Soil and Water Conservation to owners of working lands within specific military flight paths and special use areas through the Market-based Conservation Initiative in North Carolina. With the military defense industries serving such a dominant role in the County's economy, it is essential that compatible land uses, such as agriculture and forestry, are maintained.

Based on the *Agricultural Plan*, existing agricultural preservation tools available to the County include working land protection programs and tools, the Present-Use Value Tax Program, Voluntary Agricultural Districts (VADs), Enhanced Voluntary Agricultural Districts (EVADs), conservation easements, agricultural agreements, farm transition planning, and the NC Agricultural Development and Farmland Preservation Trust Fund. Specific to development and land restrictions in the County, the *Agricultural Plan* recommends expanding the VAD and EVAD programs, conducting farm transition planning programs, and encouraging landowner enrollment in the County's Present Use Value program.

Overall, while specific development restrictions are not associated with lands used for agricultural operations, it is clear that agriculture is a critical component of the County's economy, directly contributing employment and revenues, and serving as an important part of the military's operations, the largest

employer in the area. Therefore, agricultural land in the MTP Study Area is identified as available for development, but these unique characteristics of the area should be considered.

Growth and Development Areas

As the MTP Study Area is situated within a CAMA county, an adopted land use plan is required to protect conservation areas and natural resources. In addition, there are several other land use plans for specific portions of the area that drive local objectives regarding development and resource protection. The important natural features, including surface waters, the Croatan National Forest, and conservation areas in the MTP Study Area significantly focus potential development within municipal boundaries and along existing transportation corridors. As illustrated in Figure 1, there are pockets of potential high-growth areas (within the next 10 years) primarily along US-70 south of Trent River, and in the northern portion of the MTP Study Area. Looking further into the future (greater than 10 years) the areas of potential growth significantly expand. The County's *Economic Development Plan* identifies suitable development sites based on specific criteria. Many of these sites are located in areas identified as growth potential areas (i.e., New Bern, Bridgeton, and along US-70).

The moderate growth in population and employment projected in the New Bern MPO travel demand model is also anticipated in the local land use plans. These plans site area attractions and resources, quality of life factors, and employment opportunities as the reasons for this growth. Specifically, the County's *Economic Development Plan* states several positive trends in the County, such as a concentration of skilled workers, education attainment levels, and access to railroad services, will continue to be attractive to industries. Also, from a quality of life perspective, the County is well-served with healthcare facilities, housing prices are relatively affordable, and area schools are performing on par with overall testing standards. In addition, the County is implementing initiatives to improve on some of its weaker factors to increase the area's marketability and continue the anticipated growth.

In-Fill, Preservation, and Redevelopment Areas

Much of the municipal land within the MTP Study Area is developed, especially in Trent Woods. The central, historical downtown area of New Bern is developed, but the fringe area especially in the northwest has some potential for growth. River Bend has a pocket of land in the northwest portion of the Town that is developable. However, a portion of that land is currently used for agricultural purposes. A significant portion of Bridgeton is available for development.

There are opportunities for in-fill development and redevelopment within the MTP Study Area. For example, the City of New Bern conducted a Brownfields Inventory in 2010 identifying potential brownfield properties, some along the Neuse River and Queen Street. The area along the Neuse River is defined as having moderate to high growth potential, and may offer prime redevelopment opportunities. In addition, the City completed the New Bern Gateway Renaissance Plan, which presents a revitalization strategy for some neighborhoods and brownfield sites. As documented in Product 1, the MTP Study Area is rich in cultural resources. New Bern values the historic resources within the community, and is in the process of completing a historic preservation plan.

Conservation, Open Space, and Agricultural Areas

A significant portion of the MTP Study Area includes conservation, open space, and agricultural lands. Some of these areas are protected through local and state regulations, and significant development is not expected to occur within these areas. For example, floodways, NCDOT mitigation areas, VADs, managed natural areas, and tidal wetlands are excluded from the land available for development. As previously indicated,

there is a significant amount of land within the MTP Study Area used for agricultural purposes, which would be expected to experience development limited to low-density residential. However, as indicated in Figures 1 and 2, some of these agricultural areas are identified as having a high-growth potential, such as the area northwest of River Bend and east of Bridgeton, and could be rezoned for other uses.

Figure 1. Future Growth Potential Map

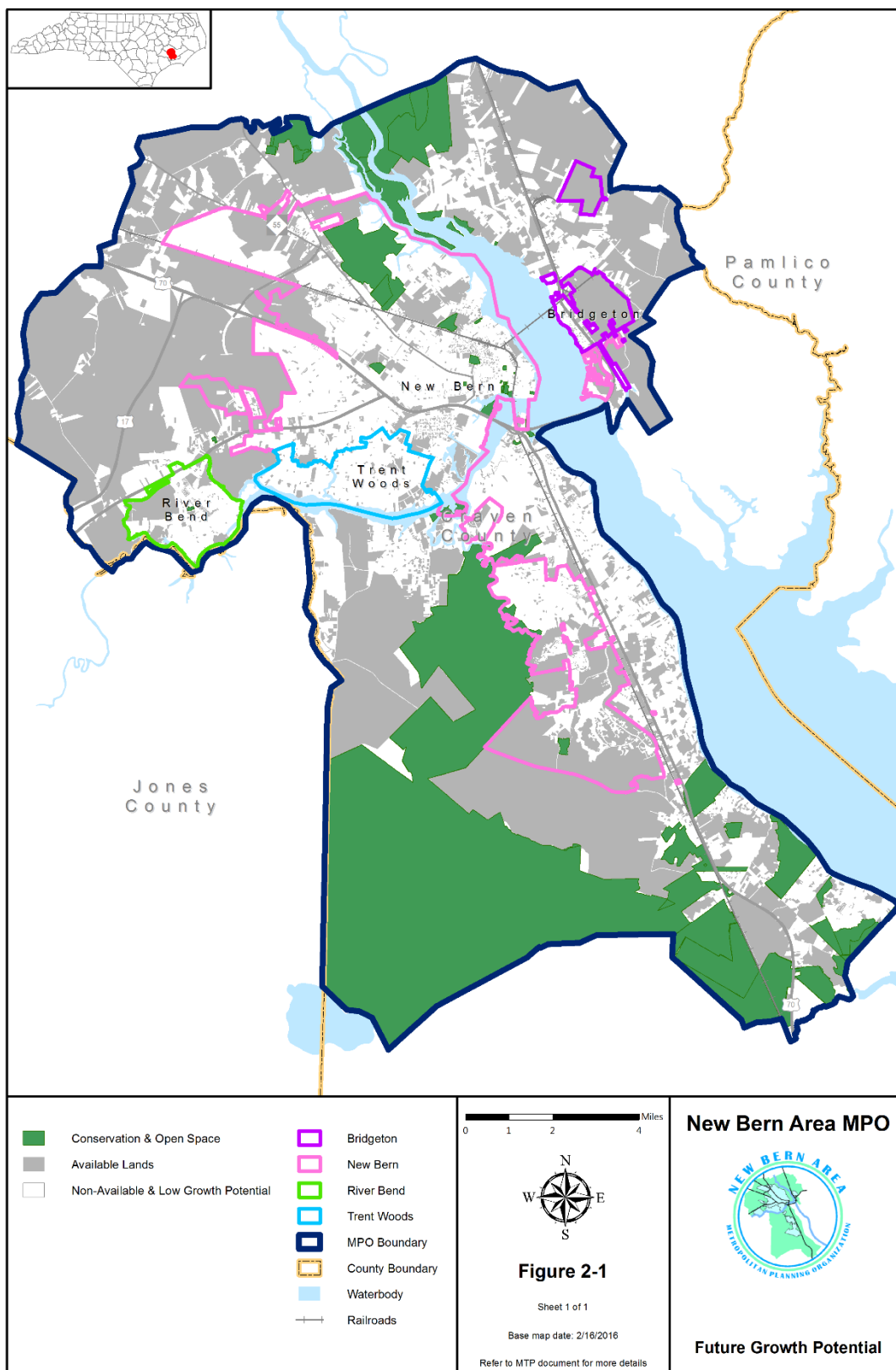
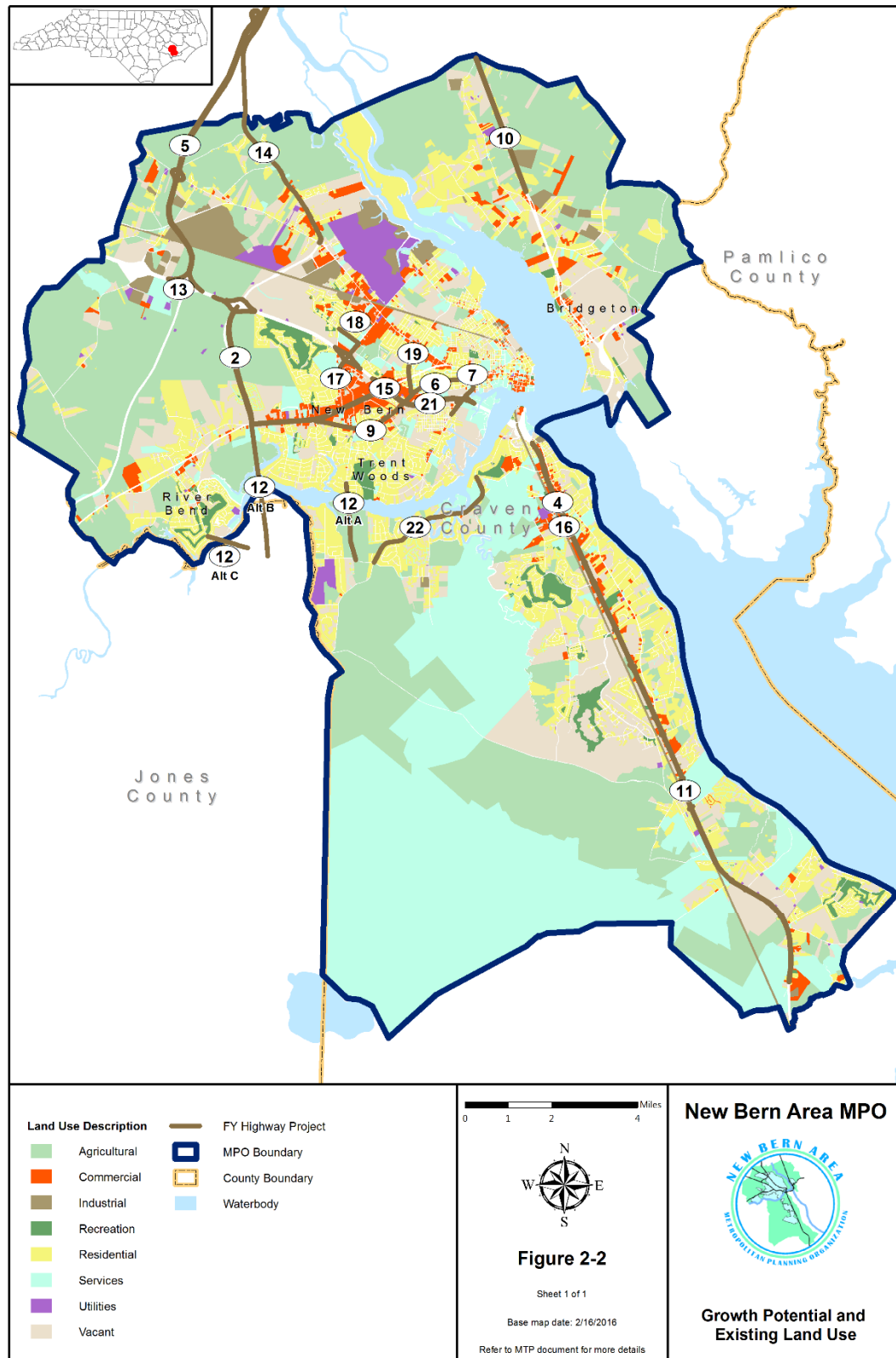


Figure 2. Existing Land Uses



Short-Term and Long-Term Growth

Approximately 44 percent of the land in the MTP Study Area is defined as developable, and may include different types of land uses and densities depending on the location and prevailing regulations. The Growth Potential Map (Figure 1) illustrates those areas (by TAZs) where growth is anticipated in the near term (high potential) and long term (moderate potential).

The near-term growth is anticipated in pockets along US-70 in the southern portion of the corridor, such as the area near the Craven County Regional Airport and existing residential communities. Some of this area is currently used for agricultural purposes, government-owned, or already developed. The majority of the near-term growth in the northern portion of the MTP Study Area is within unincorporated Craven County. There are pockets of potential near-term growth in New Bern on the Neuse River, along Queen Street (downtown), and in the northern portion of the City, all comprised of a mix of land uses. The areas within the County, while identified as available and having the potential for near-term growth, are primarily agricultural lands, important to the local economy and military operations, and restrict development primarily to low-density residential. There is one small area in the County of potential near-term growth along the western boundary of the MTP Study Area south of Trent River, which currently has a mix of land uses.

The areas of moderate growth potential, anticipated in the long-term, expand from the areas of high growth potential. In the long-term, the northern portion of the MTP Study Area is expected to grow. There is a significant amount of available land in that area, and a mix of uses. Almost the entire Town of Bridgeton is identified as having moderate growth potential. Growth in the area between the high growth potential areas along US-70 is expected to continue in the long term. There is also a section of moderate growth potential in the western portion of the MTP Study Area adjacent to the Croatan National Forest. Trenton Woods has one small area of moderate growth potential and there are no growth potential areas identified in River Bend.

Summary

Growth in the MTP Study Area is expected to continue based on the projections in the MPO travel demand model and local plans. Craven County and the City of New Bern are actively promoting economic development and growth, the cultural and natural resources continue to attract people to the area, and infrastructure capacity exists. Furthermore, the positive trends in the area, quality of life, employment opportunities, and rail access will be important drivers in the projected growth. While much of the available land is within the County, there are also opportunities for infill and redevelopment in the municipalities.

The numerous natural resources and conservation efforts, in combination with the presence of regulatory policies and growth management, is expected to focus development and growth into specific areas. The significant amount of agricultural land will also play a major role in the anticipated growth with its limited development potential. The growth potential information in this assessment will be used to inform the next steps in the ICE Assessment.

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Technical Memorandum for 2040 New Bern MTP–ICE

(Destination 2040)

Screening for Indirect Effects

(MTP-ICE Product 3/Part 1)

Revision Date: February 12, 2016

Date of Original Version: November 25, 2015

This Technical Memorandum documents the 2040 New Bern Area Metropolitan Transportation Plan (MTP)-Indirect and Cumulative Effects (ICE) Screening for Indirect Effects. The first screening is a broad-level screening assessing the potential indirect effects across the entire MTP Study Area, and is called a Plan-Level Screening. The second screening, called a Project-Level Screening, focuses on four specific proposed projects in the MTP.

This Technical Memorandum was prepared with the assistance of the New Bern Area Metropolitan Planning Organization (NBAMPO), NCDOT Transportation Planning Branch (TPB), and NCDOT Community Studies group (HES-CS). This coordination helps ensure consistency between long-range planning and the National Environmental Policy Act (NEPA) process during project development.

MTP-ICE Plan-Level Screening Results for the MTP Study Area

A MTP-ICE Plan-Level Screening was conducted for the MTP Study Area, based on the multi-modal recommendations in the Draft 2040 New Bern Area MTP. The Plan-Level Screening looks at the entire MTP Study Area, and the results for the variables evaluated in Product 1 remain unchanged, with the addition of two other variables (i.e., scope of transportation plan investments and macro change in accessibility). This technical memorandum explains the analysis conducted, including use of the MTP-ICE Screening Matrix for Indirect Effects and summarizes the results. This Plan-Level Screening for potential indirect effects resulted in a finding of “likely indirect effects”. The Macro Change in Accessibility was the factor that influenced these results, as the proposed projects on new location and major upgrades to freeways would create the opportunity to increase capacity and travel speeds, alter travel patterns, and provide access to currently developable land. In addition, the availability of land, the general availability of water and sewer service, and sensitivity and abundance of notable environmental features contributed to the cumulative result that there are likely indirect effects from the Draft MTP scenario. Overall, the proposed highway projects are anticipated to have more indirect effects than the public transportation/rail and bicycle projects in the MTP Study Area. Refer to Table 3-1 for the plan-level screening.

Proposed MTP Projects

The projects proposed in the MTP are varied in scope, purpose and need, and location. The majority of the projects are related to existing location highway improvements and those on new location. In addition, the MTP includes projects related to other modes of transportation such as public transit, rail, bike and pedestrians.

Table 3-1 MTP-ICE Screening Matrix for Indirect Effects, Plan-Level (2040 NBAMPO MTP Study Area)

Rating	Scope of Trans. Plan Investments	Macro Change in Accessibility	Forecasted Population Growth	Forecasted Employment Growth	Available Land	Water/Sewer Availability	Market for Development	Public Policy	Notable Environmental Features	Result
Greater Likelihood	High	High	> 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	
Expected									x	
Likely		x			x	x				Likely Indirect Effects
Possible	x			x			x			
Not Likely			x							
Not Expected								x		
Lesser Likelihood	Low	None	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	

Highway Projects

The proposed highway projects in the MTP include upgrades to several major thoroughfares, intersection improvements, as well as a few major thoroughfares on new location. These projects are listed in Table 3-2 below and illustrated in Figure 3-1. In Table 3-2, the table entries for ‘Report Year’ have been color coded to distinguish which horizon timeframe each project is in (green: prior to 2020, orange: 2021-2030, blue: 2031-2040). More detailed descriptions on the proposed projects can be found in Chapter 6 of the MTP. These projects are depicted on the Environmental Features Map (Figure 3-2) and Future Growth Potential Map (Figure 3-3).

Public Transportation and Rail Proposals

The NBAMPO is focused on creating a multi-modal transportation system in the MTP Study Area, providing bicycle and pedestrian facilities, and transit options. Currently, a State freight rail line (Corridor 17) runs through New Bern, traveling from the Port of Morehead City to northwest of Goldsboro. While this rail line, owned by the North Carolina Railroad (NCRR), plays a significant role in the State’s economy (specifically agriculture within the region), there are concerns regarding community impacts due to the line running through the downtown business district of New Bern. The *Comprehensive State Rail Plan*, dated August 2015, recommends that the feasibility of a rail bypass around New Bern be examined, with a possible alignment along the New Bern bypass for US 70.

Public transportation is currently provided through the Craven Area Rural Transit System (CARTS), servicing Craven, Jones and Pamlico Counties. CARTS provides bus service for the general public and human service agency clients, with its operations centered in New Bern. Based on the *Craven County Transit Development Plan*, dated June 2015, there is no significant plan for expanding the service, but instead a focus on improving existing service areas.

Bicycle Proposals

There are two state bicycle routes that traverse the MTP Study Area (Ports of Call NC Bike Route 3 and Ocracoke Option NC Bike Route 7) and the City of New Bern has made bicycle facilities a priority, focusing on implementation of recommendations in New Bern’s *Comprehensive Bicycle Plan*, dated 2006. Overall, there are proposals for bicycle and pedestrian facilities throughout the MTP Study Area. These bicycle proposals include a variety of facilities, including bike lanes, shared lanes, paved shoulders, shared use paths, and multi-use trails.

Table 3-2: FY Highway Projects for the New Bern Area MTP

Map ID	REPORT YEAR	ID	LOCATION	ROADWAY	FROM	TO	TYPE
2	2020	R-4463	New Bern	NC 43 CONNECTOR	US 70	US 17 Bus	NEW LOCATION
4	2021	U-5713	James City	US 70 (James City)	Neuse River Bridge	Gratham Road	UPGRADE TO FREEWAY
5	2040	R-2301	New Bern / Craven County	US 17 NEW BERN BYPASS	MPO Boundary	US 70	NEW LOCATION
6	2020	-	New Bern	Trent Boulevard	Simmons St	First St	ROAD DIET
7	2018	-	New Bern	First Street / Country Club Drive	Broad St	Pembroke Ave	ROAD DIET
9	2020	U-3448	New Bern	Trent Road	US 17 / MLK Blvd	Simmons St	WIDENING
10	2030	R-3403B	Craven County / Bridgeton	US 17	MPO Boundary	Mill St (Bridgeton)	UPGRADE TO HIGHWAY
11	2040	R-5777	Craven County	US 70	Grantham Rd	Havelock Bypass	UPGRADE TO FREEWAY
12	2040	-	<multiple>	Brices Creek Road Connector (multiple alternatives)	Bridge over Trent River	--	NEW LOCATION, WIDENING
13	2040	R-2301 ramps	Craven County	US 17	@ US 70	--	INTERCHANGE
14	2040	-	New Bern	NC 43 Washington Post Road	NC 55	MPO Boundary	UPGRADE TO BOULEVARD
15	2040	-	New Bern	US 70 Interchanges	US 17 Bypass		UPGRADE
					Glenburnie Rd		UPGRADE
					MLK Blvd		UPGRADE
					US 17 / Country Club Rd		UPGRADE
16	2040	-	New Bern	US 70/US 17	MLK Blvd	Country Club Rd/First St	WIDENING
17	2040	-	New Bern	S Glenburnie Road	McCarthy Blvd (Craven Community College)	Elizabeth Ave	WIDENING
18	2040	-	New Bern	Elizabeth Avenue	Racetrack Rd	S Glenburnie Rd	WIDENING
19	2040	-	New Bern	Simmons Street	Trend Rd	Neuse Blvd	ROAD DIET
21	2025 / 2030	-	New Bern	US 17 / MLK Boulevard	US 70 Interchange	Trent Creek Rd	UPGRADE
22	2040	-	New Bern	Brices Creek Road	Crump Farm Rd	Kelso Rd	WIDENING

Note: The proposed projects with Project ID Nos. 1, 3, 8, and 20 (i.e., R-5516, R-1015, U-3431, and R-3821) are not included in this indirect effects assessment since the majority of each of these project proposals is outside the MTP Study Area..

Figure 3-1: Map of FY Highway Projects for the New Bern Area MTP

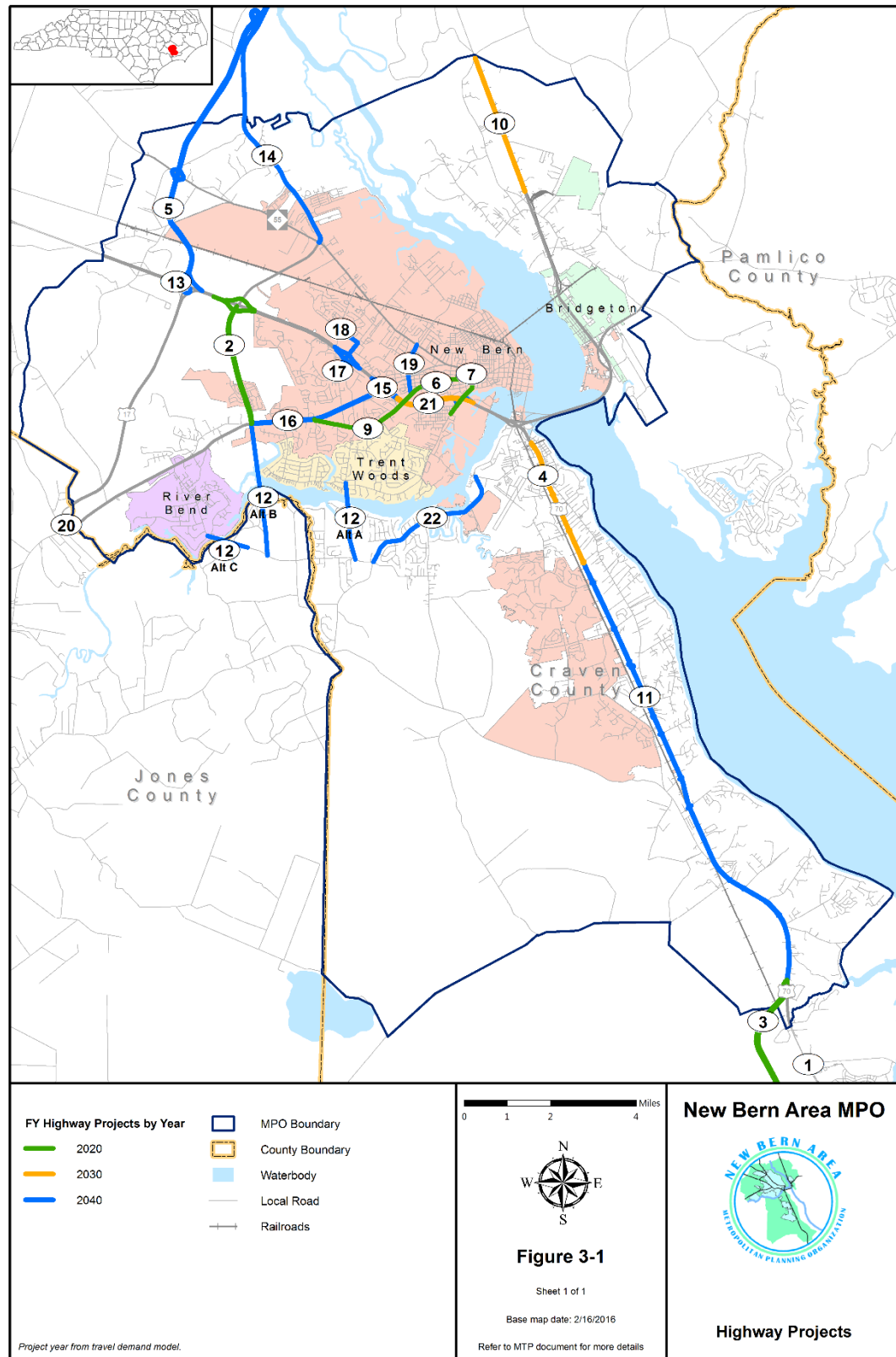


Figure 3-2: FY Highway Projects for the New Bern Area MTP on the Environmental Features Map

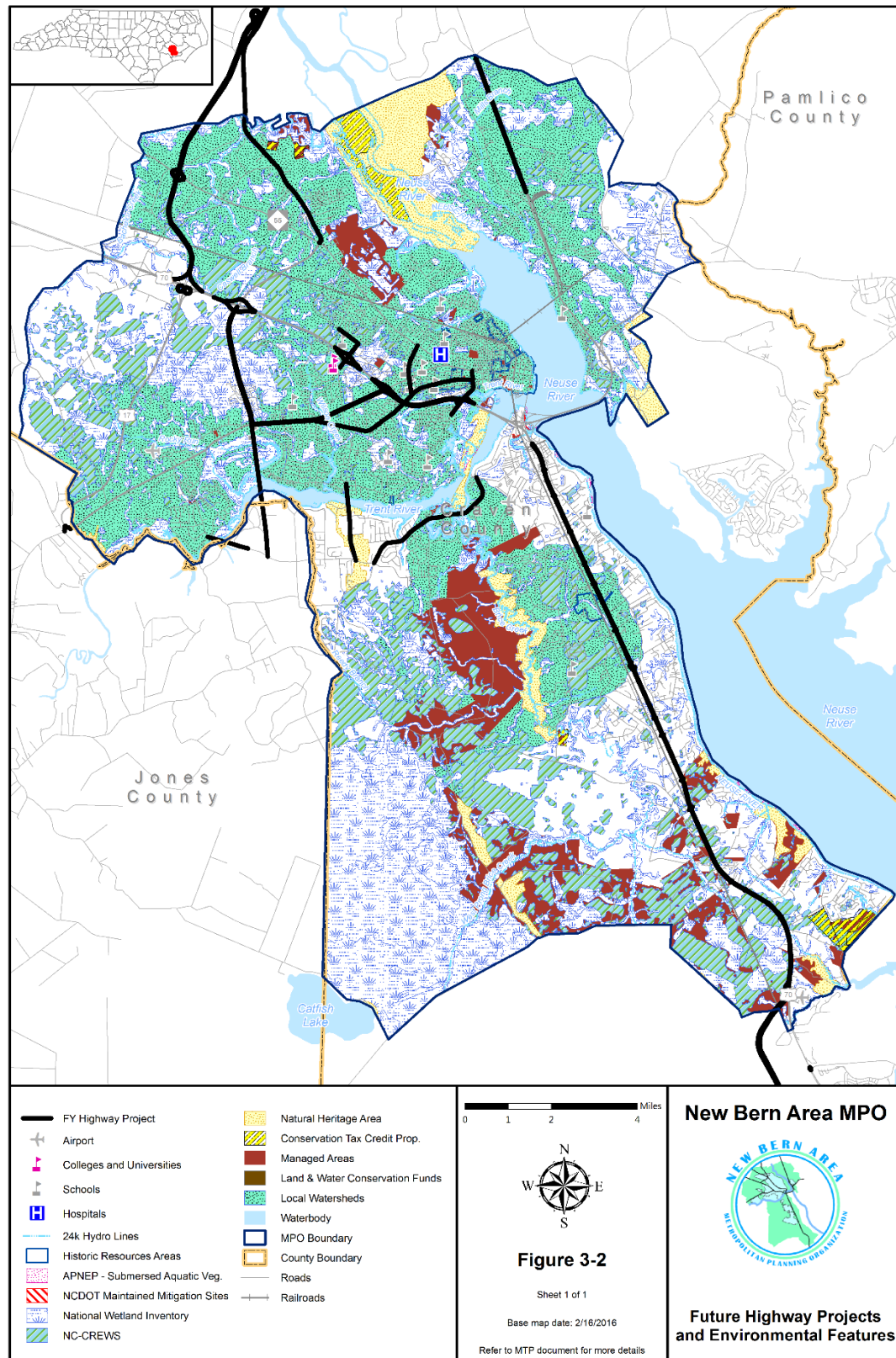
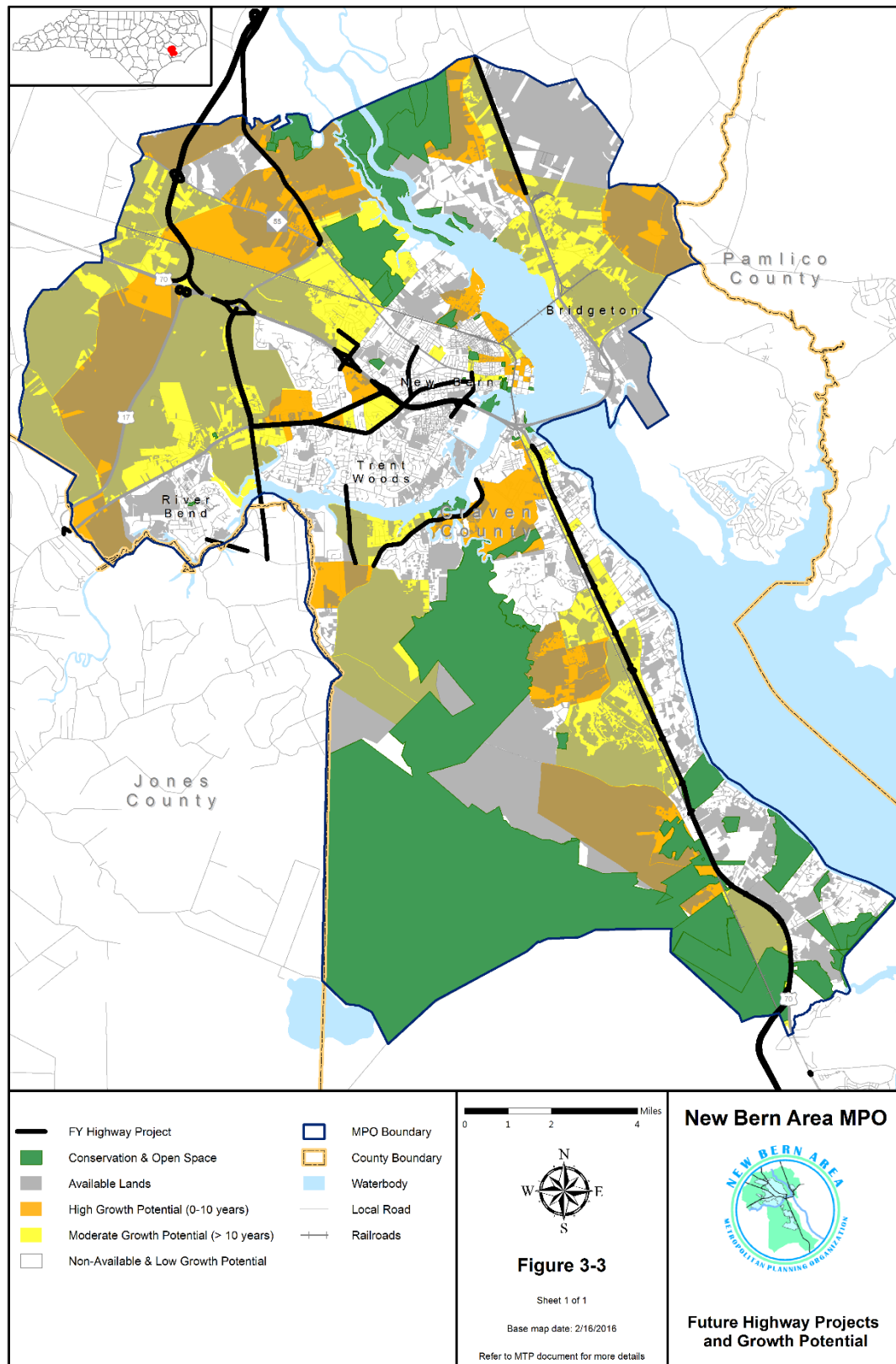


Figure 3-3: FY Highway Projects for the New Bern Area MTP on the Future Growth Potential Map



Scope of Transportation Plan Investments

Rating: Possible

The proposed highway projects in the MTP include a mix of intersection improvements, road diets, corridor upgrades and widenings, and projects on new location. The proposed projects on new location (Project ID Nos. 2, 5, and 12) include the NC 43 connector from NC 55 to US 17 (R-4463), a connection over the Trent River (multiple alternatives), and the US 17 New Bern bypass from the MTP Study Area boundary to US 70 (R-2301). The NC 43 connector is proposed to be constructed in the 2020 horizon year, with the other two new location projects proposed by the 2040 horizon year. These projects on new location would be expected to alter travel patterns, taking some traffic off of US 70 and providing a new connection across Trent River to the west of New Bern. Land use would be impacted because these projects would provide access to developable land primarily to the north and east of New Bern. Currently these areas are comprised of a mix of uses including residential, with the majority being agricultural. Other land uses include vacant properties, industrial, and recreation.

The proposed highway scenario may impact travel patterns and land use, but the magnitude of this scenario, with several small to mid-sized projects, is less than that of large-capacity projects. The other widening and improvement projects are proposed primarily to meet demand, create safe multi-modal options, and improve traffic flow and access. The public transportation/rail and bicycle scenario projects would not be considered major investments because they would not greatly affect land uses.

The *Scope of Transportation Plan Investments* results in the rating of “possible” indirect effects. This rating is based on the mix of proposed highway projects, with a few projects on new location that may impact travel patterns and land use.

Macro Change in Accessibility

Rating: Likely

There are several proposed projects in the MTP that would impact accessibility within the MTP Study Area. The projects on new location would create new access to areas, increase property exposure and potentially create new transportation land use nodes, specifically in the northern and western portion of the MTP Study Area. This access may encourage new development in these areas, specifically around the NC 43 connector, as there are currently industrial uses at the northern terminus and residential uses at the southern terminus. The potential alternatives for a connection across the Trent River are proposed in areas that are not fully developed, but have some existing residential uses, in which the new access could support development. The area between NC 55 and US 17 is currently used for agricultural purposes, and a subdivision is situated just north of US 17. The proposed US 70 project in the southern portion of the MTP Study Area will limit accessibility within the area and reduce travel time along the corridor as it includes upgrading the facility to a freeway. The majority of the other proposed projects are not expected to significantly impact accessibility.

Macro Change in Accessibility resulted in the rating of “likely” indirect effects due to the changes in access along US 70 and the construction of roadways on new location. The proposed projects on new location will provide new accessibility to areas that may present opportunities for development such as residential and commercial growth. The existing conditions in the MTP Study Area, such as available land, water and sewer infrastructure, economic development priorities, and limited zoning regulations in some areas would support this potential growth.

Forecasted Population Growth

Rating: Not Likely

Forecasted population growth was calculated for the MTP Study Area using the Traffic Analysis Zones (TAZ) level socioeconomic data from the NBAMPO travel demand model. The socioeconomic data in the model was forecasted using a "top-down, bottom-up approach and included in the New Bern MPO Model development: Socio-Economic Data Forecasting Methodology document date May 6, 2015. ". A county-level control total projection was established as the basis for all forecasting. TAZ-level data was used to distribute the growth within the NBAMPO (inside and outside of the model area) for each model year. The annualized population growth rate for the MTP Study Area was determined to be 0.8 percent through 2040. Based on review of local land use plans, the overall MTP Study Area has grown at a moderate rate in recent decades, with some areas such as New Bern and Trent Woods experiencing higher growth rates. Given the anticipated modest growth rate (0.8 percent) for the area and lack of large development projects, *Forecasted Population Growth* resulted in the ratings of “not likely”, or less of a concern.

Forecasted Employment Growth

Rating: Possible

The employment growth for the MTP Study Area is projected to grow at a faster rate than the population. With annual employment growth rates projected to be approximately 1.3 percent (greater than 1 percent) for the MTP Study Area, the *Forecasted Employment Growth* resulted in the ratings of “possible” indirect effects.

Available Land

Rating: Likely

To evaluate available land, existing land use in the MTP Study Area was assessed for its developability. The total land area (excluding water and transportation right-of-way) of the NBAMPO is 87,855 acres.

Each TAZ was assessed to determine if it was developable or was fully developed and utilized. Building permit and developable parcel data was used to identify where current growth is occurring and how future growth might occur, especially in rural areas that are in close proximity to urban areas and/or planned roadway improvements. After this initial assessment, public parks, voluntary agricultural districts (VADs), NCDOT mitigation properties, managed areas, right-of-way for roads and rail lines, rivers and streams, floodways, and buffer protection areas were removed from the available category.

The Town of Trent Woods has the least amount of developable land (14 percent) and has a low rating for available land for development. The Town of River Bend and the City of New Bern both have a medium rating with 37 percent each of available land for development. The areas with the most amount of available land for development is the Town of Bridgeton (85 percent developable) and the unincorporated areas of the MTP Study Area (61 percent developable). Bridgeton and unincorporated Craven County have high ratings for available land for development.

Overall, there are more than 39,000 acres of land available for development in the MTP Study Area; 55 percent of the land is categorized as developable, resulting in a “likely” rating for *Available Land* to create indirect effects.

Water and Sewer Availability

Rating: Likely

In the majority of the MTP Study Area, water and sewer services are provided by the City of New Bern. Drinking water is provided for residents of New Bern, Carolina Colours, Clarks, Cove City, the Craven County Industrial Park, Taberna, and Trent Woods. Total water usage for 2014 was 1.253 billion gallons (3.43 million gallons per day). The City's Water Treatment Division has 20 wells, a filter/softener water treatment facility, three ground storage tanks, five booster pump stations, and six elevated storage tanks to provide up to 8.65 million gallons of water per day and 9.7 million gallons of finished water storage.

The municipal areas have close to 100 percent water and sewer coverage, while the county has some areas with service. Water and sewer is available in most areas of the MTP Study Area north of the Trent River/west of the Neuse River. Water and sewer are not available in the far northwest (north of NC 55) nor west of US 17 (west of Trent Woods and River Bend). To the south of the Trent River, water and sewer are available in the developed areas on the southern side of the river and along US 70 south to the MTP Study Area boundary. South of the Trent River and west of Brice Creek, water and sewer service is not available. On the east side of the Neuse River, water and sewer is provided throughout Bridgeton by First Craven Sanitary.

Given that approximately 100 percent of the City of New Bern and approximately 15 percent of the county has water and sewer available and there is ample ability to expand, resulting in a "likely" rating for potential indirect effects on *Water and Sewer Availability*.

Market for Development

Rating: Possible

Based on the TAZ projections, both population and employment in the NBAMPO are expected to increase, each with an annual growth rate of 0.8% and 1.3%, respectively. The NBAMPO has a large tourist economy and several large institutional employers/anchor companies, such as Craven Community College, UPS, MOEN, and healthcare providers. In addition, both Craven County and the City of New Bern, the two largest jurisdictions within the MTP Study Area, have economic development offices with staff focused on attracting businesses. A public-private economic development partnership exists between Craven County and the cities of New Bern and Havelock (the Craven 100 Alliance) to plan for long-term economic development.

Overall, the market for commercial, industrial and residential development continues to grow within the MTP Study Area. As such, *Market for Development* resulted in a rating of "possible" concern.

Public Policy

Rating: Not Expected

The MTP Study Area is situated along the eastern coast of North Carolina with two major waterbodies traversing through the MTP Study Area. Communities are linked by bridges, and there are significant wetlands and conservation areas. The NBAMPO communities, recognizing the sensitivity of the area and development constraints, have adopted growth management policies described in multiple land use plans. These local plans include required Coastal Area Management (CAMA) land use plans, the 2002 Eastern Carolina Joint Land Use Study, historic preservation plans, bike and pedestrian plans, hazard mitigation plans, and urban design plans. For example, there are management policies for public access, land use compatibility, conservation, stormwater control, infrastructure carrying capacity, water quality and appearance. In addition, each of the municipalities adhere to zoning ordinances to guide growth and development.

Public Policy was identified as a rating of “not expected” (less concern) for the numerous policies and regulations of the jurisdictions within the MTP Study Area.

Notable Environmental Features

Rating: Expected

The MTP Study Area has an abundance of sensitive notable environmental features, including the Neuse and Trent Rivers, and there are several historic resources in downtown New Bern, Trent Woods, and near US 70 south of the Coastal Carolina Regional Airport. Trent River is classified as tidal saltwater, nutrient sensitive, and prime recreation. The Neuse River in the MTP Study Area retains a high amount of nutrients, is prone to phytoplankton bloom formation, and identified as impaired. Approximately 39 percent of the MTP Study Area is wetlands. There is a Natural Heritage Area south of the Trent River, near the Reedy Branch Creek. There are Land and Water Conservation Funds properties at the northern end of the MTP Study Area on both sides of the Neuse River. A smaller area at the southern end of the MTP Study Area is also Land and Water Conservation Funds property. The southern end of the MTP Study Area contains large parcels of managed land, some of which is also Conservation Tax Credit Property. There is an area of managed land to the north of downtown New Bern along the Neuse River. A large portion of New Bern, Trent Woods, River Bend, and Bridgeton are Targeted Local Watersheds, which represent opportunities for watershed improvements. Many areas have been identified in the Natural Heritage Program as having the potential for occurrences of rare plants and animals, and/or unique natural communities. There is also a significant amount of agricultural land in the MTP Study Area.

Because of the abundance and sensitivity of natural environmental features in the MTP Study Area, this category resulted in a rating of “expected” (high concern for indirect effects).

Conclusion

Overall, based on the existing conditions and future growth potential in the MTP Study Area, and the MTP scenario, the Plan-Level Screening resulted in the finding that potential indirect effects ratings of “likely”. The MTP proposed projects vary in scope, purpose and need, and location. The proposed highway projects are anticipated to have more indirect effects than the public transportation/rail and bicycle projects in the MTP Study Area.

MTP-ICE Project-Level Screening

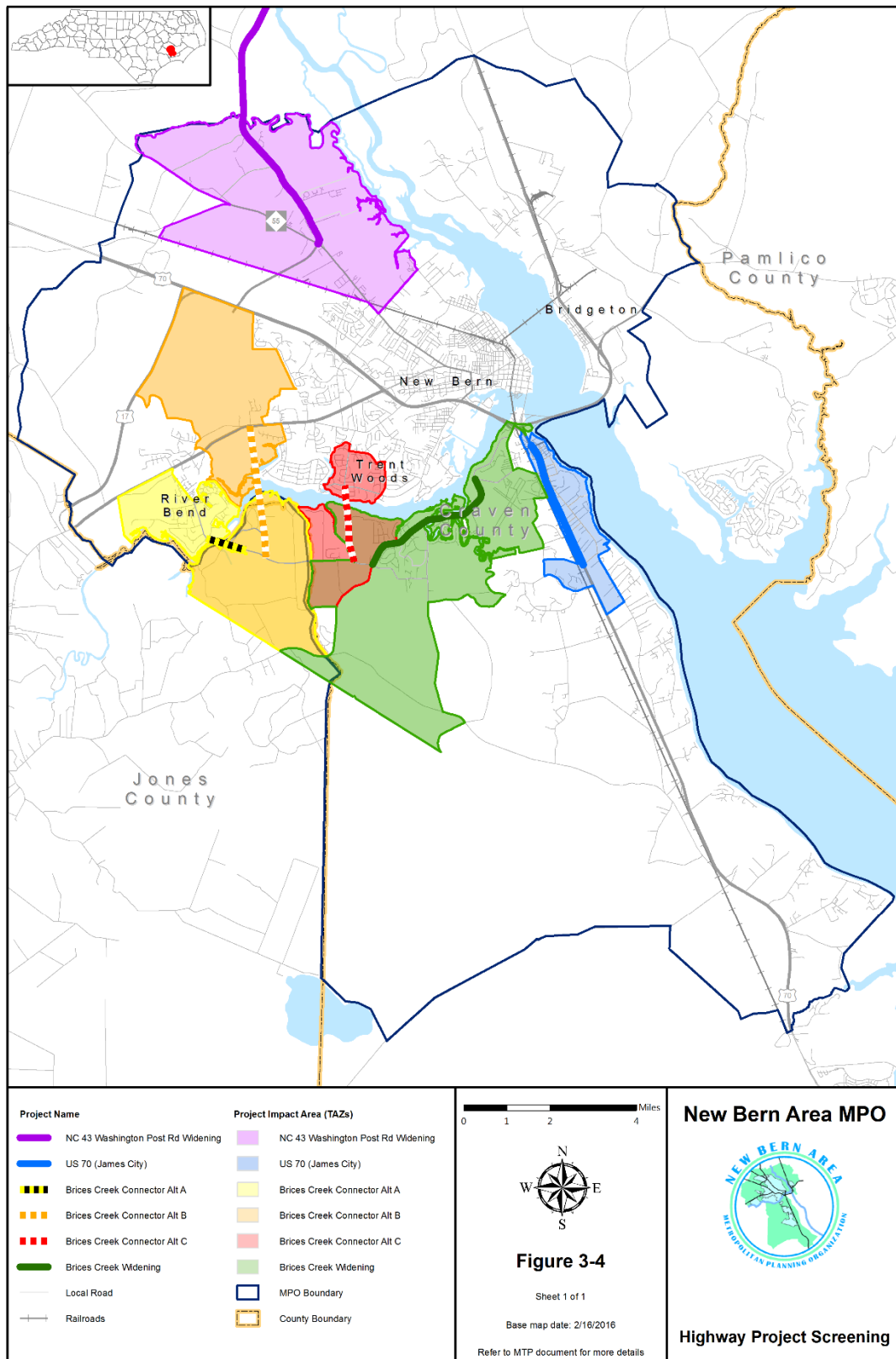
Several specific project proposals in the draft MTP were evaluated individually for potential indirect effects. The MTP-ICE Project-Level Screening examines each of the factors included in the Plan-Level (entire MTP Study Area) Screening, but at a finer scale in order to understand the indirect effects of specific projects.

Specific Projects Evaluated for Indirect & Cumulative Effects (ICE)

A study area was defined for each of the projects based on grouping adjacent TAZs to the proposed corridor. These projects include the following and are illustrated in Figure 3-4:

- **Project A (Map ID No. 4):** Improvements to US 70 in James City, from the Neuse River Bridge to Grantham Road (U-5713). This project includes upgrading the existing facility to a freeway, with a completion year of 2021. This analysis defines the project as being completed by the horizon year 2030. In addition, there is a proposed widening project along the same facility (from four to six lanes) by horizon year 2040. The project is expected to improve traffic flow and accessibility to local community services, and enhance economic development in the area.
- **Project B (Map ID No. 14):** Improvements to NC 43 (Washington Post Road) from NC 55 to the MTP Study Area Boundary. The proposed project includes improving NC 43 to a boulevard facility and is expected to be completed by the horizon year 2040.
- **Project C (Map ID No. 22):** Improvements to Brices Creek Road from Crump Farm Road to Kelso Road. The proposed project includes widening the facility to address capacity and improve access. It is expected that the project will be completed by the horizon year 2040.
- **Project D (Map ID No. 12):** Proposed Brices Creek Road Connector over Trent River. There are three alternatives being evaluated on new location over Trent River to provide a connection for travelers from US 17/MLK to Brices Creek Road/Crump Farm Road. This project is proposed for completion by horizon year 2040.

Figure 3-4: Specific Project Proposals Evaluated for Indirect Effects



Project Level ICE Assessment

Project A – US 70 in James City

Improvements to US 70 in James City, from the Neuse River Bridge to Grantham Road (U-5713) include upgrading the facility to a freeway, eventually with six lanes. The project, expected to be complete by horizon year 2030, will assist in improving traffic flow and access to local community services, and enhancing economic development in the area (additional details are provided in Chapter 6 of the MTP). Additional work proposed to expand the freeway from four to six lanes, currently scheduled for 2040, may be expedited to provide all improvements to this section of the facility at one time. For the purpose of this screening, it is assumed that the facility will ultimately be a six-lane freeway. This project is part of a larger effort by the North Carolina Department of Transportation (NCDOT) to improve passenger and freight movement along the US 70 corridor from Raleigh to Morehead City. The indirect effects screening results are detailed in Table 3-3.

Scope of Transportation Plan Investments

Rating: Possible

The proposed improvement to US 70 in James City alone does not constitute a major transportation investment. However, due to its inclusion in a larger NCDOT effort for the US 70 corridor, a higher rating was given to the project for scope of transportation investment.

Currently, the 2.5-mile portion of US 70 being evaluated is a four-lane separated highway, with intersections at major side streets. The proposed improvements include upgrading the facility to a six-lane freeway to add capacity and improve access management, while providing local and regional benefits through improved traffic operations, economic development, and increased community cohesion. Significant public involvement is being undertaken to ensure community concerns are addressed (ex. connectivity, access to local community services, and modal choices) prior to engaging in design. The improvements to this facility, with the overall goals of improving freight and passenger movement, could reduce travel time. The *Scope of Transportation Investments* resulted in a rating of “possible” indirect effects due to the additional capacity and its part in the overall plan for improvements to the US 70 corridor.

Macro Change in Accessibility

Rating: Possible

The proposed improvements to this section of US 70 provides numerous benefits and does not result in a major change in accessibility when reviewing the corridor overall. However, upgrading and widening the 2.5-mile corridor to a freeway will result in some changes to local access – some access points may be relocated or improved to better serve the local community. As such, the macro change in accessibility resulted in a “possible” rating.

Table 3-3 MTP-ICE Screening Matrix for Indirect Effects, Project Level – Project A

Rating	Scope of Trans. Plan Investments	Macro Change in Accessibility	Forecasted Population Growth	Forecasted Employment Growth	Available Land	Water/Sewer Availability	Market for Development	Public Policy	Notable Environmental Features	Result
Greater Likelihood	High	High	> 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	
Expected						x				
Likely							x			
Possible	x	x	x	x						Possible Indirect Effects
Not Likely					x			x	x	
Not Expected										
Lesser Likelihood	Low	None	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	

Forecasted Population and Employment Growth

Rating: Possible

Based on the socioeconomic data for the MTP Study Area, population and employment are expected to grow at approximately 0.8% and 1.3% annually, respectively. Long-term growth is projected along the entire project length of US 70, with pockets of short-term growth specifically around the Craven County Regional Airport and towards New Bern. Therefore, this growth is not expected to be substantial, and thus, a rating of “possible” was given for these variables.

Available Land

Rating: Not Likely

The US 70 corridor does not have a substantial amount of available land. Most of the land in the area is developed, including the Craven County Regional Airport, and includes a mix of residential, commercial, and religious uses. In addition, the project runs just over 1,000 feet west of and parallel to the Neuse River, limiting the available land in the eastern portion of the corridor. Overall, available land is not prominent in the project corridor, and thus, a “not likely” rating was given.

Water and Sewer Availability

Rating: Expected

The project corridor is fully serviced with water and sewer infrastructure. As such, indirect effects are “expected” for this variable.

Market for Development

Rating: Likely

As previously stated, this project corridor is part of larger initiative to improve passenger and freight movement along US 70 from Raleigh to Morehead City. The location of the project, connecting the Morehead City port with customers throughout the state and beyond, enhance the market for development. There is a substantial amount of development taking place along the corridor, specifically in the southern portion. The proposed improvements, as part of the overall US 70 project, are anticipated to draw more development along the corridor due to the transportation infrastructure updates. While the corridor is currently an active commercial district, the forecasted growth projects long-term growth along the entire project facility, with pockets of short-term growth specifically around the Craven County Regional Airport and towards New Bern. There is substantial statewide interest in the US 70 corridor for economic vitality. An active railroad runs parallel to US 70, which also increases the market for development. This resulted in a rating of “likely” for potential indirect effects for this variable.

Public Policy

Rating: Not Likely

The proposed project is located just south of downtown New Bern in unincorporated James City. However, there is a portion of the City of New Bern south and west of the project corridor. Therefore, this project corridor is subject to public policy and land use regulations from both New Bern and Craven County, as well as the state. In addition, there have been several feasibility and economic studies, and land use plans conducted for the corridor that have summarized existing

conditions and identified strategies for future growth. Therefore, a rating of “not likely” was given for potential indirect effects regarding public policy.

Notable Environmental Features

Rating: Not Likely

As previously stated, the project corridor runs parallel to the Neuse River, and through a local watershed. There are several wetland areas along the corridor. An area of Natural Heritage element occurrence is defined in the northernmost portion of the project corridor, in addition to a regional trail. There is a small area of Craven County open space south of the airport. Two North Carolina Department of Transportation (NCDOT) mitigation sites are located just north of the project corridor at the US 70/US 17 interchange. While there are some notable environmental features in the area, the features are not extremely sensitive. The corridor is currently developed as a commercial corridor with adjacent residential neighborhoods. Accordingly, this category was given a “not likely” rating for the proposed US 70 improvements in James City.

Conclusion

The overall screening for indirect effects associated with the proposed US 70 project resulted in a rating of “possible” for indirect effects. The primary factors contributing to this finding include the growth projected along the corridor, availability of water and sewer, current and future development, and the scope of investment. This project is an important piece of the larger effort to improve US 70 for both passenger and freight movement from the coast to Raleigh.

Project B – NC 43

Improvements to NC 43 (Washington Post Road) from NC 55 to the MTP Study Area Boundary. The proposed project includes improving NC 43 to a boulevard and is expected to be complete by the horizon year 2040. Currently, the facility consists of one lane in each direction and a middle turn lane. As indicated in the MTP, the facility will be over capacity in the horizon year 2040. The proposed upgrade to a boulevard will address these capacity deficiencies. Based on the indirect effects screening, detailed in Table 3-4 below, this project is “likely” to result in indirect effects.

Scope of Transportation Plan Investments

Rating: Possible

The proposed NC 43 upgrade to a boulevard will result in greater capacity on the facility, which connects US 17 and NC 55. Therefore, while it is not considered a major investment, the project does have the potential for indirect effects.

Macro Change in Accessibility

Rating: Not Likely

The proposed upgrade to a boulevard of NC 43 is not expected to impact accessibility in the area. The current facility includes a middle turn lane throughout the entire corridor, and the proposed improvements will maintain accessibility to goods and services. Therefore, effects due to access changes are “not likely”.

Forecasted Population and Employment Growth

Rating: Likely

Overall, population and employment are expected to grow in the MTP Study Area (approximately 0.8% and 1.3% annually, respectively). Based on this socioeconomic data, high (short-term) growth is expected within the area along the majority of the project corridor. As such, a rating of “likely” was given to this specific project area for indirect effects regarding these variables.

Water and Sewer Availability

Rating: Likely

The City of New Bern provides water and sewer service to a portion of the NC 43 project corridor. In addition, Craven County provides water to the northern portion of the corridor. However, sewer service may be limited in the northern portion of the project corridor. As water and sewer are available in a significant portion of the project corridor, the potential for indirect effects was rated as “likely”.

Market for Development

Rating: Likely

The NC 43 project corridor is currently comprised of a mix of uses including: commercial, industrial, institutional, residential and agricultural. There are some undeveloped properties along the corridor, and low-density residential and agricultural properties are the major land uses in the northern portion of the project corridor. Based on the socioeconomic data, high (short-term) growth is expected along the majority of the corridor. This, in addition to the substantial amount of available land, general water and sewer availability, economic development initiatives in Craven County and New Bern, and direct access into the City of New Bern, this project was determined to “likely” have indirect effects related to the market for development.

Public Policy

Rating: Possible

The southern portion of the NC 43 project corridor within the New Bern city limits is zoned primarily for residential (with the majority promoting low-density residential development) and agricultural purposes. There are a few parcels zoned for commercial and light industrial uses. In addition, New Bern has several adopted plans for development within the City. Craven County has a limited zoning ordinance, and focuses primarily on protecting water resources. As such, the potential for indirect effects was rated as “possible” for this variable.

Table 3-4 MTP-ICE Screening Matrix for Indirect Effects, Project Level – Project B

Rating	Scope of Trans. Plan Investments	Macro Change in Accessibility	Forecasted Population Growth	Forecasted Employment Growth	Available Land	Water/Sewer Availability	Market for Development	Public Policy	Notable Environmental Features	Result
Greater Likelihood	High	High	> 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	
Expected										
Likely			x	x	x	x	x		x	Likely Indirect Effects
Possible	x							x		
Not Likely		x								
Not Expected										
Lesser Likelihood	Low	None	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	

Notable Environmental Features

Rating: Likely

The NC 43 project corridor traverses a local watershed area. There is also a large managed conservation area (privately-owned, NC Coastal Land Trust) just east of the southern portion of the corridor and some areas designated as important agricultural land and forested areas. Wetlands are present adjacent to Bachelor Creek, which NC 43 crosses, and at the northern project area terminus along the Neuse River. Another notable feature along the project corridor includes a regional trail. Due to the numerous environmental features along the project corridor, the potential indirect effects to this variable was rated as “likely”.

Conclusion

Based on the screening, indirect effects are likely with the proposed NC 43 project. With the numerous environmental features along the corridor, available land, water and sewer infrastructure, and projected growth within the next 10 years, indirect effects associated with development resulted in a ratings of “likely”.

Project C – Brices Creek Road

Improvements to Brices Creek Road include widening the existing two-lane facility from Crump Farm Road to Kelso Road to address capacity deficiencies. It is expected that the project will be complete by horizon year 2040. Overall, based on the indirect effects screening in Table 3-5 below, possible indirect effects are anticipated with this project.

Scope of Transportation Plan Investments

Rating: Possible

Currently, Brices Creek Road is a two-lane facility extending from Howell Road (a portion named Madam Moores Lane) west to the County line where it changes to Island Creek Road. The scope of the proposed project includes widening the portion of Brices Creek Road from Crump Farm Road to Kelso Road, which would increase the capacity of the facility. Therefore, this project was rated as having the possibility for indirect effects for this variable.

Macro Change in Accessibility

Rating: Not Likely

As the proposed widening of Brices Creek Road is not expected to result in major changes to accessibility, it was rated as “not likely” to have indirect effects associated with same. Overall, the project is expected to increase capacity in the area, but would not create or improve accessibility to goods and services.

Forecasted Population and Employment Growth

Rating: Possible

Based on the socioeconomic data, there is an area adjacent to the airport that is projected to see short-term growth, and moderate growth is projected in the northwestern portion of the project corridor. As such, a rating of “possible” was given for indirect effects regarding these variables.

Available Land

Rating: Not likely

The Brices Creek Road corridor does not have a substantial amount of available land. Most of the land in the area is developed, including the Craven County Regional Airport and several residential subdivisions. In addition, the facility runs between Trent River (to the north) and the Croatan National Forest (to the south). Overall, available land is not present in the project corridor, and thus, a “not likely” rating was given.

Water and Sewer Availability

Rating: Expected

The project corridor is fully serviced with water and sewer infrastructure. As such, indirect effects are “expected” for this variable.

Market for Development

Rating: Not Likely

While Craven County and the local municipalities are actively focused on economic development and growth in the area, the Brices Creek Road project corridor has a limited market for development. There is an area adjacent to the airport that is projected to see short-term growth, and moderate growth is projected in the northwestern portion of the project corridor. However, due to the minimal amount of available land, existing development, and environmental constraints, indirect effects are not likely for this impact variable upon implementation of this proposed project.

Public Policy

Rating: Possible

A small portion of the Brices Creek Road project corridor is situated within the City of New Bern, with the remainder in Craven County. While the City has several adopted plans and zoning ordinances to direct development, there is limited zoning within the County. As such, the potential for indirect effects was rated as “possible” for public policy.

Table 3-5 MTP-ICE Screening Matrix for Indirect Effects, Project Level – Project C

Rating	Scope of Trans. Plan Investments	Macro Change in Accessibility	Forecasted Population Growth	Forecasted Employment Growth	Available Land	Water/Sewer Availability	Market for Development	Public Policy	Notable Environmental Features	Result
Greater Likelihood	High	High	> 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	
Expected						x			x	
Likely										
Possible	x		x	x				x		Possible Indirect Effects
Not Likely		x			x		x			
Not Expected										
Lesser Likelihood	Low	None	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	

Notable Environmental Features

Rating: Expected

As Brices Creek Road runs mostly parallel and just south of Trent River, there are substantial wetland areas in the area, with the road crossing over Brice Creek and Hoods Creek within the project corridor. Important natural areas are present close to the project corridor, including Trent River/Brice Creek marshes to the north and the Sweetwater Creek/Trent River Natural Area to the west. NC Coastal Land Trust property is situated in the same area as the marshes. Brices Creek Road traverses through a local watershed, with the Trent River located less than 1,000 feet from the project corridor in some areas. In addition, as previously detailed, the northern portion of the Croatan National Forest is south of the project corridor. Due to the relative abundance and sensitivity of the natural environmental features in the project area, an “expected” rating was given for this variable.

Conclusion

The proposed Brices Creek Road widening is located in an area where there is not a substantial supply of available land or a great amount of projected growth. However, due to the abundant natural resources along the corridor, its proximity to the Trent River and Croatan National Forest, and the limited existing zoning in Craven County, the screening found that any future development along the corridor could “possibly” result in indirect effects.

Project D – Brices Creek Road Connector over Trent River

There are three alternatives being evaluated on new location over Trent River to provide a connection for travelers from US 17/MLK to Brices Creek Road/Crump Farm Road. This project is proposed for completion by horizon year 2040. Currently, there is one connection across the Trent River along US 70 in New Bern, and another crossing is proposed in the MTP west of New Bern. Three alternatives are being evaluated for this crossing as follows, and the results of the indirect effects screening for each are detailed in Table 3-6:

- Alternative A: Connection from the southern portion of the Town of Trent Woods west of Country Club Road, across the Trent River, to Crump Farm Road.
- Alternative B: Connection from US 17, proximate to Trent Creek Road, south across the Trent River, into an area outside of the MTP Study Area.
- Alternative C: Connection in the southeast portion of the Town of River Bend, across the Trent River, into an area outside of the MTP Study Area.

Overall, based on the indirect effects screening, all the alternatives for the proposed connector are likely to result in indirect effects. However, when comparing the alternatives, Alternative C had the lowest likelihood, with Alternative A in the middle, and Alternative B having the greatest likelihood for possible indirect effects.

Scope of Transportation Plan Investments

<i>Rating</i>	Alt A	Alt B	Alt C
	Likely	Expected	Likely

The proposed connection over Trent River, for all the alternatives being evaluated, would result in a facility on new location, which represents a high level of investment. In addition, this connection would create a major access point across the river in the western portion of the MTP Study Area, where currently there is no connection. As such, the proposed project was rated as “likely” to result in indirect effects for both Alternatives A and C. Alternative B includes a connection across a much wider portion of the Trent River than the other alternatives, which would require a longer structure and increased cost. Therefore, potential indirect effects associated with Alternative B were rated as “expected”.

Macro Change in Accessibility

<i>Rating</i>	Alt A	Alt B	Alt C
	Expected	Expected	Expected

The proposed connection across Trent River would result in a major change in accessibility in the western portion of the MTP Study Area. Currently, the only connection across the river is through New Bern on US 17 or East Front Street. The proposed project would provide a connection much closer to River Bend, Trent Woods, and the western portion of Craven County. In addition, the connection would provide another option for travelers to the coast, resulting in relief for portions of the US 17/US 70 corridor. As such, a rating of “expected” was given to all three alternatives regarding this variable.

Forecasted Population and Employment Growth

<i>Rating</i>	Alt A	Alt B	Alt C
	Likely	Possible	Not expected

Based on the socioeconomic data, there is limited growth in the southwestern portion of the MTP Study Area. The Town of River Bend, where Alternative C is proposed, is not expected to grow. Alternative B, connecting to US 17 and south of Trent River, is located in an area of projected long-term growth to the north in Craven County. There is some long-term growth forecasted just south of Trent River and a pocket of short-term growth in the southwest portion of the MTP Study Area (along the County’s western boundary). Growth is not forecasted within River Bend. As such, a rating of “not expected” was given to Alternative C, “possible” was given to Alternative B, and “likely” was given to Alternative A for indirect effects regarding these variables.

Table 3-6 MTP-ICE Screening Matrix for Indirect Effects, Project Level – Project D

Rating	Scope of Trans. Plan Investments			Macro Change in Accessibility			Forecasted Population Growth			Forecasted Employment Growth			Available Land			Water/Sewer Availability			Market for Development			Public Policy			Notable Environmental Features			Result		
Greater Likelihood	High			High			> 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					
	Alt A	Alt B	Alt C	Alt A	Alt B	Alt C	Alt A	Alt B	Alt C	Alt A	Alt B	Alt C	Alt A	Alt B	Alt C	Alt A	Alt B	Alt C	Alt A	Alt B	Alt C	Alt A	Alt B	Alt C	Alt A	Alt B	Alt C	Alt A	Alt B	Alt C
Expected		x		x	x	x																			x	x	x			
Likely	x		x				x			x			x																	
Possible								x			x			x		x	x	x				x	x	x						
Not Likely															x				x	x										
Not Expected									x			x									x									
Lesser Likelihood	Low			None			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					

Available Land

Rating	Alt A	Alt B	Alt C
	Likely	Possible	Not likely

The proposed connection for Alternative A begins in the southern portion of Trent Woods and crosses the Trent River, terminating at Crump Farm Road. While there is minimal land available in the project area in Trent Woods (most of the area is developed with residential uses and the New Bern Golf and Country Club), there is a substantial amount of available land south of Trent River where the connection is proposed. It should be noted that this proposed connection traverses the Sweetwater Creek/Trent River Natural Area south of the Trent River. Overall, Alternative A was rated as “likely” to have indirect effects regarding available land.

Alternative B, with a proposed connection from US 17 south across Trent River, would be located just west of Trent Woods and connect to the proposed extension of NC 43. Available land is located just north of US 17 at the proposed connection. There is also some available land located south of US 17, but is a mix of wetland types, some tidally influenced. It should be noted that estuarine waters and estuarine shorelines, some of which exist in this area, are considered areas of environmental concern (AECs) pursuant to Craven County’s *CAMA Core Land Use Plan* (2009). Overall, a “possible” rating for indirect effects was given to Alternative B for available land.

Overall, the western portion of the MTP Study Area has the most available land, primarily within the areas of Craven County. However, the southeastern portion of River Bend, where Alternative C is proposed, has only minimal land available. River Bend is developed primarily with residential uses, and a large recreational use (River Bend Golf and Country Club) close to the proposed connector location under Alternative C. As such, Alternative C resulted in a rating of “not likely” for potential indirect effects associated with available land.

Water and Sewer Availability

Rating	Alt A	Alt B	Alt C
	Possible	Possible	Possible

Water and sewer service is available north of Trent River in the areas of all the proposed alternatives for the connector. Water service is available to the area south of Trent River. However, the availability of sewer service south of Trent River is limited. Therefore, the potential for indirect effects was rated as “possible” for all alternatives (A, B, and C).

Market for Development

Rating	Alt A	Alt B	Alt C
	Not likely	Not likely	Not expected

The proposed connection over Trent River is proposed in the southwestern portion of the MTP Study Area, which has a limited amount of projected growth. Specifically, the Town of River Bend, where

Alternative C is proposed, is not expected to grow. With the limited amount of available land, lack of development initiatives, and growth not stated as a goal in the *Town of River Bend Comprehensive Plan*, dated November 2013, indirect effects associated with Alternative C for this variable were rated as “not expected”.

Alternative A, connecting from Trent Woods to Crump Farm Road has some forecasted growth, primarily long-term growth just south of Trent River, and a pocket of short-term growth southwest of the project corridor. Growth is not forecasted within Trent Woods. Alternative B, connecting to US 17 and south of Trent River, is located in an area of projected long-term growth to the north in Craven County. Due to the proposed extension of NC 43, there is market for development between US 17 and US 70, which is just north of Alternative B. Therefore, a rating of “not likely” was given to Alternatives A and B for this variable.

Public Policy

<i>Rating</i>	Alt A	Alt B	Alt C
	Possible	Possible	Possible

While Craven County has limited zoning, with a focus on protecting water resources, there are several County-wide plans that manage growth. Both the Town of Trent Woods (Alternative A) and Town of River Bend (Alternative C) have limited development regulations. However, both Towns have specific visions and goals for their respective area. As such, the potential for indirect effects was rated as “possible” for each alternative (A, B, and C) for public policy.

Notable Environmental Features

<i>Rating</i>	Alt A	Alt B	Alt C
	Expected	Expected	Expected

As the proposed project includes crossing the Trent River, there are substantial areas of wetlands and water bodies that will be impacted. Both Alternatives A and B are in areas designated as having Natural Heritage element occurrence. In addition, Alternative A traverses through a Natural Heritage Area south of the Trent River. A regional trail also runs along the southern boundary of Trent Woods, possibly being impacted by Alternative A. Important farmland is present in the project areas for Alternatives A and B. Overall, indirect effects are “expected” with all the alternatives (A, B, and C) regarding notable environmental features, specifically water resources.

Conclusion

Overall, based on the indirect effects screening, all the alternatives for the proposed connector results in a “likely” rating for indirect effects. However, when comparing the alternatives, Alternative C (connection at River Bend) had the lowest likelihood, with Alternative A (connection at Trent Woods) in the middle, and Alternative B (connection with US 17) having the greatest likelihood for possible indirect effects. While all the alternatives are located in areas with an abundance of notable environmental features and each would result in a substantial change in accessibility, Alternative B represents a much greater investment and has the most opportunity for future development.

Summary

This screening determined that the MTP projects are likely to result in indirect effects. While the proposed projects vary in size, scope, purpose and impact, there will be changes in accessibility, capacity, and travel patterns within the MTP Study Area. These potential changes combined with the area's available land, water and sewer service, and sensitivity and abundance of notable environmental features were the drivers for the indirect effects screening results. This information will be used in addition to the cumulative effects screening (Product 3/Part 2) to comprehensively evaluate potential practices that may be used to protect local resources and drive growth in a manner consistent with local goals and objectives.

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Technical Memorandum for 2040 New Bern MTP-ICE
(Destination 2040)
Screening for Cumulative Effects
(MTP-ICE Product 3/Part 2)

Revision Date: February 12, 2016

Date of Original Version: November 25, 2015

This Technical Memorandum documents the 2040 New Bern Area Metropolitan Transportation Plan (MTP)-Indirect and Cumulative Effects (ICE) Screening for Cumulative Effects. This cumulative effects screening is a broad assessment, applied to the entire MTP Study Area. Documentation of screening for indirect effects (for the entire MTP Study Area and separately for specific project proposals) can be found in MTP-ICE Screening for Indirect Effects Technical Memorandum (MTP-ICE Product 3 – Part 1).

This Technical Memorandum was prepared with the assistance of the New Bern Area Metropolitan Planning Organization (NBAMPO), NCDOT Transportation Planning Branch (TPB), and NCDOT Community Studies group (HES-CS). This coordination helps ensure consistency between long-range planning and the National Environmental Policy Act (NEPA) process during project development.

MTP-ICE Plan-Level Screening Results for the MTP Study Area

Cumulative effects are “possible” for notable community and natural habitat features upon implementation of the projects proposed in the MTP. This rating is, in part, due to the potential for stronger protection of community features in local planning policies and ordinances. The abundance of diverse natural and habitat features in the MTP Study Area also have the potential for more local protection.

Table 3-7 MTP-ICE Screening Matrix for Cumulative Effects: Plan-Level

Rating	Notable Cultural Features			Notable Community Features			Notable Water Quality Features			Notable Natural & Habitat Features			Result
Greater Likelihood	Unique Resources Not Protected / Recognized			Unique Resources Not Protected / Recognized			Unique Resources Not Protected / Recognized			Unique Resources Not Protected / Recognized			
	Past Actions	Current Activities	Future Development	Past Actions	Current Activities	Future Development	Past Actions	Current Activities	Future Development	Past Actions	Current Activities	Future Development	
Expected													
Likely				X						X			
Possible					X	X	X				X	X	Possible Cumulative Effects
Not Likely								X	X				
Not Expected	X	X	X										
Lesser Likelihood	Features Incorporated in Local Planning and Protection			Features Incorporated in Local Planning and Protection			Features Incorporated in Local Planning and Protection			Features Incorporated in Local Planning and Protection			

Notable Cultural Features

Rating	Past	Present	Future
	Not expected	Not expected	Not expected

The MTP Study Area, with its location along the coast, has played an important role in North Carolina's history. Craven County was established in 1712, with New Bern as its county seat in 1722. Craven County grew in size and importance during the mid-18th century which continued through the 19th century with the active railroad system. The area saw significant activity during the Civil War, and is home to several well-known battlegrounds.

New Bern, founded in 1710, was settled by Swiss and German immigrants, and served as a major port and trading center in the 1800s. In 1862 during the Civil War, New Bern was captured and occupied by the Union Army. The City has a strong religious history with numerous historic churches, including St. Paul's Catholic Church (the oldest Catholic Church in the State. Historic Cedar Grove Cemetery has graves of Confederates who died in the Battle of New Bern and the National Cemetery holds the remains of Union soldiers and veterans of later wars. The New Bern Academy is the oldest chartered school in the State, established by law in 1766, and served as a hospital during the Civil War.

New Bern has three recognized historic districts with homes, retail and churches dating back to the early 18th century. There are numerous sites located in New Bern that are identified on the National Register of Historic Places. Tryon Palace is a well-known historic property, built by the governor in 1770, which is used today for community events and exhibits. Single historic properties or those with potential are situated throughout the MTP Study Area. The Sloan Mansion in the Town of Trent Woods is listed on the National Register, and is important to the local community. However, New Bern is the only place within the MTP Study Area with such a high concentration of historic properties.

James City, a small community located just south of New Bern, also has a significant place in history, serving as the Civil War camp where escaped slaves came for protection from all over the Carolinas, eventually becoming the largest refuge in the state for black men and women. Over time, the area evolved into a thriving, independent community. A shift in area ownership created hardship for the community, increasing poverty, and forcing people to leave.

The jurisdictions within the MTP Study Area have had longstanding support for preserving local cultural resources. In addition to the protection provided by the National Register and State regulations, local plans place historic preservation as a priority. The *Craven County CAMA Core Land Use Plan*, dated 2009, states several objectives and policies to protect these cultural resources. Furthermore, New Bern is currently reviewing a draft *Historic Preservation Plan* for the City overall. The community vision stated in a 2010 draft regional land use plan for New Bern, River Bend, and Trent Woods includes the importance of maintaining historic heritage. The *Comprehensive Economic Development Strategic Plan* for Craven County, dated 2013, recommends focusing on culture-based economic development opportunities existing within the County.

Specifically in New Bern, there is additional support for the protection of cultural resources through several organizations, including the New Bern Preservation Foundation, New Bern Historical Society, and the City's Historic Preservation Commission. Overall, there is an emphasis placed on preserving cultural resources

within the MTP Study Area, supporting the local economy and telling the history of the place. With all the support in place for this preservation, a rating of “not expected” was given for cumulative effects to notable cultural features for past, current, and future actions.

Notable Community Features

Rating	Past	Present	Future
	Likely	Possible	Possible

As the MTP Study Area encompasses several jurisdictions and portions of Craven County, with over 80,000 people, there are numerous community features located throughout to service the population. The majority of these features are located within or in close proximity to the jurisdictions. Some examples of the community features in the MTP Study Area include: government complexes, public schools, Craven County Community College, Craven County Regional Medical Center, parks and recreational programs, beach/boating access, Craven County Regional Airport, emergency operation centers, senior centers, churches, regional trails and bicycle routes.

Providing transportation options has become a major priority for the jurisdictions within the MTP Study Area, so greenways, trails, bike lanes, and sidewalks are garnering more attention and more protection. The MTP is proposing numerous bicycle projects to expand this community feature. New Bern has adopted a *Comprehensive Pedestrian Plan* and *Comprehensive Bike Plan*. The *Craven County CAMA Core Land Use Plan* also prioritizes community facilities, and includes several objectives for improving/protecting them. Craven County does not have any regionally significant parks, but instead has locally significant parks. Most of the jurisdictions within the MTP Study Area have a Parks and Recreation Department that maintains these community features.

As many of the locally-adopted plans place importance on community features and more policies are progressing to protect and/or expand these features, a rating of “possible” was given for present and future actions. Stronger policies and recognition would assist in preserving the existing community features and adding new features. These are relatively current plans and policies, so past actions were rated as likely for cumulative effects.

Notable Water Quality Features

Rating	Past	Present	Future
	Possible	Not Likely	Not Likely

Water resources are abundant in the MTP Study Area, being located along the coast, with the Neuse River traversing north south to join the Pamlico Sound, the Trent River traversing through the middle of the Study Area, several streams, substantial wetland areas, and watersheds. The jurisdictions within the MTP Study Area prioritize protecting the quality of these water resources. The *Craven County CAMA Core Land Use Plan* includes “improvement/protection of water quality” as a key issue. Craven County includes portions of the Tar-Pamlico, Neuse, and White Oak River Basins. Each of these basins has a River Basinwide Water Quality Plan, which Craven County follows. In addition, based on input from Craven County, it uses its zoning ordinances to protect water quality. The Neuse River Estuary is listed in the North Carolina 2014

Clean Water Act 303(d) list for water quality impairments for aquatic life and fish consumption due to algal growth and mercury.

Each of the municipalities within the MTP Study Area focus on educating residents about stormwater management and protecting water quality. For example, Trent Woods provides a brochure for residents on the Town website that provides best management practices (BMPs) for protecting water quality and preventing runoff. New Bern has a city-wide stormwater management program. There are also protections for water quality through state and federal regulations.

Overall, while there are substantial water resources in the MTP, a rating of “not likely” was given to present and future actions due to the strong policies and regulations in place to protect water quality. A rating of “possible” was given to past actions primarily due to the recent prioritizing of stormwater management from local jurisdictions.

Notable Natural & Habitat Features

Rating	Past	Present	Future
	Likely	Possible	Possible

The MTP Study Area, rich with notable environmental features support many natural habitats. There are several identified Natural Heritage Areas, primarily located along water bodies and within the Croatan National Forest. These areas are defined by the NC Natural Heritage Program (NHP) as having special biodiversity significance due to the presence or rare species, unique natural communities, important animal assemblages, or other ecological features. Some areas have been protected through available conservation programs (Conservation Tax Credit, Land & Water Conservation Funds). The NHP also collects information on occurrences of rare plants, animals, natural communities, and animal assemblages, and identifies the location of these as element occurrences. The majority of the Natural Heritage Element Occurrences identified within the MTP Study Area are located within the Natural Heritage Areas.

Based on input from the US Fish & Wildlife Services (USFWS), there are seven federally-listed species and four candidate species under the Endangered Species Act in the MTP Study Area (see Table 3-8 below).

Table 3-8: Federally Protected Species List

Scientific Name	Common Name	Federal Status
<i>Alligator mississippiensis</i>	American alligator	Threatened*
<i>Picoides borealis</i>	Red-cockaded woodpecker	Endangered
<i>Trichechus manatus</i>	West Indian manatee	Endangered
<i>Acipenser brevirostrum</i>	Short-nosed sturgeon	Endangered
<i>Acipenser naccarii</i>	Atlantic sturgeon	Endangered (Foreign)
<i>Lysimachia asperulaefolia</i>	Rough-leaved loosestrife	Endangered
<i>Aeschynomene virginica</i>	Sensitive joint vetch	Threatened
<i>Asplenium heteroresiliens</i>	Venus fly trap	Candidate
<i>Litsea aestivalis</i>	Pond spice	Candidate
<i>Ludwigia ravenii</i>	Raven's box-seed	Candidate
<i>Solidago verna</i>	Spring-flowering goldenrod	Candidate

* Due to similarity of appearance to crocodiles

In addition, Eagle nests, Colonial waterbird colonies, and gull-tern-skimmer colonies are present in the MTP Study Area. Working with resource agencies on avoidance and minimization plans can provide protection for these species.

The NHP has also assessed the biodiversity and wildlife conservation value based on numerous variables compiled from different resource agencies, including but not limited to Natural Heritage Areas, element occurrences, important bird areas, wetlands, high quality waters, and stream bioclassification. These values are a representation of high integrity ecosystems that may garner protection to conserve native biodiversity. There are a few areas within the MTP Study Area that are highly ranked for conservation value by this assessment.

The NHP serves to identify rare species and natural communities as a way to make recommendations and facilitate potential future protections of natural features. No past or present official legal protections exist to protect most of the natural heritage sites and/or plants and animal species in the MTP Study Area. With state and nationally-recognized natural features, these *Notable Natural Habitat Features* have been given “likely” to “possible” ratings due to the lack of protection in local planning regulations.

Summary

The cumulative effects of the overall MTP plan, when considered in the context of other past, present, and future actions are “possible” to community and natural features. The potential direct natural environmental impacts by the proposed projects would require avoidance, minimization, and mitigation, consistent with prevailing regulations and coordination with environmental resource agencies. In addition, the MTP’s proposed projects and future development would be required to follow federal, state and local regulations for protecting resources. Future growth is expected within the MTP Study Area, and it is anticipated that the projects proposed in the MTP will spur development. Best management practices (BMPs) by local jurisdictions may support the protection of these important resources and manage the anticipated growth. The next step in this ICE Assessment (Product 4) is to provide recommendations on these BMPs.

References

Bridgeton, Town of, North Carolina. <http://www.bridgetonnc.net/>

Craven County, North Carolina, CAMA Core Land Use Plan. Adopted August 3, 2009.

Craven County, North Carolina. Comprehensive Economic Development Strategic Plan. July 2013.

Craven County, North Carolina. <http://www.cravencountync.gov/>

New Bern, City of, North Carolina. <http://www.newbern-nc.org/>

New Bern, City of. City of New Bern Pedestrian Plan.

New Bern, City of. Comprehensive Bike Plan, 2006.

New Bern, City of. New Bern Historic Preservation Plan (draft).

New Bern, River Bend, and Trent Woods Regional Land Use Plan (Final Draft), October 2010.

North Carolina Conservation Planning Tool. <http://portal.ncdenr.org/web/cpt/cpt-report>

North Carolina Department of Environmental Quality, Division of Water Resources.
<http://portal.ncdenr.org/web/wq/ps/csu/303d>

North Carolina Natural Heritage Data Explorer. <https://ncnhde.natureserve.org/>

North Carolina Natural Heritage Program. <http://www.ncnhp.org/>

North Carolina State Historic Preservation Office GIS Web Service. <http://gis.ncdcr.gov/hpoweb/>

River Bend, Town of, North Carolina. <http://www.riverbendnc.org/>

Trent Woods, Town of, North Carolina. <http://www.trentwoodsnc.org/>

United States Fish and Wildlife Services. Endangered Species. <http://www.fws.gov/endangered/>

Technical Memorandum for 2040 New Bern MTP–ICE
(Destination 2040)
Best Management Practices Recommendations
(MTP-ICE Product 4)

Revision Date: February 12, 2016

Date of Original Version: January 6, 2016

This Technical Memorandum documents the 2040 New Bern Area Metropolitan Transportation Plan (MTP)-Indirect and Cumulative Effects (ICE) Best Management Practices Recommendations and was prepared with the assistance of the New Bern Area Metropolitan Planning Organization (NBAMPO), NCDOT Transportation Planning Branch (TPB), and NCDOT Community Studies group (HES-CS). This coordination helps ensure consistency between long-range planning and the National Environmental Policy Act (NEPA) process during project development. Recommendations outline strategies that local governments may implement in order to minimize potential indirect and cumulative effects from proposed transportation projects. Implementing one or more of these strategies to protect important natural and community resources may assist in streamlining future transportation project delivery, as project permitting focuses on avoiding and minimizing effects to resources in the vicinity of proposed projects.

Overview

The MTP-ICE Assessment evaluated the proposed projects in the 2040 NBAMPO MTP for potential indirect and cumulative effects. This evaluation was conducted for the entire MTP Study Area (Plan-Level Screening) and also for selected individual proposed projects (Project-Level Screening). Overall, the findings indicated possible cumulative effects to notable community features and natural features in the MTP Study Area. These possible effects, which are documented in Products 1, 2 and 3, are based primarily on the amount of land available for development, water/sewer infrastructure, development market, and notable environmental features in the MTP Study Area combined with the forecasted growth (population and employment), existing public policy, and scope of the project proposals in the MTP. As described in Product 3, cultural resources and water quality features are well protected in the MTP Study Area. This Technical Memorandum outlines several tools that could be used by the jurisdictions within the MTP Study Area (i.e., City of New Bern, Town of Bridgeton, Town of Trent Woods, Town of River Bend, and Craven County) to assist in minimizing potential indirect and cumulative effects from proposed projects in the 2040 NBAMPO MTP.

Land Use and Growth

Overall, as documented in Product 1, there are more than 39,000 acres of land available for development in the MTP Study Area (i.e., approximately 44.3 percent of the land is categorized as developable). The municipal areas have close to 100 percent water and sewer coverage, while Craven County has some areas with service (estimated at approximately 15 percent). The majority of the growth is projected in areas where water and sewer are available. There is some growth projected north of NC 55, west of US 17, and west of Brices Creek that may require water and sewer infrastructure for development (as illustrated in Product 2). Based on review of local plans and initiatives, and comments received at the public meetings, long-term

economic development is a priority and the market for commercial, industrial and residential development continues to grow.

The MTP Study Area has an abundance of sensitive notable environmental features, as detailed in Product 1, and a variety of land uses and population centers. The important natural features, including surface water, the Croatan National Forest, and conservation areas in the MTP Study Area constrain potential development to within municipal boundaries and along existing transportation corridors.

Although there are pockets of available land within the municipalities in the MTP Study Area that provide opportunities for in-fill development, most of the available land is outside the municipal boundaries. Much of this available land is identified as being used for agricultural or service purposes, which do not have the same development potential as available land situated within more urban areas or along transportation corridors. As detailed in Product 2, maintaining agricultural land in the MTP Study Area is a priority based on the revenues generated, economic opportunities, and compatibility with the active military operations just south of the MTP Study Area.

The following strategies, which have been successful in other parts of North Carolina and across the country, could assist in minimizing the potential indirect and cumulative effects resulting from the proposed MTP projects and land development. Website links are provided for additional information.

Smart Growth

Smart Growth strategies have been successful at conserving natural land and sensitive environmental areas and creating great communities. There are ten basic Smart Growth principles that guide the approach, two of which are specific to the growth and land use in the MTP Study Area:

- Preserve open space, farmland, natural beauty, and critical environmental areas, and
- Strengthen and direct development towards existing communities.

The focus of Smart Growth is to create locally-based, long-term conservation plans to protect the environment and preserve important elements of the local culture and economy, rather than using a reactive preservation strategy often creating small fragments of conserved land. There are 200 implementation policies for local governments to use in the *Getting to Smart Growth* publications. For example, the jurisdictions within the MTP Study Area may want to consider implementing agricultural districts for some of the more important agricultural areas, which primarily exclude incompatible land uses (i.e., suburban development); adopting a green infrastructure plan, prioritizing open space that should be protected and identifying open space appropriate for development; and implementing zoning tools, such as incentive zoning and cluster development zoning to preserve important resources.

Directing development towards existing communities is crucial in preserving sensitive environmental areas. The City of New Bern has inventoried existing brownfields (i.e., property where there is a presence or potential presence of a hazardous substance, pollutant, or contaminant) located within the City boundaries in their *Brownfields Inventory*, dated October 2010. The City should advertise the development opportunities and available grant funding (State and Federal) associated with brownfield redevelopment. An “infill checkup” is another proactive opportunity to identify and prioritize infill sites available for redevelopment, and understand if there are any obstacles that are preventing investment. Economic incentives provided by local jurisdictions have also been successful at directing investment into areas with

existing infrastructure or revitalization areas, such as favorable lending terms, direct grants, tax abatements, density bonuses, and expedited permitting treatment. Refer to website links below for additional information.

<http://www.epa.gov/smartgrowth/about-smart-growth>

<http://www.epa.gov/smartgrowth/getting-smart-growth-100-policies-implementation>

Revise Zoning Ordinances

The desire for economic growth and protecting natural resources are priorities for the jurisdictions within the MTP Study Area. Implementing zoning ordinances that promote mixed-use development and guide growth to specific areas can create more connectivity, compact development, and a greater identity for the community. Form-based zoning (i.e., regulating physical form rather than land uses), unified development ordinances (UDOs), and mixed-use ordinances have been successful in fostering development and protecting natural resources, with several examples in North Carolina (e.g., City of Raleigh, Town of Garner, Town of Apex, City of Winston-Salem, City of Greensboro, Currituck County, and Wake County).

These zoning ordinances, with a focus on regulating the form of the built environment, differ from conventional zoning, which primarily controls land use and density. Rather, these ordinances describe what the community wants instead of what the community does not want. In addition, these ordinances are created through a comprehensive visioning process and community engagement. Generally, development under these ordinances incorporates diverse architecture, materials, and uses, and promote infill that is compatible with the existing community character. Overall, these ordinances provide a comprehensive approach to land use regulation and streamline the development process. It is important to understand that the creation of these ordinances can be costly and gradual due to the stakeholder involvement and effort required in drafting standards and regulations. Refer to website links below for additional information.

<https://www.planning.org/divisions/planningandlaw/propertytopics.htm>

<https://www.planning.org/planning/2004/nov/formfirst.htm>

<http://formbasedcodes.org/definition>

Farmland Protection

There are additional land use and growth tools specific to farmland protection. As previously mentioned, the MTP Study Area includes a substantial amount of farmland, which is important to the local economy and culture. As detailed in Product 2, there are existing agricultural preservation tools available in Craven County and the Department of Defense (DoD) provides funding assistance for some of the working lands within the MTP Study Area. Craven County has also published recommendations for expanding the existing agricultural preservation tools in its *Agricultural Development Plan adopted in 2013*.

In addition to these tools, the jurisdictions within the MTP Study Area may find focusing on Purchase of Development Rights (PDR) and Transfer of Development Rights (TDR) programs helpful in protecting farmland. TDR programs have been successful in communities with rapid development of rural and undeveloped land, as they preserve the rural area, focus compact growth in developed areas, and compensate property owners for the development potential of their property. The agricultural property is preserved through the landowner severing development rights (sending area) in exchange for compensation from another landowner who wants increased development rights (receiving area) (e.g., preserving agricultural property to allow increased density on another property).

These programs may be especially useful in Craven County and the City of New Bern, as there is some projected growth in agricultural areas and available land along transportation corridors (e.g., NC 43 and US 70), as illustrated in Products 2 and 3, which may provide TDR opportunities. The success of TDR programs is based on purchasers of the development rights – there must be a demand for higher density development in the receiving area. Refer to website links below for additional information.

<https://www.planning.org/divisions/planningandlaw/propertytopics.htm>

<http://www.ctnc.org/protect/info-nc-landowners/land-protection-programs/protecting-farmland/>

<http://www.farmlandinfo.org/policies-programs>

<http://www.cdc.gov/healthyplaces/healthtopics/healthyfood/farmland.htm>

Natural Resources

The MTP Study Area has an abundance of sensitive natural resources, with a few areas highly ranked for conservation by the NC Natural Heritage Program (NHP). Approximately 39 percent of the MTP Study Area is wetlands; the Croatan National Forest and several identified Natural Heritage Areas are also present. Some areas are currently protected through available conservation programs (e.g., Conservation Tax Credit, Land & Water Conservation Funds). There are seven federally-listed species and four candidate species under the Endangered Species Act in the MTP Study Area. No past or present official legal protections exist to protect most of the natural heritage sites and/or plants and animal species in the MTP Study Area.

Local land use plans include general policies to protect wetland, estuarine systems, and areas of environmental concern. With the projected growth, current and expected development, and proposed transportation projects, the local jurisdictions may find the following tools/resources helpful in managing growth and protecting these natural resources.

Green Growth Toolbox

The Green Growth Toolbox, developed by the North Carolina Wildlife Resources Commission (NCWRC) can assist the jurisdictions within the MTP Study Area to identify and conserve priority wildlife habitats and natural resources while accommodating planned growth. The toolbox provides North Carolina-specific conservation data, which can be mapped and used for visioning, plan development, ordinances, and site/development review. For example, a map of the conservation data can be prepared to visualize the best potential areas for incentives and ordinances. In addition, conservation recommendations are provided in the Green Growth Toolbox, based the NCWRC's *Conservation Recommendation for Priority Species and Habitats* (2012) and *Guidance to Address Cumulative Impacts* (2002). These recommendations include conservation and management, buffers, connections, and healthy ecosystems, for during construction and post development. This resource also provides numerous examples of local planning documents, ordinances, and incentives from NC communities varying in size and location. Refer to website links below for additional information.

<http://www.ncwildlife.org/Conserving/Programs/GreenGrowthToolbox/ConservationData.aspx>

<http://www.ncwildlife.org/Conserving/Programs/GreenGrowthToolbox/ConservationRecommendations.aspx>

Green Infrastructure Planning

The MTP Study Area, with important natural features, substantial wetlands, a national forest, numerous water bodies, and communities that are focused on growth and economic development, would be a good candidate for implementing green infrastructure planning strategies. The basis of green infrastructure planning is understanding the interrelated features of a community and how the health of these features dictate the health of the community. It is recognizing as a community that the built environment and ecological environment are connected. Green infrastructure planning has been used as a flexible and comprehensive planning tool, identifying local ecological systems composed of core areas, hubs, and corridors – all critical for habitat protection.

Virginia has been successful in using green infrastructure planning to identify and preserve important natural features. Many of the Virginia municipalities have used grants and technical assistance awarded by the Virginia Department of Forestry and the USDA Forest Service Southern Region through the Green Infrastructure Center (GIC). The North Carolina Forest Service provides assistance to NC communities interested in green infrastructure planning. Johnston County has the Johnston County Natural Resource Initiative (JCNRI) to develop and promote strategies for the conservation of natural resources. The NC Forest Service led an assessment as part of this initiative to identify and highlight the natural resources of the county.

Green infrastructure planning could assist the MTP Study Area jurisdictions in protecting farms and forests, visualizing their future, prioritizing financial resources, providing predictability for developers and conservationists, supporting a variety of ecosystems, and facilitating tourism focused on the area's abundance of natural resources. In addition, green infrastructure planning identifies potential mitigation areas within the local community prior to new development and/or transportation projects being proposed. Refer to website links below for additional information.

<https://www.planning.org/pas/memo/open/may2009/>

<http://www.conservationfund.org/what-we-do/strategic-conservation-planning>

https://www.environment.fhwa.dot.gov/ecological/eco_entry.asp

<https://www.environment.fhwa.dot.gov/integ/index.asp>

Habitat Cohesion and Protection

To truly preserve the sensitive natural habitats in the MTP Study Area, jurisdictions need to ensure that there is an overall plan for this protection, as it is crucial to maintain cohesive habitats rather than fragments. Local ordinances primarily focus on protection of wetlands and water bodies, but many times refer back to federal and state regulations. To ensure quality habitat is preserved, a comprehensive evaluation of habitat in the area should be conducted, and areas prioritized for protection. The National Oceanic and Atmospheric Administration (NOAA) created a Landscape Fragmentation Tool that maps types of fragmentation present for a specific land cover, and illustrates the amount of fragmentation present in a landscape. This information can then be used to evaluate potential habitat impacts.

A combined effort by the jurisdictions within the MTP Study Area to map important resources and use the Landscape Fragmentation Tool map layers to understand the fragmentation present would prepare a usable baseline for existing conditions. This baseline could be used to identify priority areas for protection and monitor future fragmentation. Based on this assessment, the MTP Study Area jurisdictions can use a mix of

land use and growth tools to protect the prioritized natural habitats. Refer to website links below for additional information.

<http://www.ncwildlife.org/Conserving/Programs/HabitatConservationProgram.aspx>

http://www.beginningwithhabitat.org/toolbox/wetlands_wl.html

<https://coast.noaa.gov/digitalcoast/tools/lft?redirect=301ocm>

Incorporate Resources into Local Plans

Overall, the resources (community or natural) that are locally important should be incorporated into and prioritized in local plans (i.e., comprehensive plans, local and regional land use plans, neighborhood plans, and resource-specific preservation plans). There are federal and state regulations that protect some resources, but those resources that define a place, attract people to the community, support the economy, and provide diverse habitat need a high level of visibility and local protection. Several of the tools in this report (e.g., Green Growth Toolbox, Landscape Fragmentation Tool, and brownfields inventory/infill checkup) provide mechanisms for assessing existing conditions and prioritizing resources, which is necessary to understand the value. Once resources are prioritized, these should be included into updates and new local plans. Implementing actions to protect the locally-important resources are essential to include in the plans. Many of the tools provide model development ordinances and examples of local plans for specific resource protection that the MTP Study Area jurisdictions can use as guidance.

Summary

There are numerous resources and tools available to assist the MTP Study Area communities achieve their vision. These resources continue to grow and evolve as success stories are documented in other locations and new information is discovered. Many of these tools are provided by resource agencies, which focus on balancing growth and resource protection. Some resources provide not only planning guidance, but funding opportunities, and grant-writing assistance for local communities.

Starting with an accurate baseline of what the community has and wants is crucial to using the correct tools and reaching a successful outcome. The MTP Study Area jurisdictions have put forth substantial effort in preparing local and regional plans that describe existing conditions and state goals and objectives. The environmental features of the MTP Study Area largely create its unique character and attract a considerable number of tourists and residents to the area. Protecting these features and directing growth to specific areas may create additional growth opportunities, such as ecotourism and retirement communities which represent potential future economic growth areas that may benefit the MTP Study Area. Planning resources are available for these notable defining characteristics of a community to individual growth sectors. Using these resources, which provide lessons learned and example documents from similar communities, will assist in reaching the goals of the MTP Study Area communities.

Attachment 1

Agency Coordination

Andre, Candice

From: Cochran, Miller
Sent: Friday, February 12, 2016 10:45 AM
To: Andre, Candice
Subject: FW: NBAMPO MTP - ICE Assessment Input Request

Miller Cochran, AICP
Transportation Planner

P 919.741.5513
www.vhb.com

From: Tony Lee [mailto:officerlee@trentwoodsnc.org]
Sent: Tuesday, November 03, 2015 7:05 PM
To: Cochran, Miller <mcochran@vhb.com>
Subject: Re: NBAMPO MTP - ICE Assessment Input Request

In regards to the Town of Trent Woods, please see the following responses to questions 1-4.

Q1: no
Q2: no
Q3: no
Q4: no

Tony Lee
Police Chief
Town of Trent Woods

On Nov 2, 2015, at 3:59 PM, Cochran, Miller <mcochran@vhb.com> wrote:

Good afternoon, Chief Lee,

I am writing to follow up on the email below that was sent a few weeks ago. We are seeking information on community characteristics in Trent Woods for use in a report we are preparing regarding impacts from future transportation impacts in the area. More information is provided below. If you could provide us with your responses to the questions below and the attached interview form, that would be greatly appreciated. Please contact me if you have questions.

Thank you,
Miller

Miller Cochran
Transportation Planner

P 919.741.5513
www.vhb.com

From: Andre, Candice
Sent: Friday, October 09, 2015 2:09 PM
To: officerlee@trentwoodsnc.org
Cc: Cochran, Miller <mcochran@vhb.com>
Subject: NBAMPO MTP - ICE Assessment Input Request

Good afternoon, Mr. Lee:

The New Bern Area Metropolitan Planning Organization (NBAMPO) is currently in the process of preparing its Metropolitan Transportation Plan (MTP), which evaluates travel patterns and projected future transportation demands and needs to the year 2040. The MTP will include an indirect and cumulative effects (ICE) assessment for the overall plan and proposed projects. Indirect effects are secondary effects from a project which may include induced growth, land use change, or other induced effects on air or water quality and natural systems. Cumulative effects are the incremental impacts of a project when added to other past, present, and future impacts. VHB Engineering, NC, PC (VHB), on behalf of the NBAMPO, would like your feedback on the questions below to assist with the ICE assessment. A map of the MPO area is attached for your reference.

1. Are there areas within the MTP Study Area that have high crime incidents?
2. Are there areas within the MTP Study Area that have high numbers of pedestrian or bicyclist incidents or otherwise discourage pedestrian or bicyclist use? (reported or anecdotal)
3. Are there locations within the MTP Study Area with high medical response calls? (nursing homes, retirement communities, summer camps, etc.)
4. Are there places in the MTP Study Area with known issues (isolation, access, etc.) with emergency response or evacuation?

Please provide input by 10/16/15. If you prefer, we are happy to discuss these topics by phone. Please let us know if there is a more appropriate person to contact for this feedback. As the assessment progresses, we may be reaching out to you for additional information.

Thank you for your assistance. Feel free to contact Miller Cochran (919.741.5513, mcochran@vhb.com) or me if you have any questions.

Kind regards,

Candice Andre, AICP, LEED GA
Senior Project Planner

<image001.png>
Same people. Same passion. **Fresh look.**

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<Municipal Boundaries (9Oct15).pdf>

Andre, Candice

From: Cochran, Miller
Sent: Friday, February 12, 2016 10:45 AM
To: Andre, Candice
Subject: FW: NBAMPO MTP - ICE Assessment Input Request

Miller Cochran, AICP
Transportation Planner

P 919.741.5513
www.vhb.com

From: Linda Tripp Godette [mailto:godettel@newbernpd.org]
Sent: Tuesday, November 03, 2015 1:08 PM
To: Cochran, Miller <mcochran@vhb.com>
Subject: RE: NBAMPO MTP - ICE Assessment Input Request

Miller,

See my response below. Feel free to call me if you need to. I am very passionate about the transportation issue for people in need. Sorry so late getting back to you. We have been doing some internal changes. Bear with me. ;-)

252-672-4196 office
252-626-1755 cell

Call me any time. Cell is better most times.

From: Cochran, Miller [mailto:mcochran@vhb.com]
Sent: Monday, November 02, 2015 3:57 PM
To: Linda Tripp Godette
Subject: FW: NBAMPO MTP - ICE Assessment Input Request

Good afternoon, Lt. Godette,

I am writing to follow up on the email below that was sent a few weeks ago. We are seeking information on community characteristics in New Bern for use in a report we are preparing regarding impacts from future transportation impacts in the area. More information is provided below. If you could provide us with your responses to the questions below, that would be greatly appreciated. Please contact me if you have questions.

Thank you,
Miller

Miller Cochran
Transportation Planner

P 919.741.5513
www.vhb.com

From: Andre, Candice
Sent: Friday, October 09, 2015 2:07 PM
To: godettel@newbernpd.org
Cc: Cochran, Miller <mcochran@vhb.com>
Subject: NBAMPO MTP - ICE Assessment Input Request

Good afternoon, Lt. Godette:

The New Bern Area Metropolitan Planning Organization (NBAMPO) is currently in the process of preparing its Metropolitan Transportation Plan (MTP), which evaluates travel patterns and projected future transportation demands and needs to the year 2040. The MTP will include an indirect and cumulative effects (ICE) assessment for the overall plan and proposed projects. Indirect effects are secondary effects from a project which may include induced growth, land use change, or other induced effects on air or water quality and natural systems. Cumulative effects are the incremental impacts of a project when added to other past, present, and future impacts. VHB Engineering, NC, PC (VHB), on behalf of the NBAMPO, would like your feedback on the questions below to assist with the ICE assessment. A map of the MPO area is attached for your reference.

1. Are there areas within the MTP Study Area that have high crime incidents? **Yes: includes specific communities, retail stores such as Walmart and places where people must walk for transportation night and day.**
2. Are there areas within the MTP Study Area that have high numbers of pedestrian or bicyclist incidents or otherwise discourage pedestrian or bicyclist use? (reported or anecdotal) **Yes: some areas in specific communities cannot support restructuring to address pedestrian/bicycle traffic due to historical neighborhood designs. A large portion of the community does not have access to a full scale grocery store and are forced to commute on foot or bicycle to accommodate shopping needs. Most all of the pertinent resources needed by the low-income citizenry are not in a reachable grasp for them because they have moved to the opposite ends of the city. This promotes the cycle of robberies, injuries and poor mental wellness. Resources have been removed from the ones in need and the question of how to get them to those resources is now being addressed by your organization. Transportation is a major, major issue.**
3. Are there locations within the MTP Study Area with high medical response calls? (nursing homes, retirement communities, summer camps, etc.) **Yes: elderly homeowners and handicap homes are scattered in neighborhoods while there are assisted living/nursing homes located in business zones. Both require medicals responses along with police response as well**
4. Are there places in the MTP Study Area with known issues (isolation, access, etc.) with emergency response or evacuation? **Yes: a certain portion of residential communities are separated by railroad system that can affect medical and police response.**

Please provide input by 10/16/15. If you prefer, we are happy to discuss these topics by phone. Please let us know if there is a more appropriate person to contact for this feedback. As the assessment progresses, we may be reaching out to you for additional information.

Thank you for your assistance. Feel free to contact Miller Cochran (919.741.5513, mcochran@vhb.com) or me if you have any questions.

Kind regards,

Candice Andre, AICP, LEED GA
Senior Project Planner



Same people. Same passion. **Fresh look.**

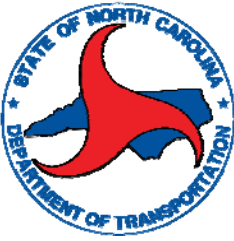
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**INTERVIEW FORM: New Bern Area MPO Metropolitan
Transportation Plan – ICE Product 1 – Public Policy**



Document and describe the prevalence and applicability of the development policies and regulations in the jurisdictions contained in the MTP Study Area. Less stringent policies and regulations are considered “high” in ranking, whereas more stringent regulations and growth management policies are considered a “low” ranking.

Municipality name:	Craven County				
Date:	11/4/15				
Interviewee:	Jason Frederick				
Interviewer:	Miller Cochran				
Overall assessment of policies	High (Less Regulations)	Med-High X	Medium	Med-Low	Low (More Regulations)

Existing Public Policy	Describe in what ways local policies may be considered effective in the way they manage growth (i.e. by the community, planning board).	Craven County uses several plans to help manage growth such as: CAMA Land Use Plan, Multi-Jurisdictional Hazard Mitigation Plan, Subdivision Ordinance, Flood Development Ordinance. These plans implement smart growth techniques such as using buffers, open space, and impervious surface regulations to protect our riverine systems, wetlands or environmentally sensitive areas; managing our flood plain development by awareness, proper construction and locating critical facilities out of the flood plain etc... Subdivisions are reviewed for compliance with setbacks, easements, wetlands, flood, access, soil evaluations etc..
	<ul style="list-style-type: none"> Are the local policies clearly written (with examples to support answer)? How easily implementable are they (why/why not, examples)? How well do the implementing board(s) understand the policies? How consistently does the Planning Board/Council follow the policies? Do they document reasoning when policies are not followed or exceptions are granted? Others? 	<p>-All local policies are clearly written and available for public review on our website.</p> <p>-Our policies/ordinance are mostly easily implemented b/c most are based on State/Federal regulation that we adopt locally. Often we seek public comment, support for our locally adopted ordinances.</p> <p>-Our Board of Commissioners and Planning Board are very knowledgeable and take a hands-on approach when implementing new regulations or modifying them.</p> <p>-Our Planning Board strives to base decisions on consistency with the ordinance(s) they administer.</p> <p>-When a decision is made under a special circumstance the reasoning is noted in the minutes that specifically</p>

		<p>outlines why the decision was made. Our Board is careful to not set precedence's but will entertain special circumstances when possible while still maintaining the integrity of the ordinance.</p>
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New Bern Area MPO – ICE Assessment/Community Understanding Report – Notes from Coordination with Local Officials

Stanley Kite - Craven County EMS phone call on 11/2

- Crime a little elevated along US 70 Corridor / James City
- Higher number of pedestrian crashes in New Bern, but ped/bike crashes not a major concern... not many overall because fairly rural
- Nursing homes and retirement homes have higher EMS call rate. Little Cherry Point is one.
- Brices Creek can get cut off from EMS with storm surge
- High number of accidents along US 70 East corridor

Lt. Godette – New Bern PD, email on 11/3

- High crime places include retail stores such as Walmart and places where people must walk for transportation day and night
- High ped/bike crashes: Yes: some areas in specific communities cannot support restructuring to address pedestrian/bicycle traffic due to historical neighborhood designs. A large portion of the community does not have access to a full scale grocery store and are forced to commute on foot or bicycle to accommodate shopping needs. Most all of the pertinent resources needed by the low-income citizenry are not in a reachable grasp for them because they have moved to the opposite ends of the city. This promotes the cycle of robberies, injuries and poor mental wellness. Resources have been removed from the ones in need and the question of how to get them to those resources is now being addressed by your organization. Transportation is a major, major issue.
- EMS Response calls: Yes: elderly homeowners and handicap homes are scattered in neighborhoods while there are assisted living/nursing homes located in business zones. Both require medicals responses along with police response as well
- Issues with access/isolation: Yes: a certain portion of residential communities are separated by railroad system that can affect medical and police response.

Chief Lee, Trent Woods PD, email response on 11/3

- No as a response to all four questions.

Jason Frederick (in place of Don Baumgardner) – Craven County Planning, phone call and email, 11/4

- Some flood buyout properties, but county trying to avoid them
- Little zoning in the county – try to protect water resources
- VADs in the county (should have shapefile). VADs implemented 6 or 7 years ago, minimum lot size of 10 acres and restrictions on use
- No major ped/bike destinations. Neuse Trail, New Bern sidewalk on Neuse Blvd.

Kelly Walker – CARTS (transit) Director, phone call on 11/5

- No major transit destinations, rural county. Yellow and Red fixed route lines in New Bern

Andre, Candice

From: Matthews, Kathryn <kathryn_matthews@fws.gov>
Sent: Tuesday, November 17, 2015 11:17 AM
To: Andre, Candice
Cc: Pete Benjamin
Subject: Re: FW: New Bern Area MPO Metropolitan Transportation Plan - Pilot ICE Assessment (Past Actions)

Hi Candice,

Thanks for forwarding the map for the New Bern MPO. I am going to be gone all next week for Thanksgiving, and wanted to go ahead and respond to you, even if we don't get to talk.

In general, I think the layers you have listed below are a good start. I have some recommendations for additional mapping layers and general info to be included in the ICE assessment.

If you are not familiar with the NC Natural Heritage Program's new mapping web site, it is a great resource. It is found at <https://ncnhde.natureserve.org>.

From the layers on the NC NHP website, I would recommend that you add the following to your maps for New Bern MPO:

- Coastal Wetlands
- Fish Nursery Areas (there is one secondary nursery area in the MPO area)
- Biodiversity and Wildlife Habitat Assessment
- Natural Areas (may be similar to the Natural Heritage Areas you list below - not sure).

Also, the CTP should discuss the Federally-listed species in the MPO area, along with some of the candidate species (which may be listed in the future, but avoidance and minimization may help us avoid listing them). We don't want them mapped, because we try not to show people exactly where they are (especially plants). The species include:

- American alligator (listed for similarity of appearance to crocodiles)
- Red-cockaded woodpecker
- West Indian manatee
- Short-nosed sturgeon
- Atlantic sturgeon
- Rough-leaved loosestrife
- Sensitive joint vetch

- Venus fly trap (candidate species)
- Pond spice (candidate species)
- Raven's box-seed (candidate species)
- Spring-flowering goldenrod (candidate species)

You can get info on the listed species at our web site: <http://www.fws.gov/raleigh/species/cntylist/craven.html>

Eagle nests, Colonial waterbird colonies, and gull-tern-skimmer colonies should also be discussed as resources that are present in the MPO area, although I don't think we want them to be mapped.

Finally, I think it is important to note that the Neuse River Estuary is listed on the North Carolina 2014 Clean Water Act 303(d) list for water quality impairments. The CTP should discuss causes of those impairments and potential actions to help address the impairments (or to avoid or minimize contributing to the impairments). You can get more info by calling EPA or going to their website at http://iaspub.epa.gov/waters10/attains_nation_cy.control?p_report_type=T

I appreciate the opportunity to comment. Feel free to call if you have any questions.

Kathy Matthews

On Tue, Nov 10, 2015 at 3:59 PM, Andre, Candice <candre@vhb.com> wrote:

Good afternoon, Kathy:

Just to follow up on my voicemail from this afternoon. I would like to discuss an effort we are currently undertaking with the New Bern Area MPO (details in the email string below). I have attached the MPO Study Area map for your reference.

Please give me a call at your convenience.

Have a wonderful day.

Many thanks,

Candice Andre, AICP, LEED GA

Senior Project Planner

P 919.741.5346

www.vhb.com

From: Buncick, Marella [mailto:marella_buncick@fws.gov]

Sent: Monday, November 09, 2015 9:55 AM

To: Andre, Candice <candre@VHB.com>; Kathryn Matthews <kathryn_matthews@fws.gov>

Subject: Re: New Bern Area MPO Metropolitan Transportation Plan - Pilot ICE Assessment (Past Actions)

Hi Candice,

I left you a voice message on Fri regarding your contact with FWS and it is Kathy Matthews. I'm ccing her on this email so you have each other's contact info.

marella

On Fri, Nov 6, 2015 at 11:20 AM, Andre, Candice <candre@vhb.com> wrote:

Good morning, Marella:

Just want to follow-up on my voicemail from this morning. As indicated, the New Bern Area Metropolitan Planning Organization (NBAMPO) is currently in the process of preparing its Metropolitan Transportation Plan (MTP), which evaluates travel patterns and projected future transportation demands and needs to the year 2040. The MTP will include an indirect and cumulative effects (ICE) assessment for the overall plan and some of the proposed projects. VHB Engineering, NC, PC (VHB), is preparing the ICE assessment, and I would like to confirm with you the past actions we are including for recognition and/or protection of water quality and natural habitat features. A map of the MPO area is attached for your reference. Currently, we are including the following as past actions:

- CAMA land use plans,
- Maintained mitigation areas,
- Natural Heritage areas,
- Conservation Managed areas, and
- Croatan National Forest.

It would be great to get your input/have a discussion by phone. Feel free to call me at your convenience.

Have a wonderful day.

Many thanks,

Candice Andre, AICP, LEED GA

Senior Project Planner



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Marella Buncick

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Kathy Matthews
Fish and Wildlife Biologist
Raleigh Ecological Services
U.S. Fish and Wildlife Service
P.O. Box 33726
Raleigh, NC 27636-3726
Phone 919-856-4520 x27
Email kathryn_matthews@fws.gov

Andre, Candice

From: maxeyk@nbampo.org
Sent: Tuesday, November 24, 2015 9:36 AM
To: Andre, Candice; Tayal, Taruna
Subject: ICE Maps Comments
Attachments: SKMBT_C22415112313030.pdf; SKMBT_C22415112313020.pdf

Good morning lovely ladies!

Attached please find comments from Delane Jackson and Mayor Kirkland from River Bend.

These are the only comments we have received so far.

Thank you!

I'm out of the office tomorrow through the rest of the week. Maurizia will be here tomorrow.

I hope you both have a wonderful Thanksgiving.

Kim

Kimberly Maxey
MPO Planner
New Bern Area MPO
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New Bern, NC 28560
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F: 252.636.2146
www.nbampo.org

BRIDGE TO CONNECT HIGHWAY 17 & 70 TO BRICES CREEK ROAD

The most appropriate location for such a bridge would be to cross the Trent River just to the southwest of River Bend. There are several advantages the most obvious is that a bridge in this location would have a short span and it would not need to be a movable bridge. This location would provide an opportunity for development in both Craven and Jones Counties.

Clearly the acquisition of right of way in this corridor would be less demanding of capital expense.

RIVER BEND WATER DISTRIBUTION TANKS

The Town has two elevated water distribution tanks. The location of these tanks is shown on the draft MPO Environmental Features Map.

RIVER BEND BOATING ACCESS

There is a kayak launch on the Trent River in River Bend. That access is shown on the MPO Environmental Features Map.

RIVER BEND WASTEWATER TREATMENT PLANT

While the map has no symbol shown for this infrastructure, it would seem that location of these infrastructure elements is critical. The location of the Town's WWTP is shown on the map.

TOWN OWNED WOODED WETLAND

The Town owns approximately 75 acres of wooded wetland that borders on the Plantation Canal. The Town has committed to maintaining this acreage in its natural state.

John Kirkland

