



Transportation Report for the Efland-Buckhorn- Mebane Study Area



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Section 1 - Introduction

PURPOSE AND BACKGROUND

The primary purpose of this technical report is to develop a roadway network to support investment in the Efland-Buckhorn-Mebane Study Area, based on an examination of existing plans, future land use, environmental constraints, cultural and historic resources, key transportation considerations, and future development potential. The data presented in this technical report will provide the basis and justification for requiring the dedication of rights-of-way in the Efland-Buckhorn-Mebane Study Area and may serve as an appendix to the updated Efland-Buckhorn-Mebane Study Area Access Management Plan.

Access management of the road network in the study area will facilitate access to land for development, while maintaining the safety and efficiency of the State's transportation system. The goals of an access management plan include creating access to new developments and ensuring that existing facilities remain operating at a functional level. Within Orange County, the Efland-Buckhorn-Mebane Study Area was selected as a location to encourage future economic development activities, based on its strategic location along major transportation corridors. The Efland-Buckhorn-Mebane Study Area runs along the north side of I-40 between Buckhorn Road and I-85/US 70 Connector and along the south side of I-40 from Ben Wilson Road and Mt. Willing Road. Recent growth along the I-85/40 corridor has resulted in an average increase of traffic of 3% each year; with the expected growth of residential activity and office, service, research, commercial and industrial development in the study area, the future traffic is anticipated to also intensify. A map of the project study area is shown in Figure 1.

ACCESS MANAGEMENT

Access management is the systematic control of the location, spacing, design and operation of driveways, median openings, interchanges and street connections to a roadway¹. The Federal Highway Administration's (FHWA) official definition of access management is *"the process that provides access to land development while simultaneously preserving the flow of traffic on the surrounding system in terms of safety, capacity, and speed."* By controlling these access points, a local or state government can:

- ✧ Maintain the overall safety of the transportation system;
- ✧ Minimize congestion;
- ✧ Provide for efficient traffic flow and pedestrian safety;
- ✧ Minimize crash rates; and
- ✧ Provide appropriate access to adjacent business properties.

Ultimately, Orange County seeks to develop an access management plan in order to maintain the functionality of the transportation network as the Efland-Buckhorn-Mebane Study Area develops.

¹ Access Management Manual, Transportation Research Board, Washington D.C. 2003

Study Area for the Efland-Buckhorn-Mebane Transportation Report - Figure 1



BUSINESS IMPACTS

Addressing the roadway network and access management issues during the planning and development of land in the study area and transportation projects can help a community in various ways. Customers are seeking businesses with unblocked driveways and easy access while businesses are seeking access to signalized intersections and interconnected developments which allow easy access to interstate facilities. Having a plan in place to address the needs of the community is critical to the economic prosperity of the region and ultimately to the State of North Carolina.

COMPREHENSIVE TRANSPORTATION PLAN (CTP)

The North Carolina Department of Transportation and Orange County adopted the Orange County Comprehensive Transportation Plan (CTP), which provides project recommendations for rural areas of the county, in 2013. The Durham-Chapel Hill-Carrboro MPO (DCHC MPO) CTP is currently under development and will be adopted in 2017. This plan addressed future transportation needs in the urbanized areas. The Orange County Unified Development Ordinance (UDO) will be used to further foster economic development in the Mebane/Buckhorn Economic Development District (EDD).

Under State law ([N.C.G.S. § 136-66.2](#)), Metropolitan Planning Organizations (MPOs) and municipalities shall develop Comprehensive Transportation Plans (CTPs) in cooperation with the North Carolina Department of Transportation (NCDOT). For municipalities and counties, or portions thereof, located within an MPO planning area, the development of a CTP shall be by the MPO in cooperation with the NCDOT. The CTP is not required to be fiscally constrained and no minimum horizon year or update timeframes are specified. The CTP is the element of the Metropolitan Transportation Plan (MTP) that identifies transportation needs before fiscal constraint is applied.

Under Federal law ([23 U.S. Code § 134](#)), MPOs are required to prepare a MTP. The MTP is required to address the federal planning requirements in 23 U.S.C. § 134, which include being fiscally constrained, having a minimum 20 year horizon, and being updated every 4 years in air quality non-attainment or maintenance areas (every 5 years in attainment areas).

It is important to note that the [CTP/MTP](#) does not include every road on the highway system. As such, in accordance with G.S. § 136-66.2, to complement the roadway element of the CTP, municipalities and MPOs may develop a collector street plan and/or include additional projects that may be included in the transportation plan if reasonable additional resources beyond those identified in the financial plan were available to assist in developing the roadway network. The Department of Transportation may review and provide comments but is not required to provide approval of the collector street plan. The CTP and the locally approved collector street plan(s) work together to identify the future transportation system. The street and highway elements of the plans developed pursuant to G.S. § 136-66.2 shall serve as the plan referenced in G.S. § 136-66.10(a), which addresses the reservation and dedication of right-of-way under local ordinances.

Locally approved transportation plans may contain street or highway right-of-way alignment and dedication recommendations or requirements, and collectively function as the collector street plan for the MPO or municipality as referenced under G.S. § 136-66.2.

The concepts shown on a CTP are for planning purposes and are subject to change. These concepts will need additional analysis to meet state and federal environmental regulations, to determine final locations and designs, and to be funded for implementation. The Orange County UDO, Sections 6 and 7 includes the requirements for reserving and dedicating right of way or requiring construction of roads listed in Access Management Plans or on the CTP. Specific mention is also made to the dedication of right of way based on the concepts shown on the CTP and local collector street plans, based on N.C.G.S. § 136 66.2 and § 136 66.10.

Section 2 – Existing Conditions

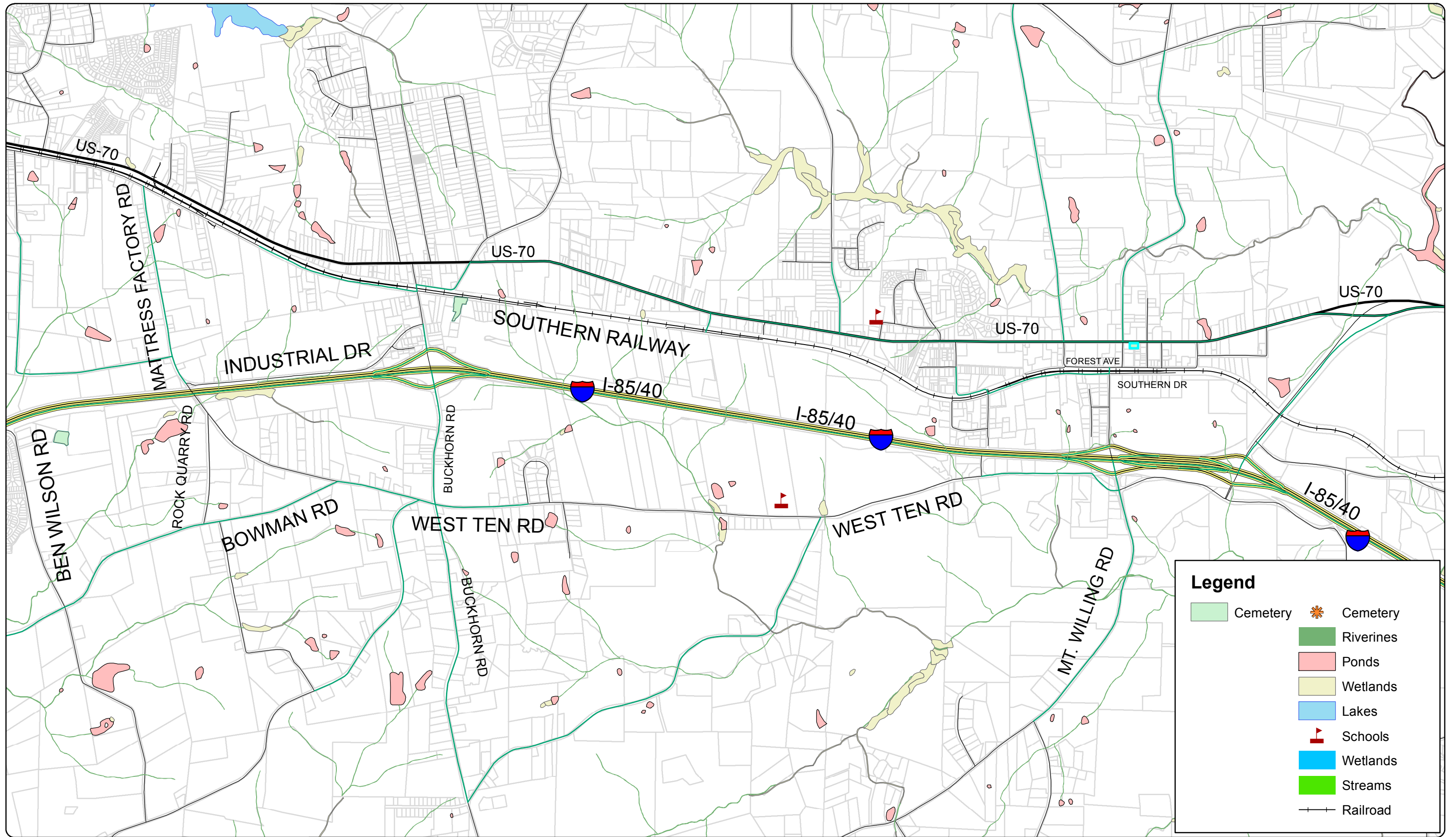
ENVIRONMENTAL FEATURES

To begin the transportation report development process, Orange County’s environmental contractor, Pilot Environmental, Inc. (PEI) conducted preliminary studies within the Study Area: Wetlands determination, threatened and endangered species determination. Specifically, PEI’s field work and use of existing federal and state agency data determined the presence of any streams, ponds and Wetlands, assessment of potential historic properties/structures and/or archaeological remains, and obtain information regarding federally protected threatened and endangered species that could be located in the area. The project was broken into four study areas: 1A, 1B, 2A, and 2B, a map of which is shown in Attachment A. The purpose of the work was to document environmentally sensitive areas to assist the County in long-range planning and regulating future road networks related to development proposals in the area. The future road network proposals will ultimately be developed to mitigate impacts on environmental features in the Study Area. Figure 2 depicts the Existing Conditions, highlighting water features, schools, and cemeteries. Figure 3 contains Environmental Features including endangered species and elevation contours.













CULTURAL FEATURES

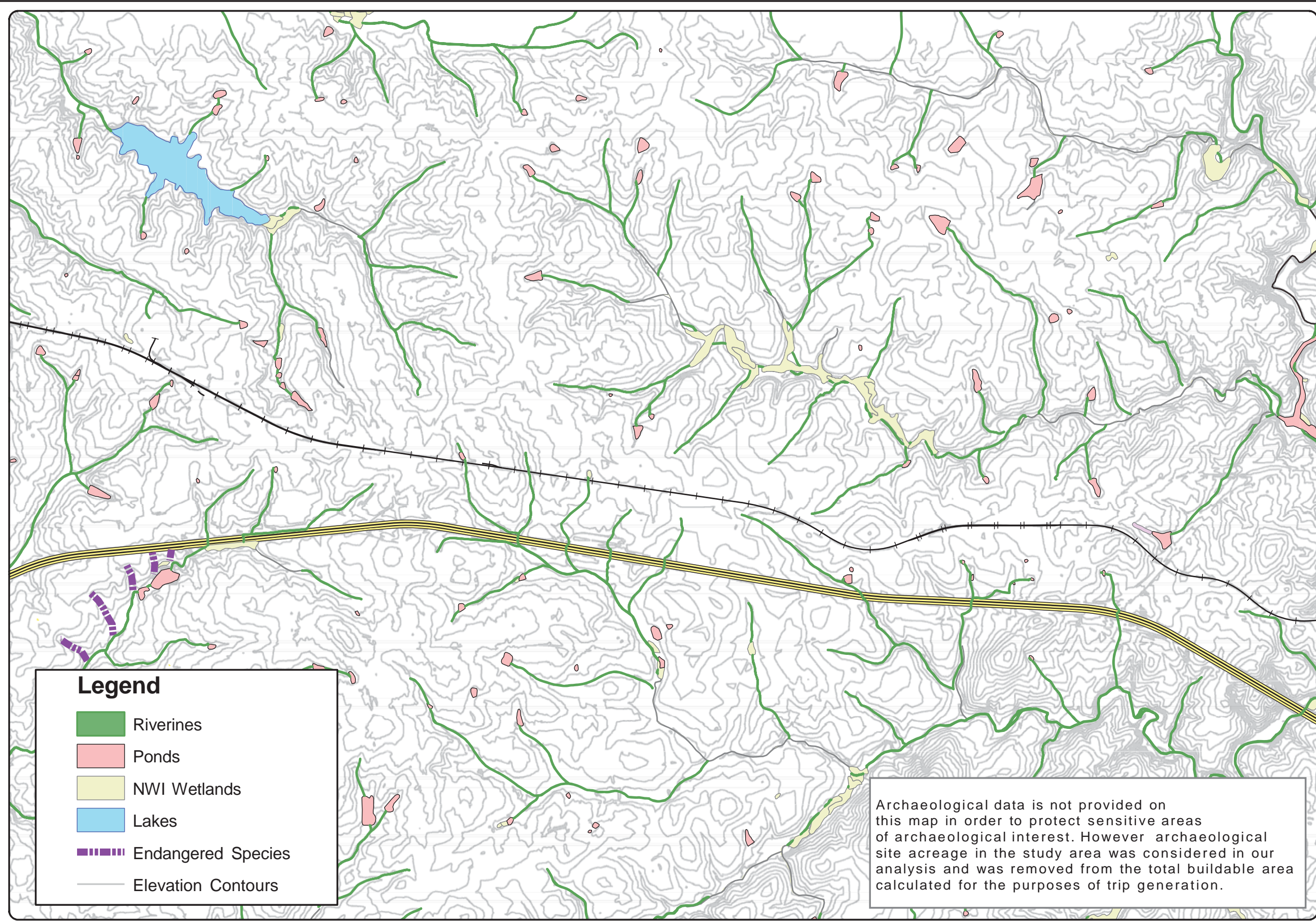
PEI also conducted a cultural resources inquiry in the Study Area. A cemetery and several historic structures were located. PEI submitted a letter to the State Historic Preservation Office (SHPO) soliciting comments pertaining to the Study Area. Copies of their responses are shown in Attachment B. SHPO determined that the road network as proposed will not have an effect on any of the historic structure, and additionally, the cemetery is protected in accordance with NCGS Chapter 65.

Portions of the Study Area also have a high probability for the presence of archeological resources. Archaeological data was obtained but is not depicted on Figure 2 in order to protect sensitive areas of archaeological interest.



Legend

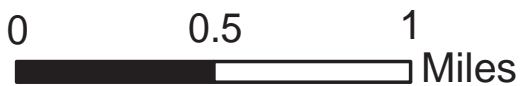
	Cemetery		Cemetery
	Riverines		Lakes
	Ponds		Schools
	Wetlands		Wetlands
	Lakes		Streams
	Schools		Railroad



Legend

- Riverines
- Ponds
- NWI Wetlands
- Lakes
- Endangered Species
- Elevation Contours

Archaeological data is not provided on this map in order to protect sensitive areas of archaeological interest. However archaeological site acreage in the study area was considered in our analysis and was removed from the total buildable area calculated for the purposes of trip generation.



Note: This map is for presentation use only and not to be used for construction purposes.

Environmental Features Map
Figure 3

EXISTING ROADWAY NETWORK

The project area (shown in Figure 1) is approximately 4.25 square miles bounded on the west by Ben Wilson Road, on the east by The I-85/US-70 Connector, on the north by US-70, and on the south by West Ten Road and Bowman Road. The area lies between two municipalities, Mebane and Hillsborough. A description of the transportation facilities in the general vicinity of the project study area is as follows:

I-40/I-85 is an eight-lane interstate that runs concurrently through Guilford, Alamance, and Orange Counties. I-40 diverges from I-85 at exit 163 south of Hillsborough. The posted speed limit is 65 mph and the AADT is 98,000 vehicles/day.

Ben Wilson Road is a two-lane major connector which is accessed from the Mebane Oaks Road interchange on I-85/40 and carries mainly residential traffic. It was recently extended to act as a service road for employees of Morinaga America Foods, Inc. The extension of Ben Wilson Road to Mebane Oaks Road has been studied, however plans have not been approved and will not be discussed in this report. The posted speed limit is 35 mph.

West Ten Road is a two-lane major connector south of I-40/I-85 which runs from Mattress Factory Road to the I-85 Connector. The posted speed limit is 55 mph, except for a 45 mph section near Gravelly Hill Middle School, and the AADT is 1,800 vehicles/day.

Mattress Factory Road is a two-lane major connector that is north of I-40/85 which runs from East Washington Street (SR 1303) to West Ten Road, intersecting at I-40/85. The posted speed limit is 35 mph and the AADT is 2,500 vehicles/day.

Buckhorn Road is a two-lane major connector stretching from US-70 in the north to Orange Grove Road (SR 1006) in the south. Within the study area, i.e. from US-70 to West Ten Road, Buckhorn Road has a posted speed of 35 mph and the AADT is 2,700 vehicles/day.

US 70 is a two-lane road classified as an Other Principal Arterial, which provides east-west access across Orange County from I-85 and Durham in the east to Mebane in the west. US-70 represents the northern boundary of the study area. The posted speed limit is 45 mph and the AADT is between 3,600 and 5,300 vehicles/day.

I-85/US-70 Connector is a four-lane interstate providing access between I-40/I-85 and US-70. A full access interchange is provided at I-40/I-85, while a partial access interchange is present at US-70. The partial access interchange restricts westbound travel onto US 70 from the I-85/US-70 Connector and southbound travel from US-70 onto the I-85/US-70 Connector. The posted speed limit is 55 mph and the AADT is 4,400 vehicles/day.

Section 3 – Future Network

FUTURE LAND USE MAP

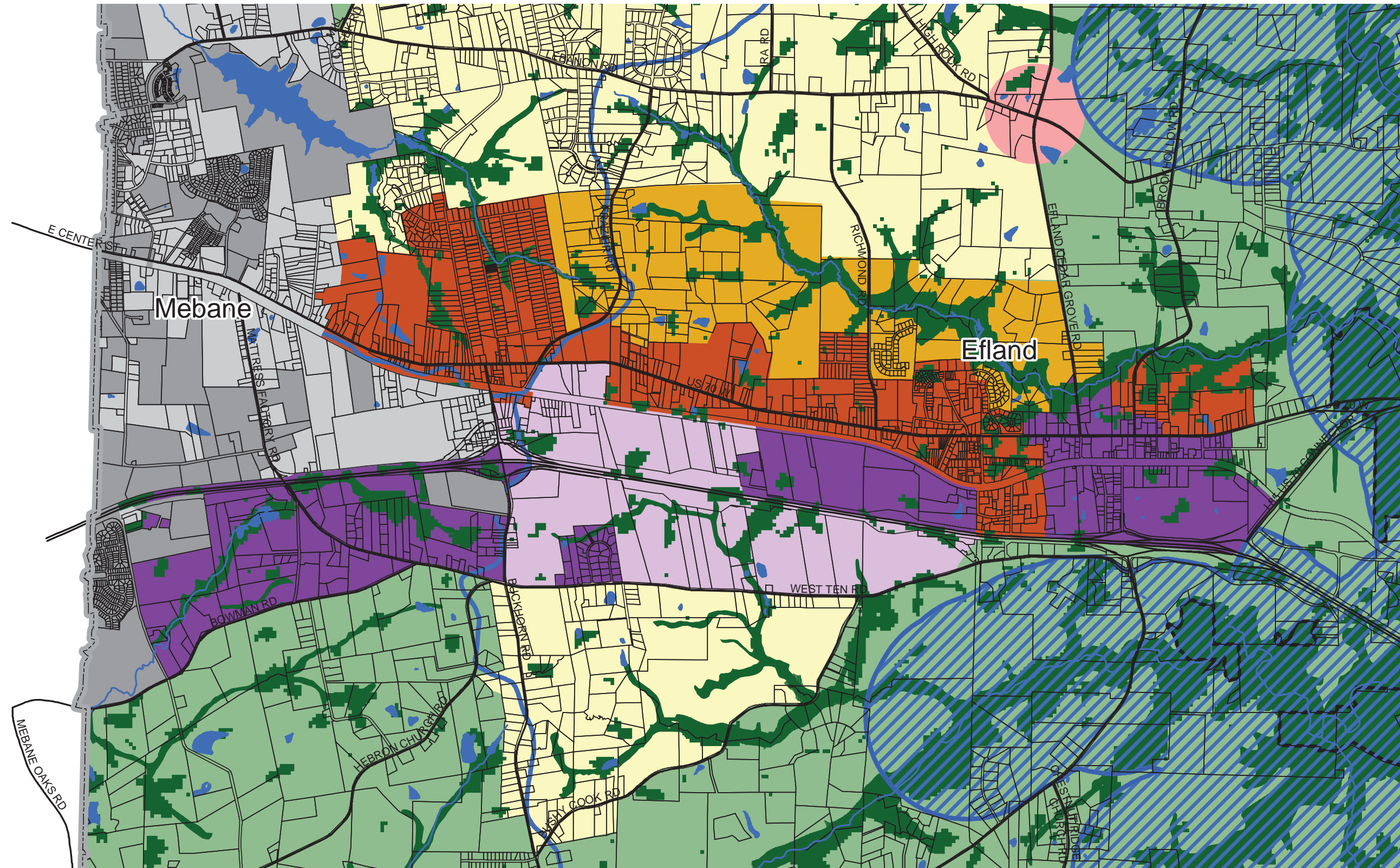
The Future Land Use Map (FLUM) (Figure 4) is a key component of the adopted Orange County 2030 Comprehensive Plan. The FLUM provides guidance and direction regarding future land use planning and development efforts undertaken in the county, including the Study Area. The FLUM defines the location of appropriate land use classifications that would achieve a desired pattern of development, and is critical for achieving sustainable growth.

Implementation of the stated land use goals and objectives of the Comprehensive Plan is accomplished primarily through the application of zoning districts consistent with the FLUM. The land use classifications depicted by the FLUM provide the locations in the county where certain zoning districts may or may not be appropriate. The classifications designated for the Study Area are: Commercial- Industrial Transition; Economic Development Transition Activity Node; and 10-Year Transition. A variety of zoning districts are appropriate for these classifications with specifics provided through a Land Use and Zoning Matrix that is included in the Comprehensive Plan. If a proposed zoning district is not compatible with the classifications contained in the Matrix, re-zoning cannot take place unless the FLUM is amended.

The land use classifications of the FLUM, together with the existing and projected future zoning districts, informed a build-out analysis for the Study Area. The analysis provides an estimation of future development. It serves as the basis for estimations of the amount of additional traffic that could be generated if the Study Area was developed to its full potential, as well as serving as a tool for planning for future improvements to the transportation network.

General Study Area

Future Land Use Map of the Orange County Comprehensive Plan



- | | | | |
|---------------------------|--------------------|--------------------------|----------------------------------|
| Watershed Critical Areas | 10 Year Transition | Agricultural Residential | Activity Nodes |
| Water Supply Watersheds | 20 Year Transition | City Limits | Rural Neighborhood |
| Resource Protection Areas | Rural Residential | ETJ | Economic Development Transition |
| Public Interest Areas | | | Commercial-Industrial Transition |

Figure 4



0 1,000
 Feet
 1 in = 3,500 feet

Adoption Date: Nov 18, 2008
 Amended through November 2014

Orange County and Planning and Inspections Department.
 This copy printed July 19, 2016.
 Map is for reference use only.
 Contact Planning staff for verification of data.

STUDY AREA BUILDOUT ANALYSIS

An important element of the Transportation Report for the Efland-Buckhorn-Mebane Study Area was the preparation of a buildout analysis. The buildout analysis provides an estimation of future development and helps determine quantity and location of future growth. The analysis utilized an Orange County parcel map with a GIS overlay, and was based upon a number of attributes, among the most important being:

- Existing land uses;
- Existing zoning; and
- The adopted Future Land Use Plan

Delineation of Development Pods

Based primarily on a combination of the existing road network, the existing Zoning Map, and the designated future land use (per the adopted Land Use Plan), eighteen (18) development pods were created as a base for estimating future trip generation for the study area. The development pods are depicted in Figure 5, and range in size from 22 acres to 362 acres.

The buildout analysis process incorporated a number of attributes:

- Zoning and Future Land Use Plan designations for the pods.
- Gross acreages of development pods, undeveloped land, current non-residential land, current residential acreages including subdivisions and development, existing non-residential development, and other developed area to be preserved;
- Documentation of environmental and cultural constraints by developable areas;
- Estimation of appropriate land uses by ITE codes;
- Consideration of development regulations restricting the percentage of site development;
- Provision of public services (water, sewer);
- Proximity of interstate interchanges;
- Proximity of and potential access to the rail line;
- Potential impact of future transit (OPT); and
- An applied market reduction factor based on location and available public services.

The primary concern in the study area in terms of developing a feasible future roadway network are the presence of streams that have a fifty-foot vegetative buffer based on the Neuse River Riparian Buffer Rules. While roadway crossing of streams are allowable per the buffer rules, Volkert attempted to minimize stream crossings in the development of the future roadway network and assumed that no development would take place within the stream buffers.

The trip generation analysis is summarized in the spreadsheet provided in Attachment C. The result of the analysis was the estimated buildable acres per pod. The analysis provides valuable estimated projections about future land uses and development potential, and serves as the basis for estimations of the amount of additional traffic that could be generated if the study area was developed to its full potential. The analysis also serves as a tool to be used to consider future needs and improvements to the transportation network serving the Study Area.

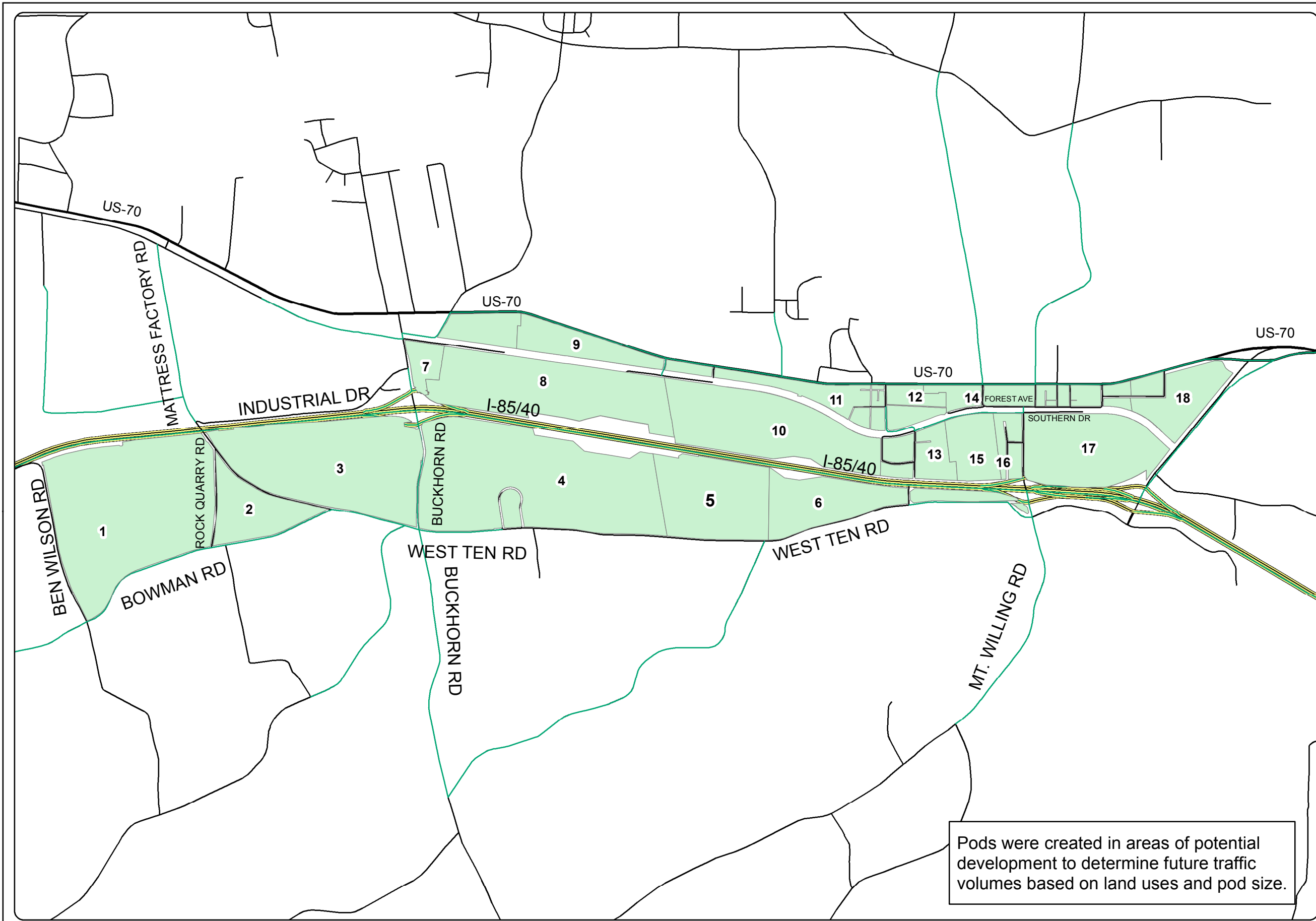
Future Traffic

Future trips to and from the development pods were determined by combining data from existing transportation impact analyses (TIAs) in the vicinity, NCDOT traffic counts, and trip generation data, calculated based on various land use codes and the buildable areas of the pods. The formulas and land use codes used to determine the trip data area listed in Attachment C. The anticipated number of vehicles generated from the development in each pod is shown in Table 1 below.

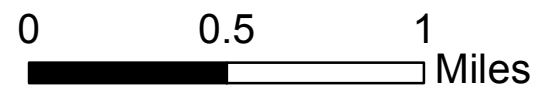
Table 1 – Anticipated Traffic Generated from Development

Pod	Area (acres)	Total Daily Traffic	AM Peak Hour	PM Peak Hour
1	86.8	7,440	986	1,025
2	19.1	2,781	338	302
3	81.0	21,917	2,227	2,144
4	135.2	40,432	4,114	3,270
5, 6	19.7	1,998	189	203
7	7.5	36,955	3,476	2,865
8	70.1	5,088	715	738
9	18.1	17,736	1,534	1,492
10	48.6	4,336	586	574
11	7.1	4,516	468	466
12	4.9	392	51	49
13	15.2	925	128	124
14	8.5	4,896	509	507
15	11.1	1,010	127	124
16	1.8	772	81	81
17	79.3	16,228	1,931	1,770
18	24.3	5,422	647	614

Note: Pods 5 and 6 were combined because Pod 5 did not have any developable area. There are plans for the development of additional soccer fields at the Soccer.com center in Pod 5 which will add another 3 vehicles to the peak hour of Pod 5/6.



Pods were created in areas of potential development to determine future traffic volumes based on land uses and pod size.



Note: This map is for presentation use only and not to be used for construction purposes.

**Development Pod Map
Figure 5**

FUTURE ROADWAY NETWORK

Based on the information presented in this report and taking into account functional classification, design speed, traffic volumes, character and composition of traffic and type of right-of-way, the roadway network on the following pages is recommended. NCDOT Annual Average Daily Traffic (AADT) counts were used to determine the traffic volumes surrounding the study area, while traffic studies for adjacent streets were also used to inform this analysis. In recommending these new facilities, Orange County used the following criteria as guidelines:

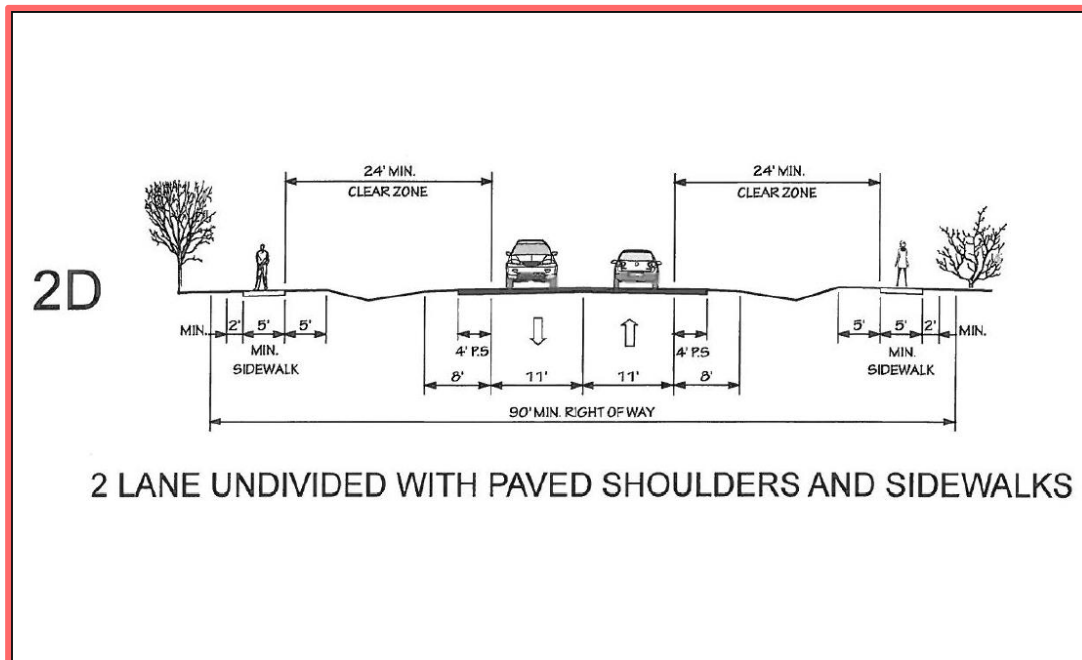
1. Serve all of the future development areas
2. Keep traffic off of the existing roadway network
3. Provide access to the existing interchanges
4. Minimize stream crossings
5. Avoid historical areas, cemeteries, and archaeological resources
6. Avoid currently developed properties
7. Avoid wetlands, poor soil, and rock
8. Create better conditions for non-automobile modes

Roads will be constructed to the design speeds provided for each cross-section.

TYPICAL SECTIONS

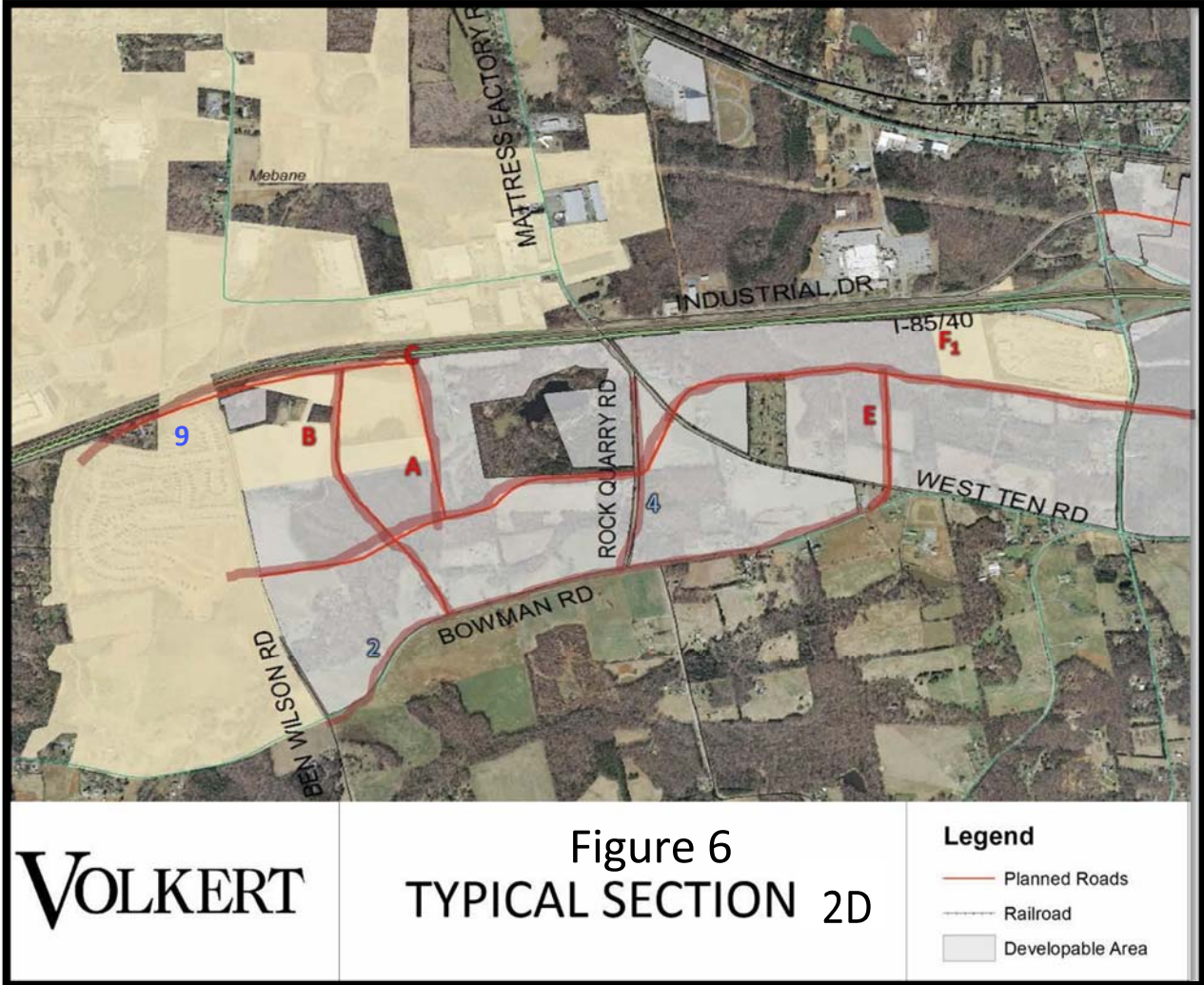
Typical sections for the proposed streets were evaluated and selected based on an analysis of future traffic volumes, the NCDOT Average Annual Daily Traffic and NCDOT's Roadway Design Manual guidelines. All roads are classified as local roads or minor collectors according to NCDOT Functional Classification Maps.

- A. For proposed streets A- F1, 2 and 4 (seen in figure 6) the cross section 2D includes 2 lanes undivided with paved shoulders and sidewalks. Due to the proximity of the City of Mebane, the city may consider annexation of some additional areas at a future date and then will assume the costs of sidewalk construction and maintenance. An annexation process would include coordination with Orange County.



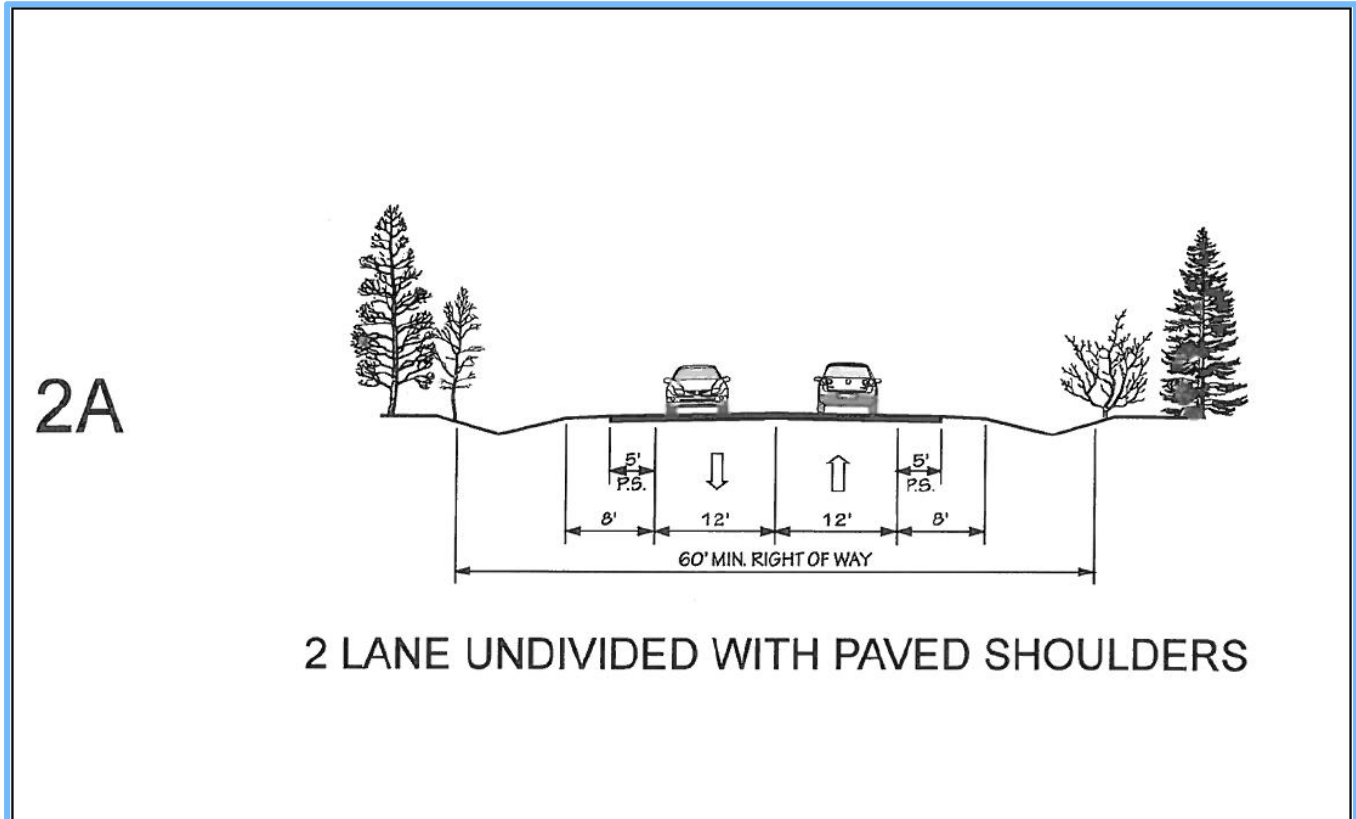
Roadway Table for Typical Section 2D

Roadway Name	Map Identifier	Roadway Type	Responsible Party	Proposed Cross-Section Type (Line Color)
New A	A	New	Developer Built with Sidewalk in ROW (Future Mebane Area)	Two Lane, Ditch, Sidewalk
New B	B	New	Developer Built with Sidewalk in ROW (Future Mebane Area)	Two Lane, Ditch, Sidewalk
New C	C	New	Developer Built with Sidewalk in ROW (Future Mebane Area)	Two Lane, Ditch, Sidewalk
New E	E	New	Developer Built with Sidewalk in ROW (Future Mebane Area)	Two Lane, Ditch, Sidewalk
New F1	F1	New	Developer Built with Sidewalk in ROW (Future Mebane Area)	Two Lane, Ditch, Sidewalk
Bowman	2	Existing	State TIP	Two Lane, Ditch, Sidewalk
Rock Quarry	4	Existing	State TIP/Developer	Two Lane, Ditch, Sidewalk
Wilson	9	Existing	State TIP	Two Lane, Ditch, Sidewalk



It is recommended that the above map be constructed according to cross-section 2D

- B. For proposed streets F2-K, 6, and 7 (seen in figure 7), the cross section 2A includes 2 lanes undivided with paved shoulders. As these roads are not anticipated to fall within the jurisdiction of any neighboring community in the foreseeable future, no pedestrian amenities are included in this area. The County does not build or maintain infrastructure.



Roadway Table for Typical Section 2A

Roadway Name	Map Identifier	Roadway Type	Responsible Party	Proposed Cross-Section Type (Line Color)
New F2	F2	New	Developer Built (Sidewalk Built Outside of ROW by Developer per Ordinance)	Two Lane, Ditch Section
New G	G	New	Developer Built (Sidewalk Built Outside of ROW by Developer per Ordinance)	Two Lane, Ditch Section
New H	H	New	Developer Built (Sidewalk Built Outside of ROW by Developer per Ordinance)	Two Lane, Ditch Section
New I	I	New	Developer Built (Sidewalk Built Outside of ROW by Developer per Ordinance)	Two Lane, Ditch Section
New J	J	New	Developer Built (Sidewalk Built Outside of ROW by Developer per Ordinance)	Two Lane, Ditch Section
New K	K	Existing	State TIP	Two Lane, Ditch Section
Southern	6	Existing	No Improvement Possible due to Rail Right-of-Way	Two Lane, Ditch Section
Forest	7	Existing	No Improvement Possible due to Rail Right-of-Way	Two Lane, Ditch Section

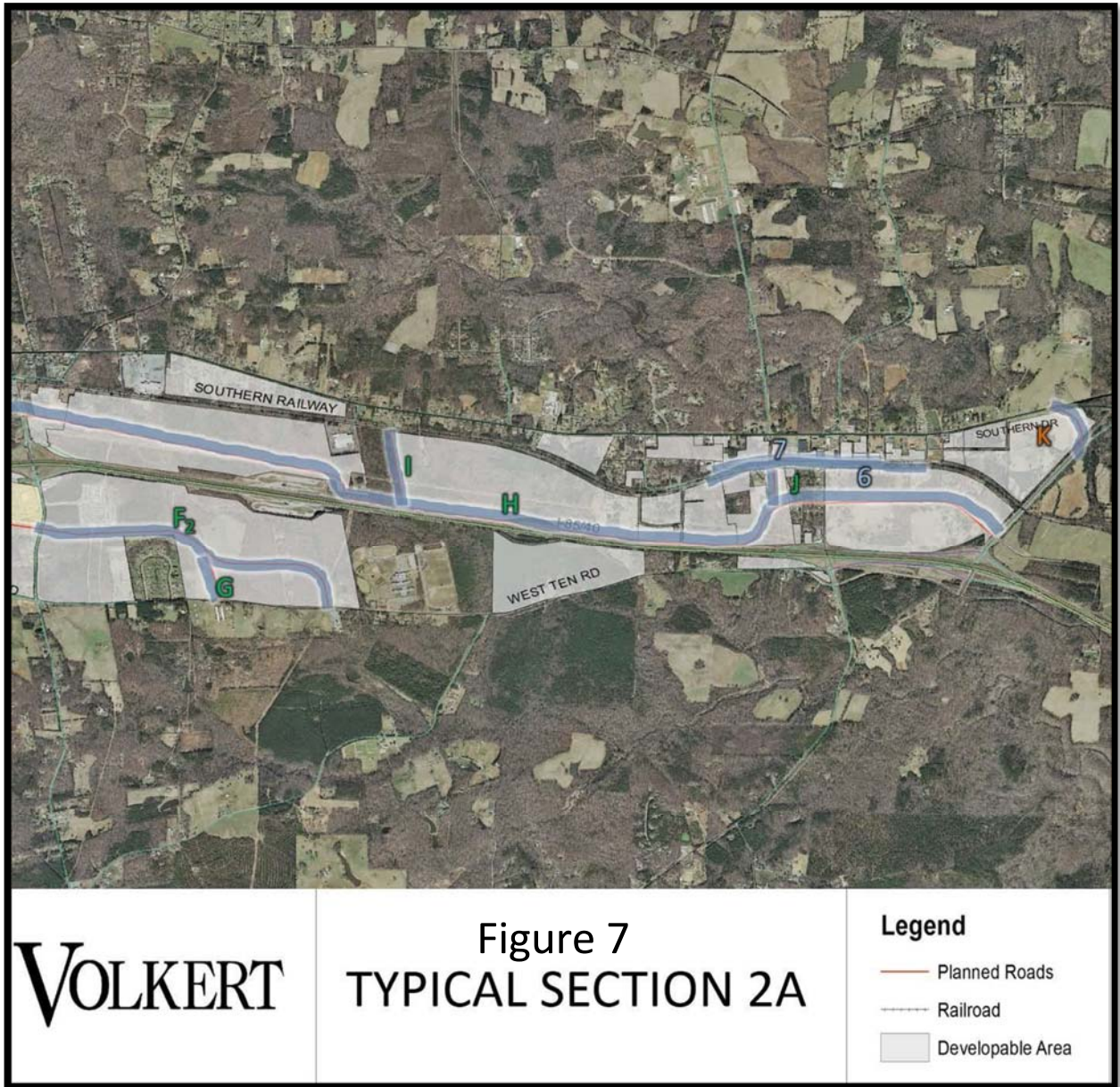
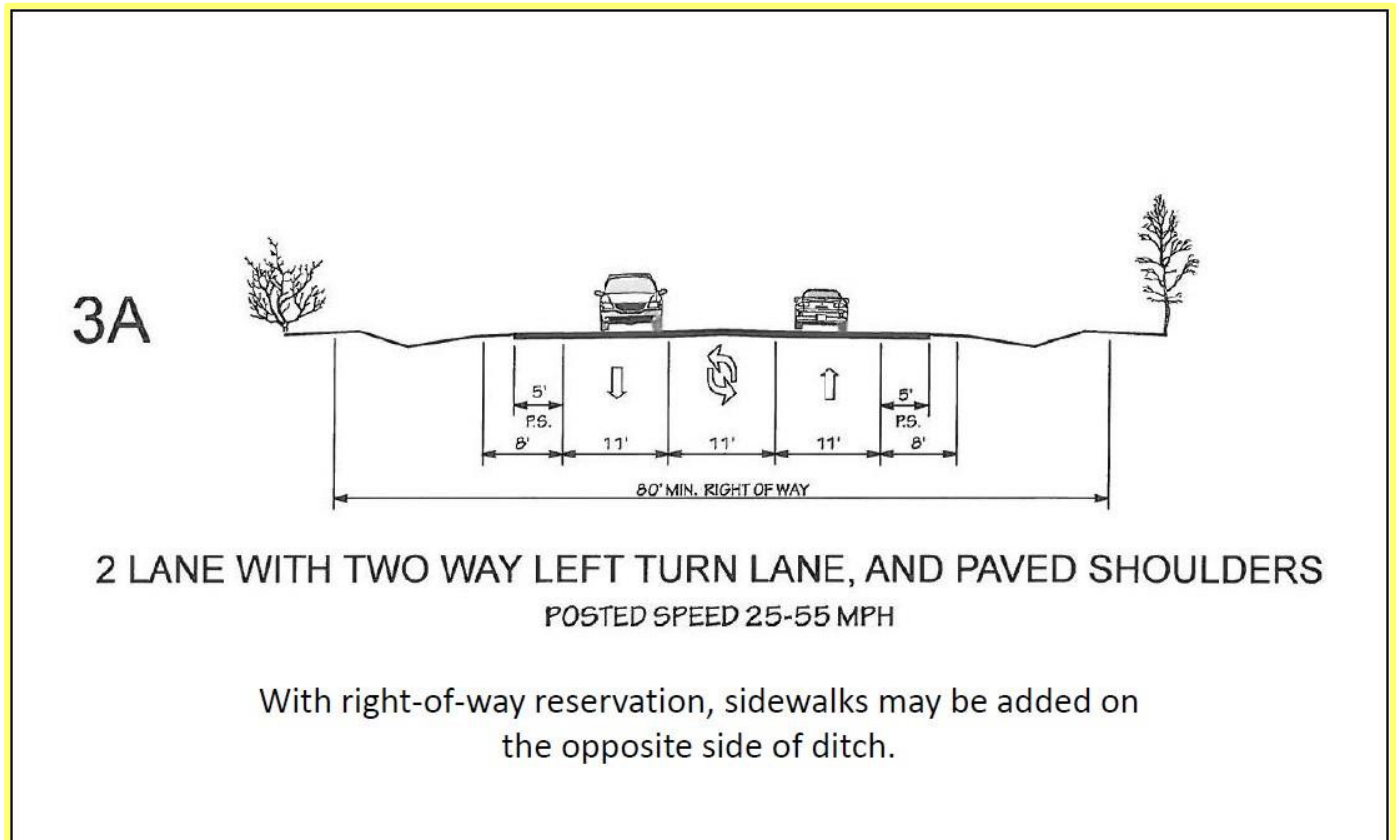


Figure 7
TYPICAL SECTION 2A

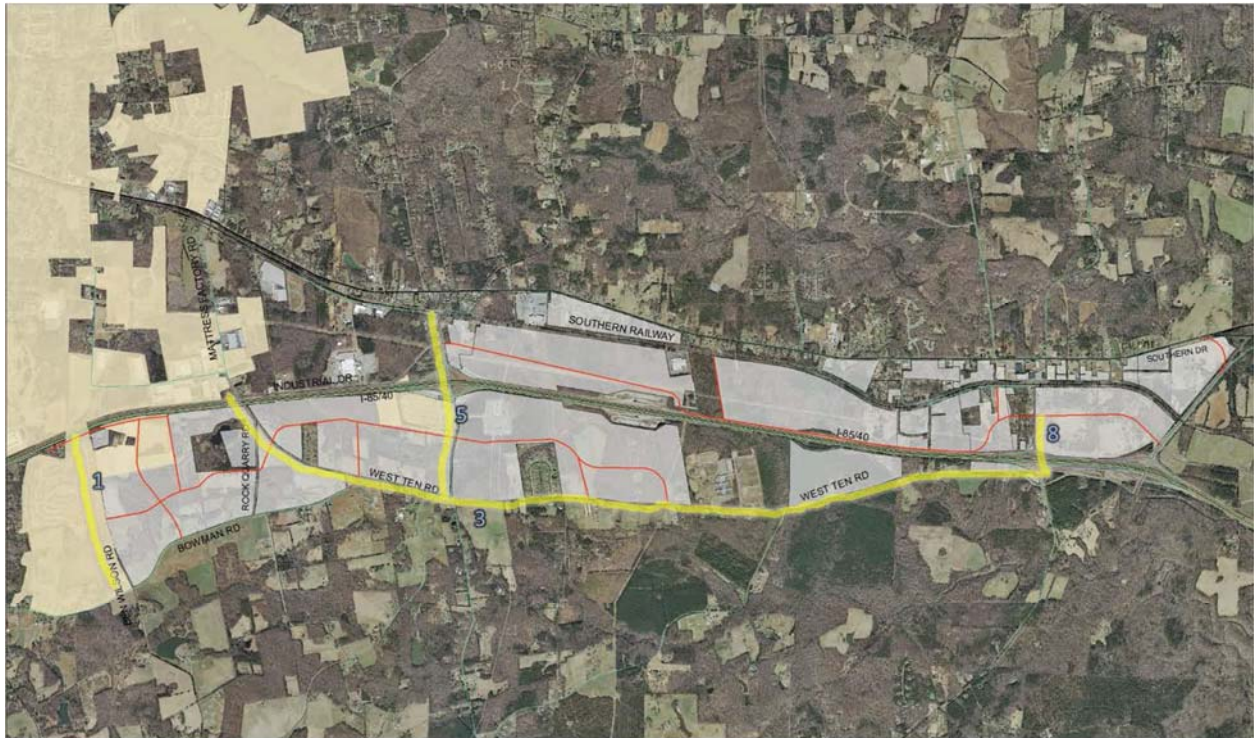
It is recommended that the above map be constructed according to cross-section 2A

- C. For proposed roads 1, 3, 5, and 8 (seen in figure 8), the cross section 3A includes 2 lanes with a two-way left turn lane and paved shoulders. The cross sections depicted by this cross section may also include sidewalks with the proper right-of-way reservation.



Roadway Table for Typical Section 3A

Roadway Name	Map Identifier	Roadway Type	Responsible Party	Current Cross-Section Type	Proposed Cross-Section Type (Line Color)
Ben Wilson	1	Existing	State TIP	Two Lane, Ditch	Three Lane, Ditch, Sidewalk
West Ten	3	Existing	State TIP	Two Lane, Ditch	Three Lane, Ditch, Sidewalk
Buckhorn	5	Existing	State TIP	Two Lane, Ditch	Three Lane, Ditch, Sidewalk
Mt Willing	8	Existing	State TIP	Two Lane, Ditch	Three Lane, Ditch, Sidewalk



VOLKERT

Figure 8
TYPICAL SECTION 3A

Legend

- Planned Roads
- Railroad
- Developable Area

It is recommended that the above map be constructed according to cross-section 3A

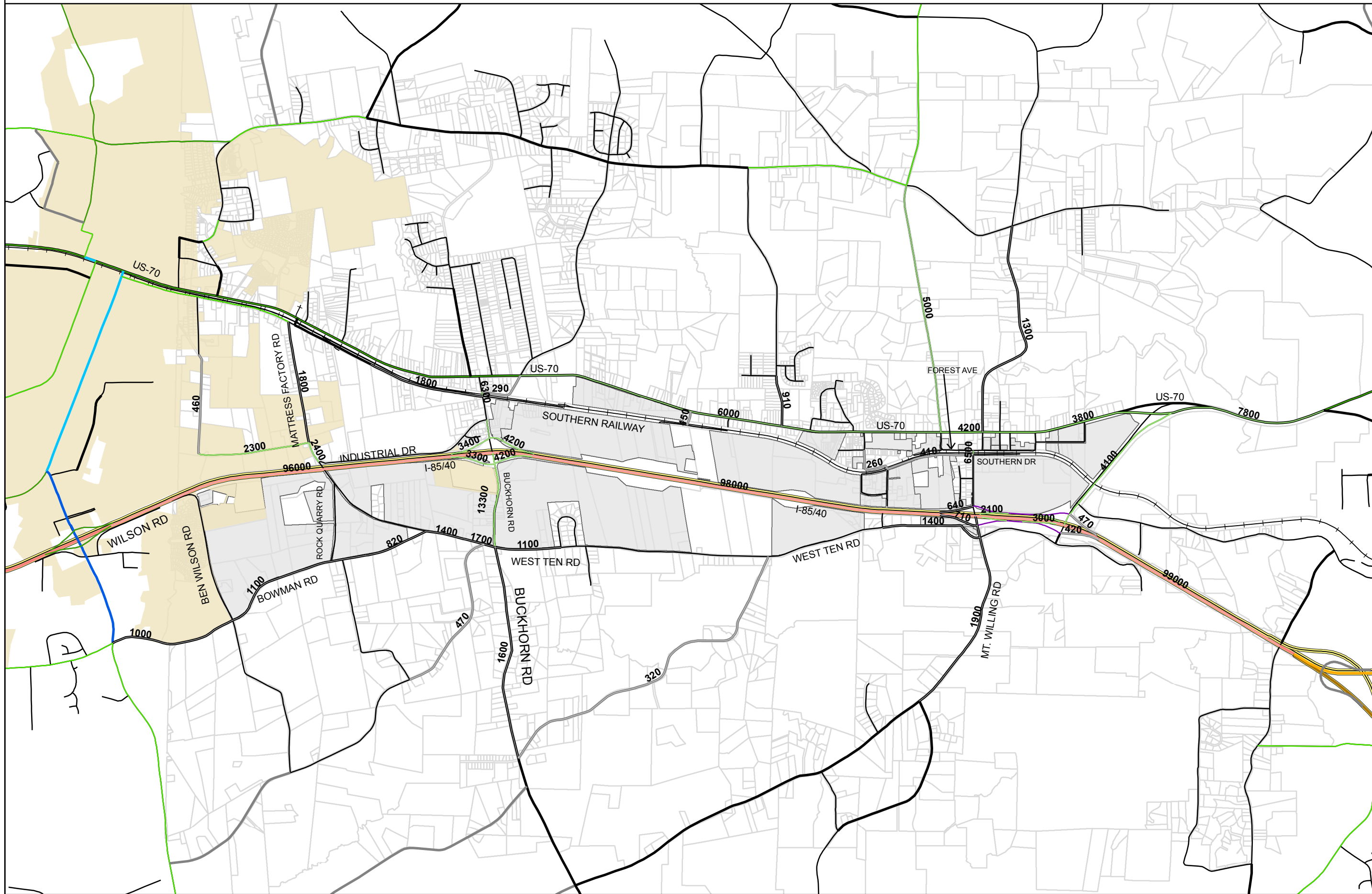
TRAFFIC VOLUME ANALYSIS

After developing the proposed roadway network, Volkert assigned the traffic volumes generated as discussed above to the roadway network. Information indicating the process used to generate traffic volumes is included in Attachment D.

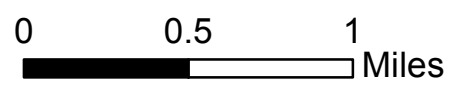
For the areas with future development proposed, Volkert assumed that all traffic would be going to/ coming from the closest interchange, i.e.: traffic on the west side of the study area would be going to the interchange at Buckhorn Road and I-40 and any traffic on the east side would be going to the interchange at Mount Willing Road and I-40. The Pod Traffic volumes generated in Table 1 were added to the future 2025 AADTs of the existing roadway network based on the proposed access points. Pod traffic volumes were assigned proportionally to each access point. Volkert assumed that fifty percent of the project traffic going through the interchanges would be headed westbound on I-40 and the other fifty percent would be headed eastbound.

These volumes were added to the volumes from the NCDOT traffic volume maps for the area to give a general idea of how many lanes would need to be created for new roads or added to existing roads. The daily traffic volumes along with the AM and PM peak hour traffic volumes are provided in the following figures for the Buckhorn Road, W. Ten Road, and Mt. Willing Road interchanges with I-40. Existing and future AADT's are shown in figures 9 and 10 respectively. It should be noted that a future interchange at Mattress Factory Road has been proposed by the Burlington-Graham Metropolitan Planning Organization (B-G MPO) and will significantly impact traffic counts if constructed. Recommendations for the future road network are to 2025 and may require additional technical analysis at the time of implementation.

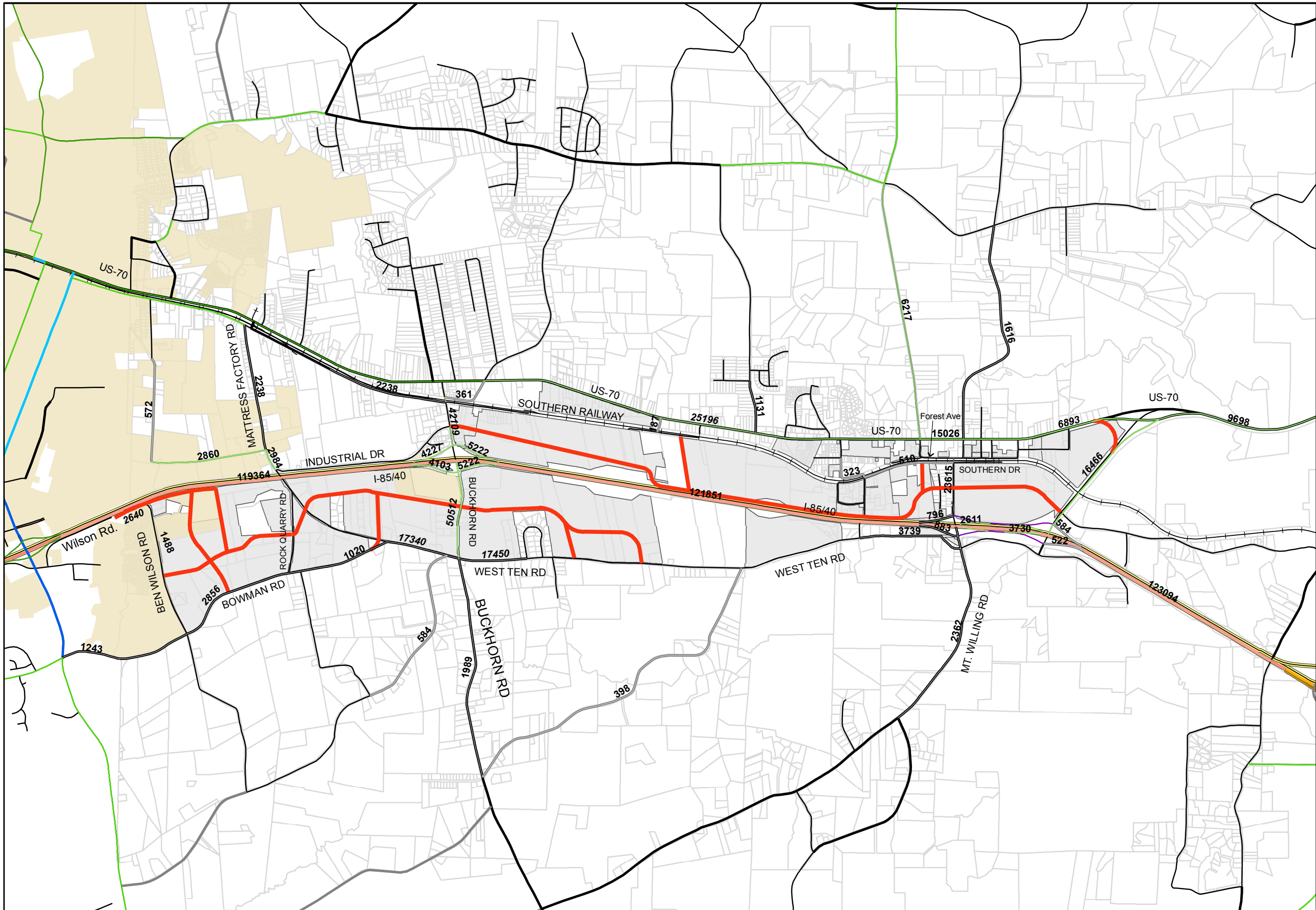
Based on future traffic forecasts, an initial 3-lane cross-section will be sufficient to handle traffic on Buckhorn Road in the short term; however, it will likely be necessary to retain right-of-way to allow for a four-lane with median or five-lane cross-section as warranted in the future.



Note: This map is for presentation use only and not to be used for construction purposes.



2014 AADT
Figure 9



INTERSECTION ANALYSIS

To complete the intersection analysis, the traffic volumes derived from the development pods were applied to the study intersections shown in figure 11. Travel demand was projected from 2014-2025 by the trend line analysis method.

This method projects Annual Average Daily Traffic (AADT) based on historical trends. Traffic volumes over the past 15 years in this area has increased at 3% annually accordingly. Traffic in the study intersections were increased to the year 2025 by that rate.

Both the 2014 and 2025 traffic volumes at the intersections are shown in the following figures. Cross sections for the 5 intersections were determined based on the estimated traffic from the capacity analysis, and coordination with NCDOT. The Level of Service (LOS) was calculated for each new and existing intersection using Synchro. LOS is based on a measure of the average time delay at an intersection and ranges from A to F, with A having the shortest delay time and F having the longest. According to NCDOT Level of Service Definitions the six levels of service are defined as:

LOS A: Describes primarily free flow conditions

LOS B: Represents reasonably free flow conditions

LOS C: Provides for stable operations, but flows approach the range in which small increases will cause substantial deterioration in service

LOS D: Borders on unstable flow

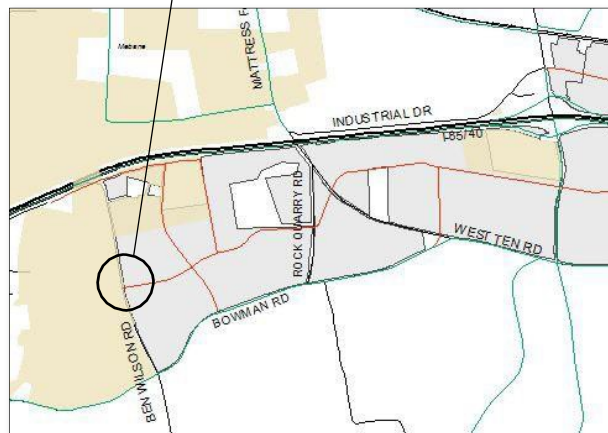
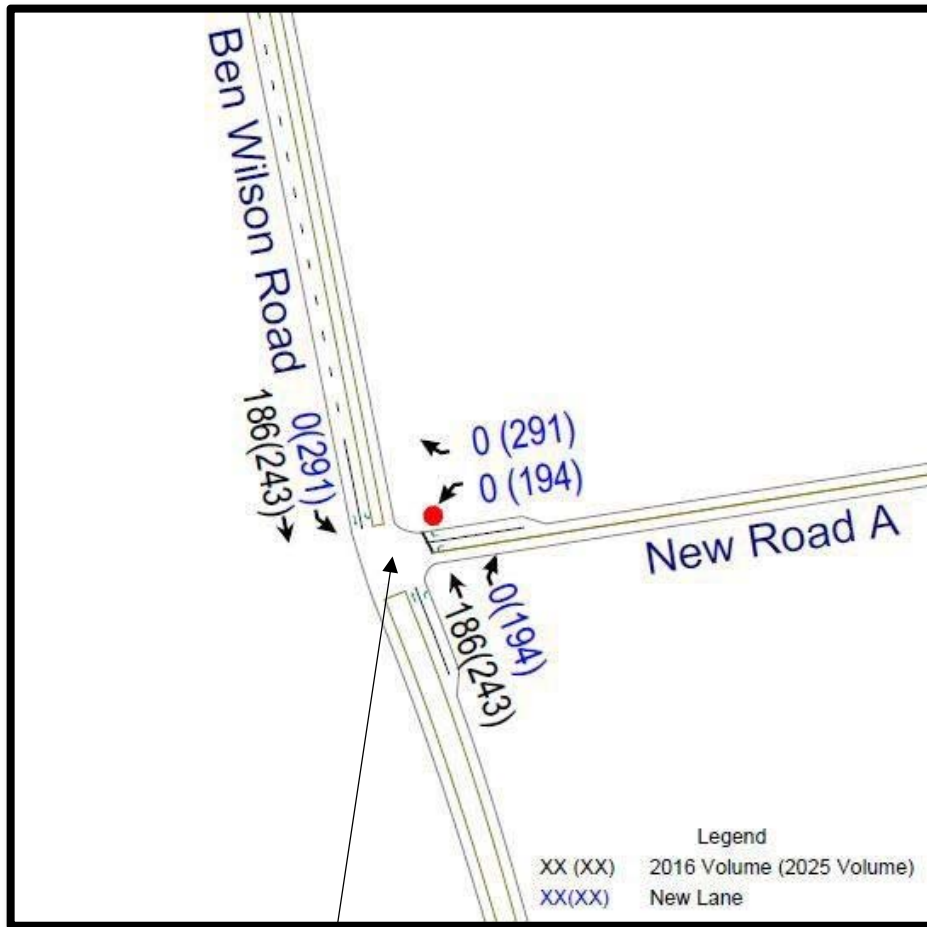
LOS E: Describes operation at capacity

LOS F: Describes forced or breakdown flow

The five intersections studied by Volkert were:

- 1) New Road A at Ben Wilson Road
- 2) New Road A at West Ten Road
- 3) West Ten Road at Buckhorn Road
- 4) New Road H at Mt. Willing Road
- 5) US-70/I-85 Connector

- 1) **New Road A and Ben Wilson Road** - Ben Wilson Road is a two-lane road with a speed limit of 35 mph. This roadway currently operates at LOS C and would operate at LOS A after adding turn lanes to accommodate the anticipated traffic in 2025 on New Road A.



New Road A and Ben Wilson Road



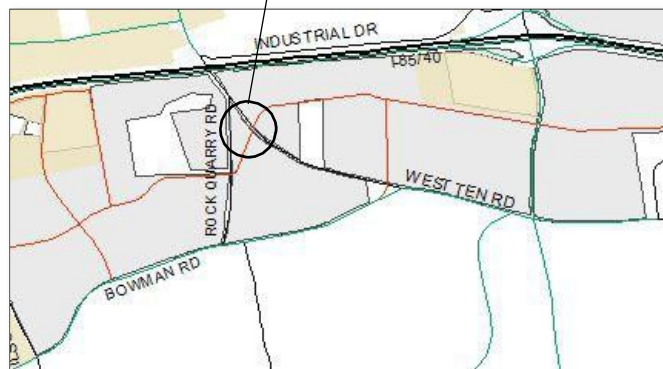
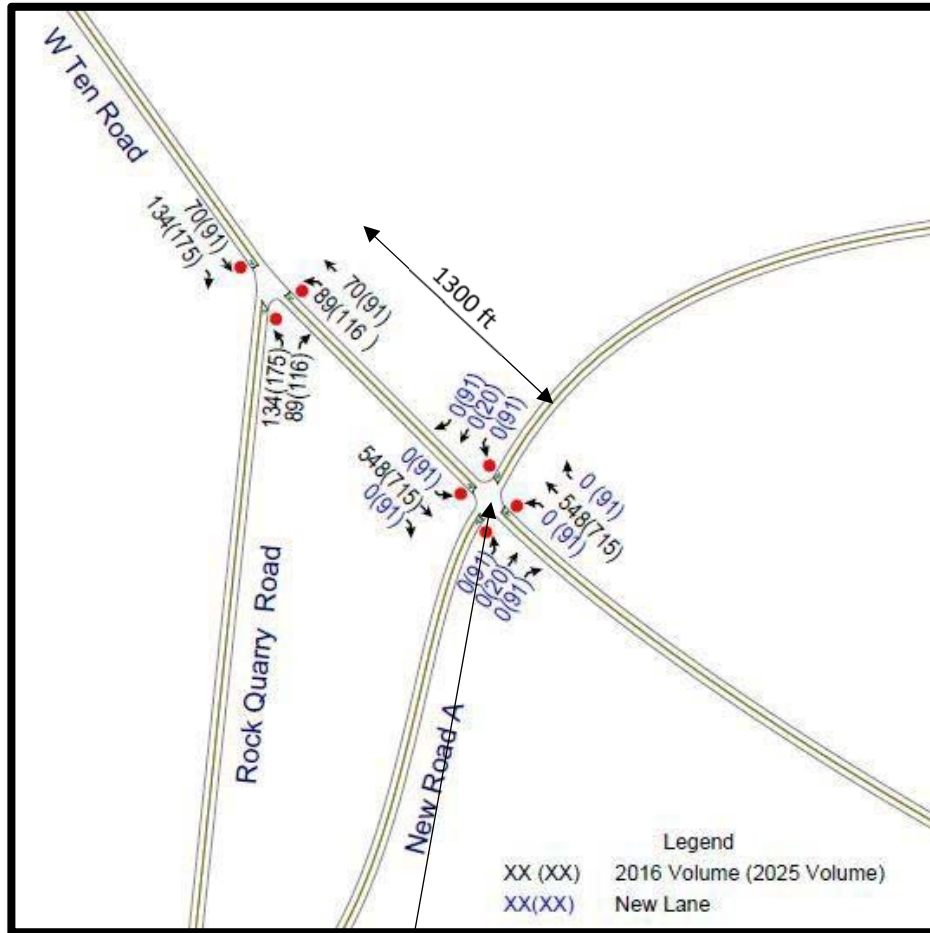


Ben Wilson and New Road A



Ben Wilson and New Road A

- 2) **New Road A and West Ten Road** – West Ten Road is a two-lane road with an existing intersection at Rock Quarry Road. The proposed intersection with New Road A would be 1300 ft from the intersection with Rock Quarry Road. This roadway currently operates at LOS B and would operate at LOS D after adding turn lanes to accommodate the anticipated traffic in 2025 of the New Road A.

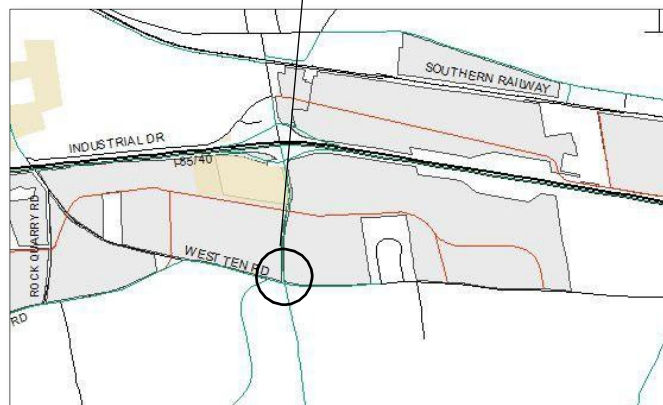
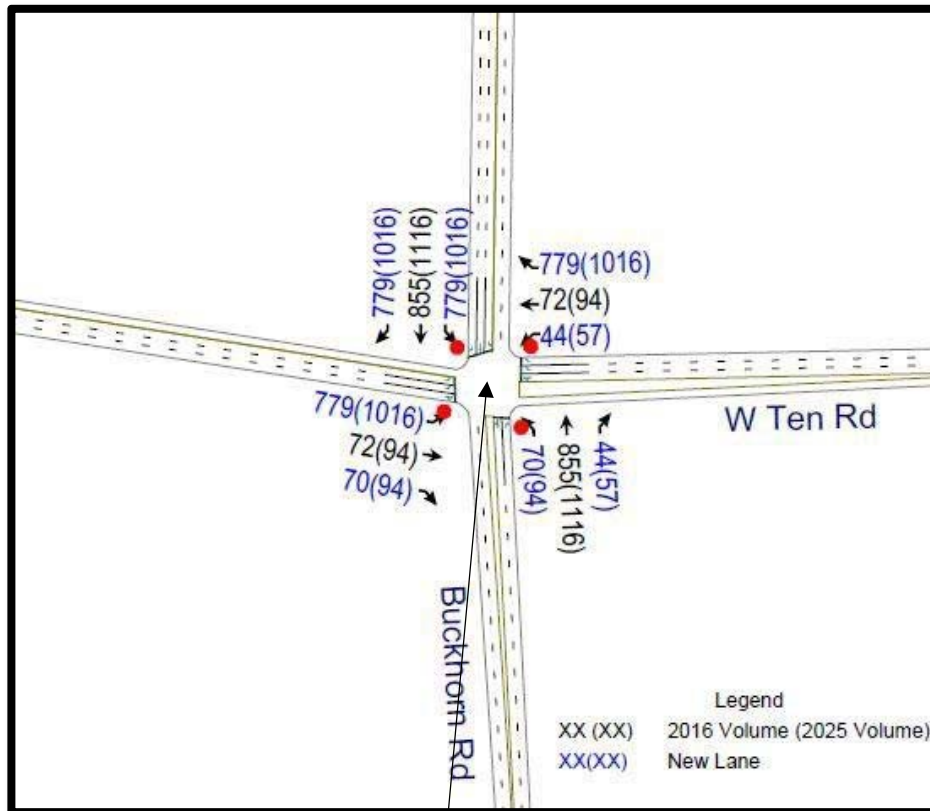


New road A and W Ten Road





- 3) **West Ten Road and Buckhorn Road** - West Ten Road is an existing two-lane road with a speed limit of 55 mph. Buckhorn Road is two-lane road with a speed limit of 45 mph. This intersection currently operates at LOS F and would continue to operate at LOS F after adding turn lanes to accommodate the anticipated traffic in 2025. Based on future traffic forecasts, it will likely be necessary to retain additional right-of-way to allow for a wider intersection cross-section with additional lanes, as warranted based on technical analysis at the time of implementation.

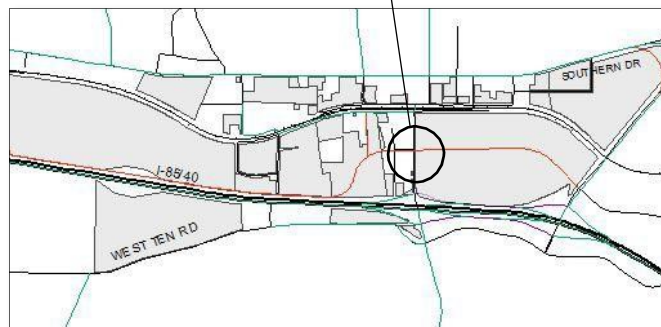
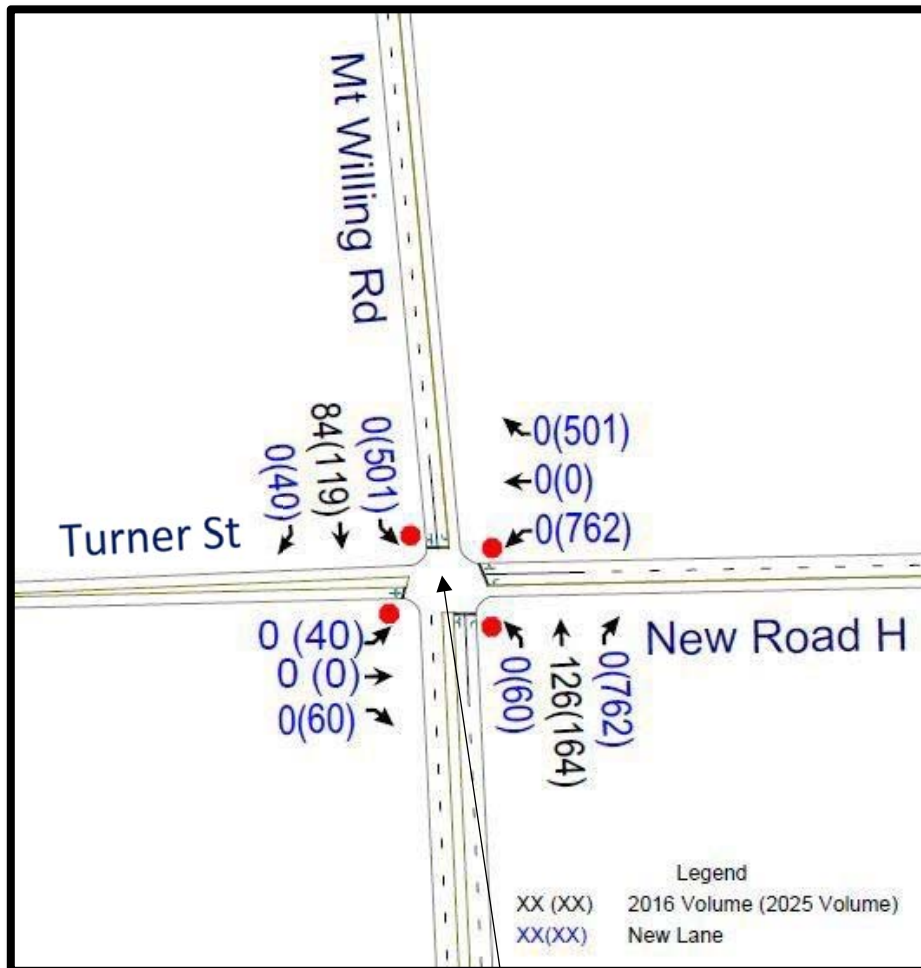


W Ten Road and Buckhorn Road





- 4) **New Road H and Mt. Willing Road** - Mt. Willing Road is a two-lane road with a speed limit of 45 mph. This roadway currently operates at LOS C and would continue to operate at LOS C after adding turn lanes to accommodate the anticipated traffic in 2025 at the New Road H.



New Road H and Mt. Willing Road



Mt Willing and New Road H



Mt Willing and New Road H

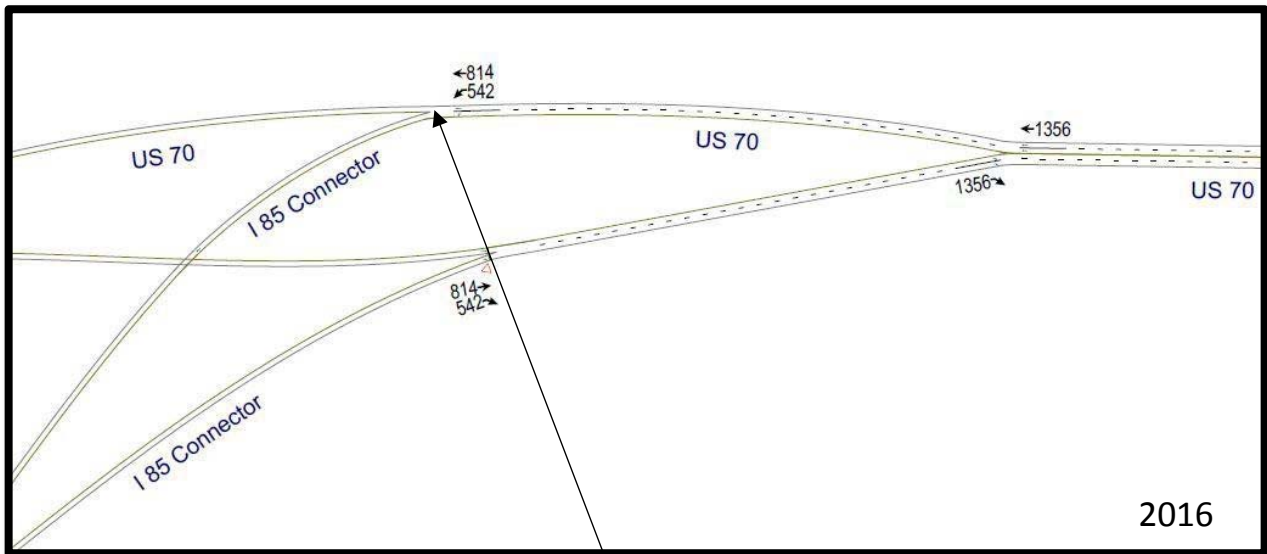


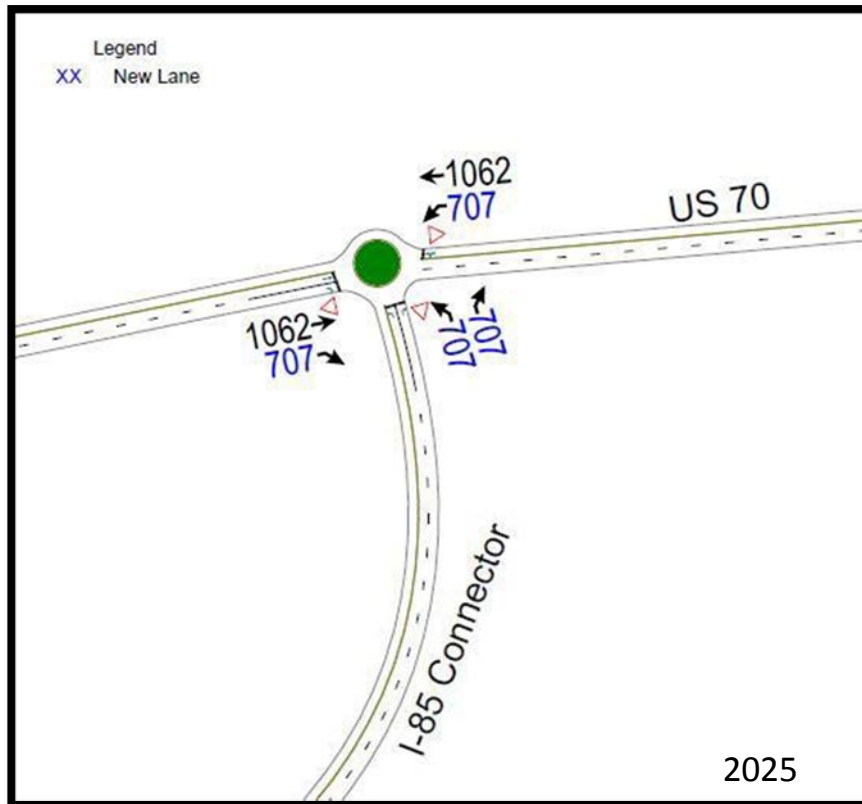
Mt Willing and New Road H



Mt Willing and New Road H

- 5) **US-70/I-85 Connector** – US-70 is a two-lane road with a speed limit of 50 mph. I-85 Connector is a four-lane divided highway with a speed limit of 55 mph. This current configuration operates at LOS C. Poor connectivity led to an interchange reconfiguration project which did not score well enough to receive funding in NCDOT’s prioritization process, and a more cost effective alternative was requested. NCDOT Highway Division 7 has studied this intersection to determine whether a roundabout or signalization would be more effective in the realignment of the intersection and determined a roundabout would yield better results. With the realignment and added traffic for 2025, this intersection would operate at LOS D.



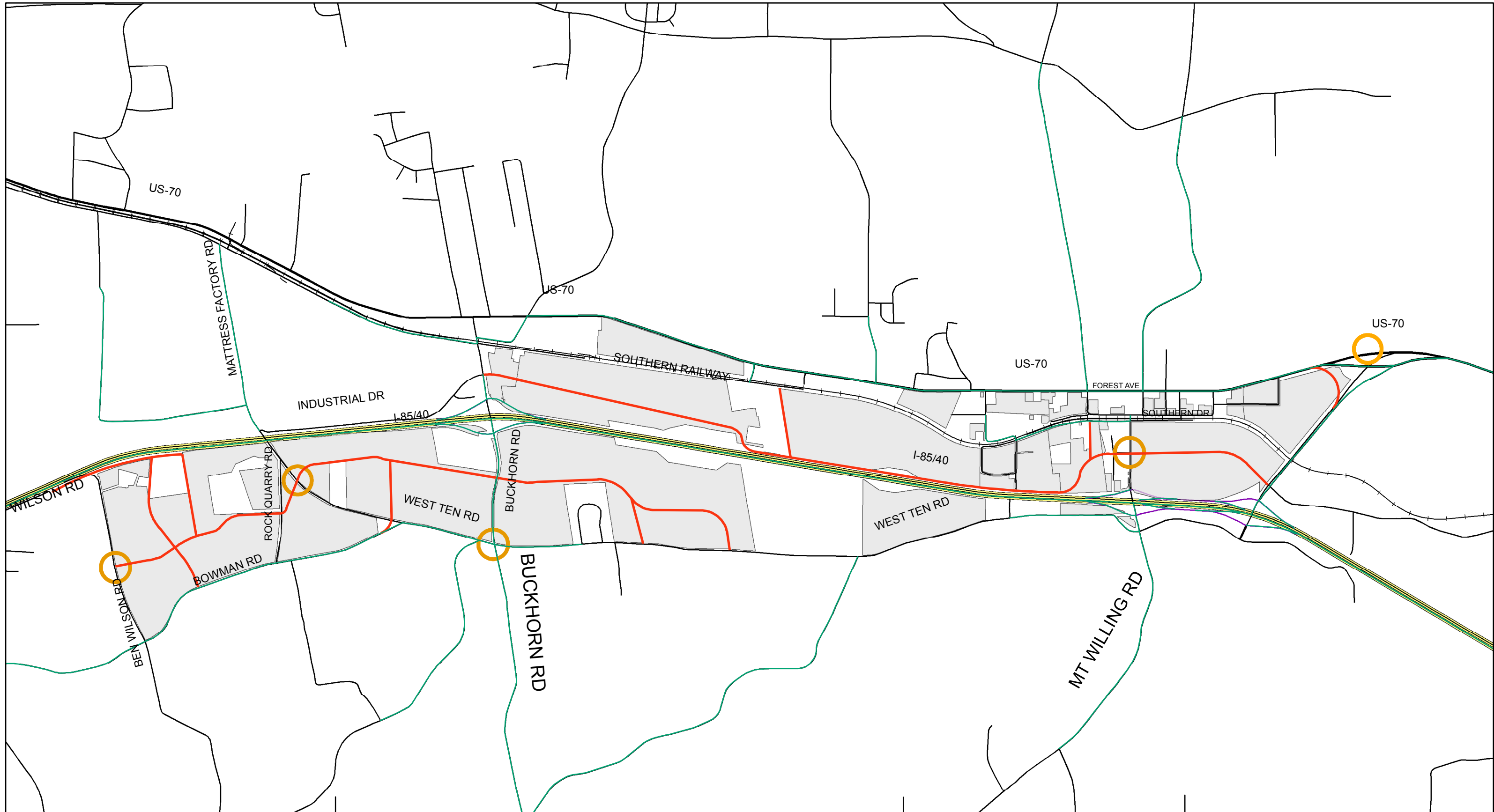


A conceptual map of a possible intersection improvement is shown above.

US 70/I-85 Connector





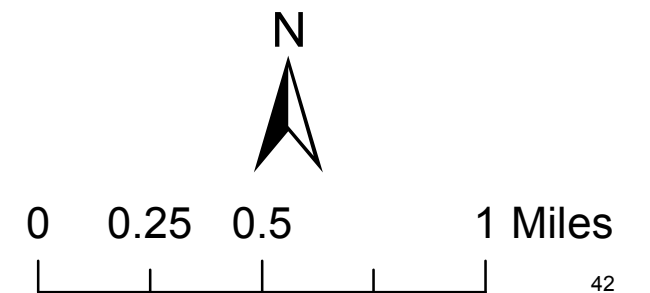


VOLKERT

STUDY INTERSECTIONS
Figure 11

Legend

- Planned Roads
- Study Intersections
- ++ Railroad
- Developable Area



Section 4 – Cost Analysis

CONCEPTUAL DESIGN

Volkert refined the roadway networks based on the forecast future traffic volumes. Specifically turn lanes were added at key locations with high turning volumes and signals were assumed to be located at areas with high crossing and turning volumes. The conceptual design took all environmental features into consideration and outlined the locations of planned roads, taking into account where the planned roads would cross the water sources. The roads generally avoid all environmental features. The conceptual design also includes frontage roads as access management options.

Most of these roads are intended to provide access to the areas of assumed development. Others, such as new roads, are placed to connect existing roads to other existing roads in order to provide more connections within the system. In order to accommodate new traffic from the pods, changes to existing roads were also proposed.

CONSTRUCTION COST ESTIMATE

Using the conceptual analysis described above, cost estimates were developed for each new road and for roadway improvements to the existing roadways. Table 2 below details the cost for each new roadway based on the recommended typical section. The overall cost for constructing the approximately 11 miles of roadway is \$30.9 million.

Table 2 - Construction Cost Estimates for New Roads

New Road	Typical Section	Sidewalk	Length (mi)	Cost Estimate
A	2D	Y	1.52	\$4,351,189
B	2D	Y	0.69	\$1,975,653
C	2D	Y	1.16	\$3,321,323
D	2D	Y	0.47	\$1,345,883
E	2D	Y	0.37	\$1,059,139
F1	2D	Y	0.52	\$1,488,508
F2	2A	N	1.28	\$3,520,000
G	2A	N	0.23	\$632,500
H	2A	N	3.99	\$10,972,500
I	2A	N	0.34	\$935,500
J	2A	N	0.18	\$495,000
K	2A	N	0.29	\$797,500
Total			11.04	\$30,894,260

Table 3 details the cost for upgrading the existing roadways described in this report. Bowman and Rock Quarry Roads are already the recommended typical section and therefore the costs shown are for adding sidewalk. The overall cost for upgrading these existing roadways is \$13.6 million.

Table 3 - Construction Cost Estimates for Updating Existing Roads

Widened Road	Typical Section	Sidewalk	Length (mi)	Cost
Ben Wilson Rd	3A	Y	0.85	\$1,672,794
Bowman Rd	2D	Y	1.42	\$159,722
W Ten Rd	3A	Y	4.33	\$8,505,230
Rock Quarry Rd	2D	Y	0.5	\$56,372
Buckhorn Rd	3A	Y	1.10	\$2,156,046
Mt Willing Rd	3A	Y	0.55	\$1,078,023
Total			8.75	\$13,628,190

Southern and Forest Roads, identified in the report, have no recommended improvements and are not shown in either table.

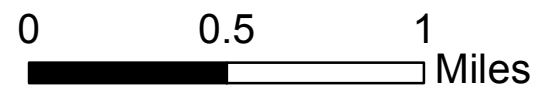
Section 5 - Conclusion

The primary purpose of this transportation report is to inform development of a roadway network to support investment in the Efland-Buckhorn-Mebane Study Area. The new roadways identified in this report have been located in such a way as to take into consideration environmental features and cultural resources. Typical sections for both the new and existing roadways are recommended based on the anticipated growth of the 18 development pods identified by Orange County.

Five key intersections were studied, forecasting future traffic volumes in the year 2025. Volkert was able to refine the proposed roadway networks, specifically adding turn lanes at key locations. A Level of Service (LOS) rating was calculated for each intersection. The total cost to provide the identified roadway network and associated improvements to existing roads is approximately \$44 million.

ATTACHMENT A

- Legend**
- Project Area 1a
 - Project Area 1b
 - Project Area 2a
 - Project Area 2b
 - Project Area 2c



Note: This map is for presentation use only and not to be used for construction purposes.

ATTACHMENT A

Environmental Features Map

ATTACHMENT B



North Carolina Department of Cultural Resources

State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Pat McCrory
Secretary Susan Kluttz

Office of Archives and History
Deputy Secretary Kevin Cherry

June 18, 2015

Bradley Luckey
Pilot Environmental, Inc.
PO Box 128
Kernersville, NC 27285

Re: Construct Road Network, I-40 900 Acre Tract, Efland, PEI 1012, Orange County, ER 15-1240

Dear Mr. Luckey:

Thank you for your letter of May 28, 2015, transmitting information for our review concerning the above project.

There are no recorded archaeological sites within the proposed project area, although it has never been systematically surveyed for the presence of archaeological resources. The adjacent property that has been surveyed contains several Native American archaeological sites. Certain portions of your proposed project area have a high probability for the presence of such resources. In addition, the Orange County soil survey dated 1977 shows the location of a cemetery within your project area. Although cemeteries are not ordinarily eligible for inclusion in the National Register of Historic Places, they are protected by state statutes. If the cemetery is to be affected by your proposed project, it will need to be preserved or moved in accordance with NCGS Chapter 65.

If your project is subject to Section 106 of the National Historic Preservation Act, we recommend that you forward project plans to us so we can delineate those areas that should be subjected to a comprehensive survey by an experienced archaeologist in order to identify and evaluate the significance of archaeological remains that may be damaged or destroyed by the proposed development. Potential effects on unknown resources must be assessed prior to the initiation of construction activities.

Two copies of the resulting archaeological survey report, as well as one copy of the appropriate site forms, should be forwarded to us for review and comment as soon as they are available and well in advance of any construction activities.

A list of archaeological consultants who have conducted or expressed an interest in contract work in North Carolina is available at www.archaeology.ncdcr.gov/ncarch/resource/consultants.htm. The archaeologists listed, or any other experienced archaeologist, may be contacted to conduct the recommended survey.

We have determined that the project as proposed will not have an effect on any historic structures.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or environmental.review@nhdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,



for Ramona M. Bartos

June 18, 2015

Bradley Luckey
Pilot Environmental, Inc.
PO Box 128
Kernersville, NC 27285

bluckey@pilotenviro.com

Re: Construct Road Network, I-40, 300 Acre Tract, Efland, Orange County, ER 15-1241

Dear Mr. Luckey:

Thank you for your letter of May 28, 2015, concerning the above-referenced undertaking. We have reviewed the materials submitted and offer the following comments.

There are no known archaeological sites within the proposed project area. Based on our knowledge of the area, it is unlikely that any archaeological resources that may be eligible for inclusion in the National Register of Historic Places will be affected by the project. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

The S.C. Forrest II House (OR1409), which may be eligible for listing in the National Register of Historic Places is located on the north side of US 70 and within direct view of the three hundred acre tract being considered for road construction. In addition, there are a number of surveyed properties also located within the project area. We will offer a determination of effect once a detailed scope of work has been submitted for environmental review.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,



for Ramona M. Bartos

July 7, 2014

David S. Brame
Pilot Environmental, Inc.
PO Box 128
Kernersville, NC 27285

Re: Construct Roads on a 400 Acre Tract, Wilson Road/Bowman Road, Mebane, PEI 1012,
Orange County, ER 14-1189

Dear Mr. Brame:

Thank you for your letter of June 3, 2014, transmitting information for our review concerning the above project.

There are two previously recorded archaeological sites within the proposed project area. These two sites, 31OR640 and 31OR641, were recorded during a survey for the Buckhorn-Mebane EDD Phase 2 water and sewer improvements project by Orange County. The archaeological survey was conducted as a result of Orange County policy, not for Section 106 of the National Historic Preservation Act compliance, so our office has not yet received a complete copy of the resulting report.

The information we do have concerning these two archaeological sites indicates that one site, 31OR640 contains a buried cultural horizon and it may be eligible for inclusion in the National Register of Historic Places. Site 31OR641 has been recommended as not eligible and no additional work is recommended by the consultant. The map included with your request for comments did not indicate the proposed locations for the roads, so we are unable to determine if either site will be affected.

If your project is subject to Section 106, we recommend that you forward specific information regarding the locations of the proposed roads and any other plans for the property so we may determine effects. In the meantime, we will request a copy of the archaeological report from Orange County so we have complete site information.


We have checked our maps and files and find that there are three properties in the project area that were identified in a 1993-1994 county survey of historic buildings. They are the Ben Wilson House (OR1141), Heath Log House (OR1662) and L. M. Ray House (OR1663). From our GIS, they appear to still be standing and may have outbuildings associated with them. If your project has the potential to affect these buildings, their potential for National Register eligibility will need to be determined.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or renee.gledhill-earley@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,



 Ramona M. Bartos



North Carolina Department of Cultural Resources

State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Pat McCrory
Secretary Susan Kluttz

Office of Archives and History
Deputy Secretary Kevin Cherry

April 21, 2015

Brad Luckey
Pilot Environmental, Inc.
PO Box 128
Kernersville, NC 27285

Re: Develop Road Network for Mixed Use Site, Project Area 2B, Buckhorn Road & West Ten Road,
Mebane, Orange County, ER 15-0780

Dear Mr. Luckey:

Thank you for your letter of April 6, 2015, concerning the above project.

We have conducted a review of the project and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the project as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

A handwritten signature in blue ink that reads "Renee Gledhill-Earley".

for Ramona M. Bartos

ATTACHMENT C

Formulas

Pod 1 Daily Traffic=(Pod 1 Area in 1000s Sq Ft)*0.5*(Rate of Daily Traffic for LUC 110)*(Floor Area Ratio)+(Pod 1 Area in 1000s Sq Ft)*0.25*(Rate of Daily Traffic for LUC 140)+(Pod 1 Area in 1000s Sq Ft)*0.25*(Rate of Daily Traffic for LUC 150)

Other pods are calculated the same way

Assumptions for Pod Traffic

- Pod 1 (4996000 sq ft)
 - 50% General Light Industrial (110)
 - 25% Manufacturing (140)
 - 25% Warehousing (150)
 - Pod 2 (1198000 sq ft)
 - 100% General Light Industrial (110)
 - Pod 3 (4265000 sq ft)
 - 47% General Light Industrial (110)
 - 50% Manufacturing (140)
 - 3% High Turnover Sit Down Restaurant (932)
 - Pod 4 (7113000 sq ft)
 - 90% General Light Industrial (110)
 - 8% Warehousing (150)
 - 1% Fast Food Restaurant with Drive Thru Window (934)
 - 1% Gasoline/Service Station with Convenience Market (945)
- Pod 5 (0 sq ft)
 - None
- Pod 6 (1032000 sq ft)
 - 100% Single Family Detached Housing (210)
- Pod 7 (392000 sq ft)
 - 20% Fast Food Restaurant with Drive Thru Window (934)
 - 25% Gasoline/Service Station with Convenience Market and Car Wash (946)
 - 6 gas pumps
 - 55% General Light Industrial (110)
- Pod 8 (3803000 sq ft)
 - 50% General Light Industrial (110)
 - 50% Manufacturing (140)
- Pod 9 (1076000 sq ft)
 - 70% General Light Industrial (110)
 - 2% Fast Food Restaurant without Drive Thru Window (933)
 - 15% Automobile Care Center (942)
 - 13% Automobile Parts and Service Center (943)
- Pod 10 (2910000 sq ft)
 - 50% General Light Industrial (110)

- 25% Manufacturing (140)
 - 25% Warehousing (150)
- Pod 11 (423000 sq ft)
 - 100% General Light Industrial (110)
- Pod 12 (292000 sq ft)
 - 100% General Light Industrial (110)
- Pod 13 (880000 sq ft)
 - 100% General Light Industrial (110)
- Pod 14 (501000 sq ft)
 - 100% General Light Industrial (110)
- Pod 15 (662000 sq ft)
 - 100% General Light Industrial (110)
- Pod 16 (91000 sq ft)
 - 100% General Light Industrial (110)
- Pod 17 (4156000 sq ft)
 - 100% Business Park (770)
- Pod 18 (1446000 sq ft)
 - 100% Warehousing (150)

Assumptions for total traffic

3% Increase in traffic each year until 2025

Assumptions from Mattress Factory Traffic Planning Study:

- Mattress Factory Road and Industrial Drive
 - 50% of combined WBL and SBT traffic into Pod 2
 - 50% of combined WBL and SBT traffic into Pod 3
 - 50% of combined NBT and NBR traffic out of Pod 2
 - 50% of combined NBT and NBR traffic out of Pod 3
- At Buckhorn Road and I 40 WB Ramps:
 - 100% of combined NBT and WBR traffic into Pod 7
 - 100% of combined SBT and SBR traffic out of Pod 7
- At Buckhorn Road and I 40 EB Ramps:
 - 50% of combined SBT and EBR traffic into Pod 3
 - 50% of combined SBT and EBR traffic into Pod 4
 - 50% of combined NBT and NBR traffic out of Pod 3
 - 50% of combined NBT and NBR traffic out of Pod 4
- Daily traffic is 10 times the average of the AM and PM traffic

Assumptions from Bowman Road Residential Development TIA:

- At Ben Wilson Road and Bowman Road
 - NBT, NBR, EBT, and EBL are considered traffic into Pod 1
 - SBT, SBL, SBR, WBT, WBL, and WBR are considered traffic out of Pod 1
 - Daily traffic is 10 times the average of the AM and PM

traffic Assumptions from NCDOT AADT

- AM and PM traffic are each 10% of the daily traffic
- Any traffic shown on the border of a pod was assumed to go to that pod
 - If traffic is shown at a point on a road that borders two pods, it was split evenly between the two

Pod Information for Trip Generation Analysis - Mebane/Buckhorn Economic Development District Transportation Plan																		
Pod ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Gross Acreage	343.41	75.35	257.53	362.35	138.95	109.73	22.01	243.19	55.96	192.12	62.2	35.32	49.26	63.26	49.91	23.59	144.61	72.77
Current Zoning	O/RM, AR	AR	O/RM, R1	EDB-2, R1, PDHR1	EDB-2	EDB-2, R1, AR	EDB-2, R1	EDB-2, R1	R1, EC5	R1	R1, EC5	R1	R1, AR	R1, EI, NC2, I2	R1, AR, I1	LC1, NC2, R1	O/RM, AR, R1	AR
Future Land Use Plan Designation	Comm-Ind Trans	Comm-Ind Trans	Comm-Ind Trans	Comm-Ind Trans; Econ-Dev Trans	Econ-Dev Trans	Econ-Dev Trans, Agri-Res	10-Year Trans, Econ-Dev Trans	Econ-Dev Trans, Comm-Ind Trans	10-Year Trans	Comm-Ind Trans	10-Year Trans	10-Year Trans	10-Year Trans	Comm-Ind Trans	Comm-Ind Trans	Comm-Ind Trans	Comm-Ind Trans	Agri-Res
Undeveloped Land	129.48	17.41	90.5	131.43	0	75.72	11.65	188.48	8.37	134.94	19.88	15.79	18.49	9.1	38.79	7.09	20.41	0
Current Dev. Non Residential Acreage	26.76	2.35	30.7	128.5	138.95	0	1.86	49.57	0	25.87	1.34	3.14	0	32.62	11.03	4.1	0	0
Current Dev. Residential Acreage	187.16	53.59	136.29	102.42	0	33.99	8.47	5.12	47.57	31.31	41.03	13.39	30.78	21.53	0.09	12.41	124.19	72.77
TO BE PRESERVED: Existing Non-Residential Development, Established Residential Areas/Subdivisions, Other Developed Areas	54.71	4.35	41.64	32.84	138.95	15.44	4.71	49.80	1.39	25.87	39.33	19.28	0.31	32.62	11.03	18.80	0.00	0.00
Gross Redevelopable Area (Acres)	288.70	71.00	215.89	329.51	0.00	94.29	17.30	193.39	54.57	166.26	22.87	16.04	48.95	30.64	38.88	4.79	144.61	72.77
Environmental Constraints of Developable Parcels	Wetlands	X	X	X	X	-	X	X	X	X	X	X	-	X	X	X	X	X
	Severe Slopes	X	-	X	X	-	X	X	X	-	X	-	-	X	-	-	-	X
	Conservation Lands	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Floodplains	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Streams and Required Buffers	X	X	X	X	-	X	-	X	X	X	X	X	X	-	X	X	X
	Historic Sites (On Register of Historic Places)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Archaeological	X	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cemetery	X	X	-	-	-	-	X	X	-	-	X	-	X	X	-	-	-
	Utility Easements	X	X	X	X	-	X	X	X	X	X	X	-	X	-	X	X	X
	Total	47.56	6.84	40.08	49.32	0.00	6.23	1.52	41.83	5.80	32.75	3.01	1.62	7.35	0.11	10.63	1.40	12.30
Gross Redevelopable Area minus Environmental Constraints (Acres)	241.15	64.17	175.81	280.19	138.95	88.06	15.77	151.56	48.77	133.51	19.85	14.41	41.61	30.54	28.25	3.39	132.31	
ITE Trip Generation Codes	110, 140, 150	110	110, 140, 932	110, 150, 934, 945		210	934, 946	110, 140	110, 933, 942, 943	110, 140, 150	110	110	110	110	110	110	770	
% Watershed/Impervious Surface Restriction	0%	0%	-5%	-30%	N/A	-69%	-15%	-30%	-30%	-30%	-30%	-30%	-30%	-30%	-30%	-30%	-30%	
% Setbacks, Parking, Etc. (adjusted for double-counting)	-39%	-45%	-31%	-3%	N/A	0%	-21%	-3%	-9%	-5%	-12%	-15%	-10%	-25%	0%	0%	11%	
Estimated Acreage of Development	147.1	35.3	112.5	187.7	0.0	27.3	10.1	101.5	29.8	86.8	11.5	7.9	25.0	13.7	19.8	2.4	107.2	
Other Attributes	Water/Sewer?	Sewer	Water	Water / Sewer	Water / Sewer	Water / Sewer	Water / Sewer	Water / Sewer	Water	Water / Sewer	None	Water / Sewer	Water / Sewer	Water	Water / Sewer	None	Water / Sewer	
	Proximity of Interstate Interchange?	-	-	X	X	-	X	X	X	-	-	-	-	-	-	-	X	
	Interstate Exposure?	X	-	X	X	X	X	X	X	-	X	-	-	X	-	X	X	
	Proximity to Rail?	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	
	Future Transit?	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	
Market Reduction Factor	41%	46%	28%	28%	N/A	28%	26%	31%	39%	44%	38%	38%	39%	38%	44%	26%		
Buildable Area (Acres)	86.8	19.1	81.0	135.2	0	19.7	7.5	70.1	18.1	48.6	7.1	4.9	15.2	8.5	11.1	1.8		

ITE Codes: 110 (General Light Industrial), 140 (Manufacturing), 150 (Warehousing), 210 (Single-Family Detached Housing), 932 (High-Turnover Sit-Down Restaurant), 933 (Fast-Food Restaurant without Drive-Thru Window), 934 (Fast-Food Restaurant with Drive-Thru Window), 942 (Automobile Care Center), 943 (Automobile Parts and Service Center), 945 (Gasoline/Service Station with Convenience Market), 946 (Gasoline/Service Station with Convenience Market and Car Wash)

ATTACHMENT D

Pod Traffic											
Pod	Acres	1000 Sq. Ft.	Daily	Daily In	Daily Out	AM	AM In	AM Out	PM	PM In	PM Out
1	86.8	3781	4334	2167	2167	705	577	128	685	231	453
2	19.1	832	989	495	495	143	119	24	139	31	108
3	81.0	3528	17006	8503	8503	1731	1147	585	1657	866	792
4	135.2	5893	37459	18730	18730	3780	2242	1538	3009	1282	1728
5	0	0	0	0	0	0	0	0	0	0	0
6	19.7	858	513	256	256	41	13	28	54	36	18
7	7.5	327	25826	12913	12913	2363	1219	1144	1752	898	854
8	70.1	3054	3178	1589	1589	524	461	63	547	211	336
9	18.1	788	14394	7197	7197	1199	669	531	1158	509	650
10	48.6	2117	2426	1213	1213	395	323	71	383	130	254
11	7.1	309	368	184	184	53	44	9	52	11	40
12	4.9	213	254	127	127	37	31	6	36	8	28
13	15.2	662	787	394	394	114	95	19	110	24	86
14	8.5	370	440	220	220	64	53	11	62	14	48
15	11.1	484	575	287	287	83	69	14	81	18	63
16	1.8	78	93	47	47	14	11	2	13	3	10
17	79.3	3454	11878	5939	5939	1496	1271	224	1335	267	1068
18	24.3	1059	1391	695	695	244	175	68	211	74	137
638.3			121913								
Land Use Codes	Daily	Daily In	Daily Out	AM	AM In	AM Out	PM	PM In	PM Out		
110	51.80	25.90	25.90	7.51	6.23	1.28	7.26	1.60	5.66		
140	38.88	19.44	19.44	7.44	6.92	0.52	8.35	4.43	3.92		
150	57.23	28.62	28.62	10.03	7.22	2.81	8.69	3.04	5.65		
210	26.04	13.02	13.02	2.06	0.64	1.42	2.74	1.81	0.93		
770	149.79	74.895	74.895	18.86	16.031	2.829	16.84	3.368	13.472		
932	127.15	63.58	63.58	10.81	5.95	4.86	9.85	5.91	3.94		
933	716.00	358.00	358.00	43.87	26.32	17.55	26.15	13.34	12.81		
934	496.12	248.06	248.06	45.42	23.16	22.26	32.65	16.98	15.67		
942	26.80	13.40	13.40	2.25	1.49	0.77	3.11	1.49	1.62		
943	44.60	22.30	22.30	4.46	1.87	2.59	4.46	1.87	2.59		
945	162.78	81.39	81.39	10.16	5.08	5.08	13.51	6.76	6.76		
946	152.84	76.42	76.42	11.84	6.04	5.80	13.86	7.07	6.79		

Total Traffic			
Pod	Daily	Total AM	Total PM
1	7440	986	1025
2	2781	338	302
3	21917	2227	2144
4 & 5	40432	4114	3270
5	0	0	0
6	1998	189	203
7	36955	3476	2865
8	5088	715	738
9	17736	1534	1492
10	4336	586	574
11	4516	468	466
12	392	51	49
13	925	128	124
14	4896	509	507
15	1010	127	124
16	772	81	81
17	16228	1931	1770
18	5422	647	614
	172844	18107	16348

*Pod Acreage has been used to generate the AADT.

Existing Traffic

2011 Existing Traffic from Mebane TIA & Wilson Rd							
Pod	Daily	AM	AM In	AM Out	PM	PM In	PM Out
1	1100	110	66	44	110	66	44
2	795	93	51	42	66	36	30
3	3555	401	186	215	310	170	140
4	460	78	34	44	14	8	6
5							
6							
7	540	54	15	39	54	33	21
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							

2014 NCDOT AADT			
Pod	Daily	AM	PM
1	1100	110	110
2	820	82	82
3	745	29	120
4	2300	230	230
5	0	0	0
6	1400	140	140
7	9900	990	990
8	1800	180	180
9	3150	315	315
10	1800	180	180
11	3910	391	391
12	130	13	13
13	130	13	13
14	4200	420	420
15	410	41	41
16	640	64	64
17	4100	410	410
18	3800	380	380

2015 Existing Traffic from Bowman Road Residential TIA							
Pod	Daily	AM	AM In	AM Out	PM	PM In	PM Out
1	645	36	16	19	93	32	61
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							

2016 Existing Traffic (3% increase/year)							
Pod	Daily	AM	AM In	AM Out	PM	PM In	PM Out
1	1275	128	77	51	128	77	51
2	922	108	59	49	77	42	35
3	4121	465	216	249	359	197	162
4	533	90	40	51	16	9	7
5							
6							
7	626	63	18	45	63	38	24
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							

2016 NCDOT AADT			
Pod	Daily	AM	PM
1	1167	117	117
2	870	87	87
3	790	31	127
4	2440	244	244
5	0	0	0
6	1485	149	149
7	10503	1050	1050
8	1910	191	191
9	3342	334	334
10	1910	191	191
11	4148	415	415
12	138	14	14
13	138	14	14
14	4456	446	446
15	435	43	43
16	679	68	68
17	4350	435	435
18	4031	403	403

2016 Existing Traffic from Bowman Road Residential TIA							
Pod	Daily	AM	AM In	AM Out	PM	PM In	PM Out
1	664	37	17	20	96	33	63
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							