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## **C. Environmental Factors**

### *1. Climate*

Roanoke Rapids has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short. A cold wave occurs rarely and moderates in 1 or 2 days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. The amount of summer precipitation, mainly occurring as afternoon thunderstorms, is adequate for all crops.

In winter, the average temperature is 40 degrees F and the average daily minimum temperature is 31 degrees. The lowest temperature on record, which occurred in 1985, is -7 degrees. In summer, the average temperature is 76 degrees and the average daily maximum temperature is 87 degrees. The highest recorded temperature, which occurred in 1959, is 104 degrees.

The total average annual precipitation is about 44.55 inches. Of this, 23.61 inches, or about 53% , usually falls in April through September. The average seasonal snowfall is 6.2 inches. The greatest snow depth at any one time during the period of record was 11 inches. On an average of 2 days, at least 1 inch of snow is on the ground.

### *2. Geology and Topography*

Halifax County slopes eastward. According to the US Geological Survey topographic maps, the highest point in the county, located east of Littleton near Roper Springs, is 391 feet. The lowest elevation, where the Roanoke River flows out of the southeastern part of the county, is 20 feet. The depth to hard bedrock is 14 or 15 feet in the Piedmont region and ranges from 200 to 300 feet in the Coastal Plain region. The depth to soft bedrock is less than 5 feet in some areas of the Piedmont. The County is drained mainly by Fishing Creek and, to a lesser extent, by the Roanoke River. Major tributaries of Fishing Creek include Butterwood Creek, Little Fishing Creek, Marsh Swamp, Beech Swamp, Beaver Dam Swamp, Burnt Coat Swamp, and Bear Swamp. Kehukee Creek, Looking Glass Creek, Quankey Creek, Chockayotte Creek, Conocanara Swamp, and Cypress Swamp are the major tributaries of the Roanoke River.

### *3. Water Resources*

The City of Roanoke Rapids lies within the Roanoke River Basin. The following provides an overview of water resource quality within the basin.

The Roanoke River Basin extends from its source in the Blue Ridge Mountains of Virginia to the Albemarle Sound in North Carolina, encompassing mountainous, piedmont, and coastal topography as it flows generally east-southeastward. Its five subbasins constitute approximately 3,500 square miles of drainage area and approximately 2,400 miles of streams and rivers in North Carolina, and contains diversity with classified trout streams in the western portion and swamp



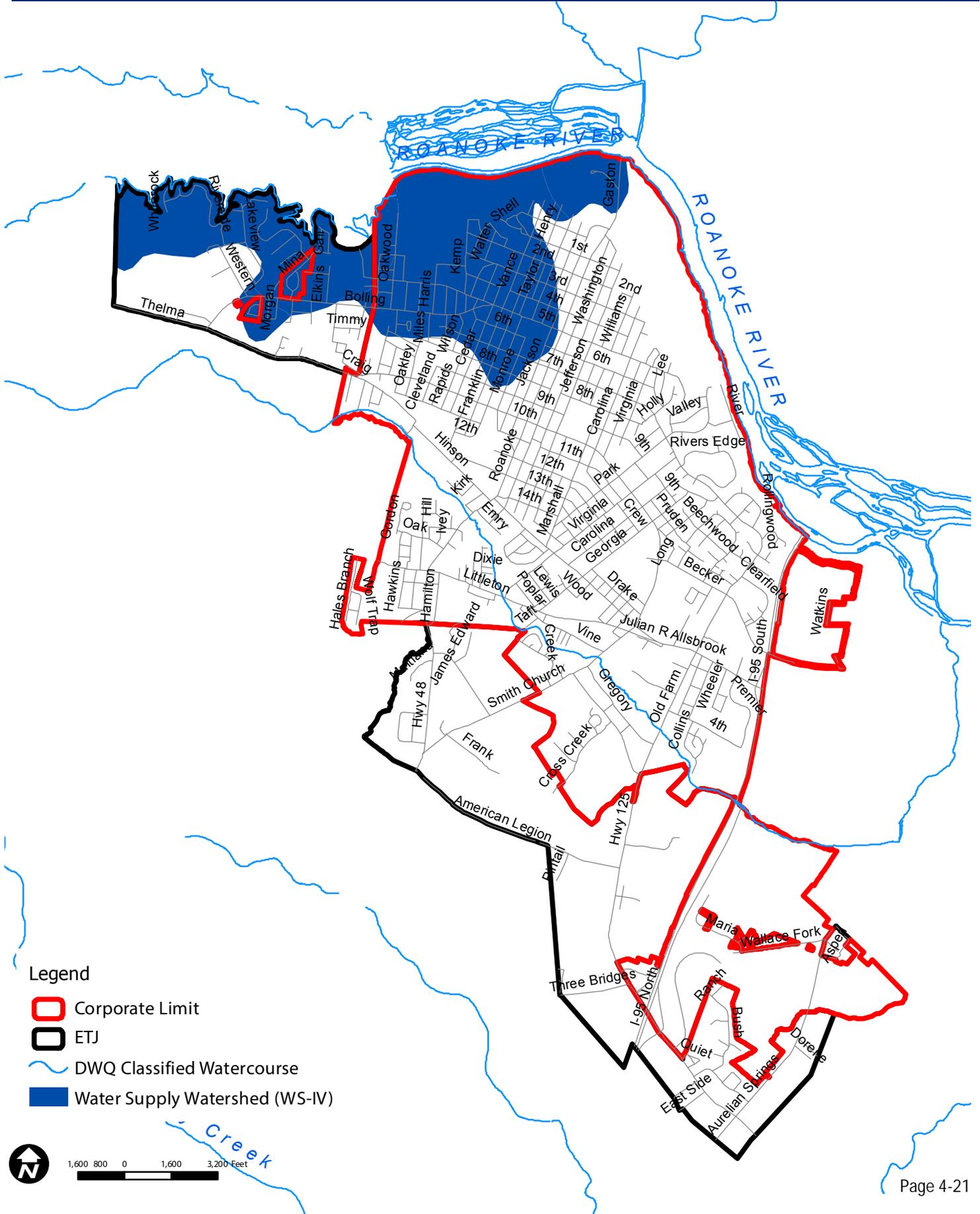
classified waters in the eastern portion. Seventeen counties and 42 municipalities are within the NC portion of the basin.

Within the Roanoke River Basin, the City of Roanoke Rapids falls within the Lower Roanoke River Subbasin. This subbasin is the eastern most subbasin and empties into the Albemarle Sound. The watershed contains a mix land use of forest, agriculture, and wetlands. There are 7 major NPDES permitted facilities and 11 minor NPDES permitted facilities. The subbasin contains three Impaired streams.

All surface waters in North Carolina are assigned a primary classification by the NC Division of Water Quality (DWQ). All waters must at least meet the standards for Class C (fishable/swimmable) waters. The other primary classifications provide additional levels of protection for primary water contact recreation (Class B) and drinking water (Water Supply Classes I through V). Map 4 delineates the Roanoke Rapids surface water classifications which were applicable in September 2013. The following describes the water classifications:

- ▶ **Class B.** Waters protected for all Class C uses in addition to primary recreation. Primary recreational activities include swimming, skin diving, water skiing, and similar uses involving human body contact with water where such activities take place in an organized manner or on a frequent basis.
- ▶ **Class C.** Waters protected for uses such as secondary recreation, fishing, wildlife, fish consumption, aquatic life including propagation, survival and maintenance of biological integrity, and agriculture. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. Chockayotte Creek is classified C.
- ▶ **Water Supply II (WS-II).** Waters used as sources of water supply for drinking, culinary, or food processing purposes where a WS-I classification is not feasible. These waters are also protected for Class C uses. WS-II waters are generally in predominantly undeveloped watersheds. All WS-II waters are HQW by supplemental classification. HQ waters are those which are rated excellent based on biological and physical/chemical characteristics.
- ▶ **Water Supply III (WS-III).** Waters used as sources of water supply for drinking, culinary, or food processing purposes where a more protective WS-I or II classification is not feasible. These waters are also protected for Class C uses. WS-III waters are generally in low to moderately developed watersheds.
- ▶ **Water Supply IV (WS-IV).** Waters used as sources of water supply for drinking, culinary, or food processing purposes where a WS-I, II, or III classification is not feasible. These waters are also protected for Class C uses. WS-IV waters are generally in moderately to highly developed watersheds or Protected Areas.

# Map 4: Water Resources





#### 4. Flood Hazard Areas

Flooding is a localized hazard that is generally the result of excessive precipitation. It is the most common environmental hazard, due to the widespread geographical distribution of rivers and coastal areas, and the attraction of residents to these areas. However, in coastal regions, storm surge and wind-driven waves are significant components of flooding. Floods can be generally considered in two categories: flash floods, the product of heavy localized precipitation in a short time period over a given location; and general floods, caused by precipitation over a longer time period and over a given river basin. While flash floods occur within hours of a rain event, general flooding is a longer-term event, and may last for several days. The primary types of general flooding are riverine flooding, coastal flooding, and urban flooding.

Floodplains are divisible into areas expected to be inundated by spillovers from stream flow levels associated with specific flood-return frequencies. The National Flood Insurance Program (NFIP) uses flood zone designations to indicate the magnitude of flood hazards in specific areas. The following are flood hazard zones located within the City of Roanoke Rapids and a definition of what each zone means.

- ▶ **Zone AE.** The base floodplain where base flood elevations are provided.
- ▶ **Floodway.** The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without causing any cumulative increase in the water surface elevation. The floodway is intended to carry the dangerous and fast-moving water.

The following summarizes floodplain acreage for Roanoke Rapids:

**Table 16. City of Roanoke Rapids Flood Hazard Acreage**

<b>Jurisdiction</b>	<b>Acres</b>	<b>% of City Acreage</b>
Corporate Limits	468.96	5.1%
Extraterritorial Jurisdiction	75.12	0.8%
Total	544.08	5.9%

Source: NC Flood Mapping Program.

There is approximately 544 acres of flood hazard in the city, all of which is classified as "AE" (see Map 5). This equates to just over five percent (5.9%) of the total land in Roanoke Rapids. Most of the city's flood area is located in the southern area along Chockayotte Creek. Development throughout defined flood hazard areas in the city is regulated by the City of Roanoke Rapids Flood Damage Prevention Ordinance. This Ordinance is enforced by the City's Inspection Department.





## 5. Soils

There are a wide variety of soils present throughout Roanoke Rapids. The Halifax County Soil Survey was completed in 2006 and provides a comprehensive summary of soil conditions throughout the county, including the City of Roanoke Rapids.

In terms of land use in relation to development and economic development, there are several factors that should be acknowledged including environmentally sensitive areas and soils as well as areas considered prime farmlands. The following sections provide an overview of these issues and their impact on the city overall.

### Prime Farmlands

The preservation of prime farmland is important to Roanoke Rapids' and Halifax County's agricultural interest and economy. Prime farmland is one of several kinds of important farmland defined by the US Department of Agriculture. It is of major importance in meeting the nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the US Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of the nation's prime farmland.

Prime farmland, as defined by the US Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forest land, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are factors needed for the soil to economically produce sustained high yields of crops when proper management techniques, including water management and acceptable farming methods, are applied.

Generally, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, an acceptable salt and sodium content, and few or no rocks. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it is either not frequently flooded during the growing season or is protected from flooding. The slope ranges mainly from 0 to 8 percent. Roanoke Rapids' prime farmland areas are delineated on Map 6. The following summarizes the prime farmland acreage within the city's jurisdiction.

**Table 17. City of Roanoke Rapids Prime Farmland Acreage**

<b>Jurisdiction</b>	<b>Acres</b>	<b>% of City Acreage</b>
Corporate Limits	1,794.90	19.5%
Extraterritorial Jurisdiction	2,042.07	22.1%
<b>Total</b>	<b>3,836.97</b>	<b>41.6%</b>

Source: Holland Consulting Planners, Inc.





## Hydric Soils

Hydric soils, as defined by the US Department of Agriculture, are soils that are wet frequently enough to periodically produce anaerobic conditions, thereby influencing the species composition or growth, or both, of plants on those soils. Hydric soils may or may not be subject to 404 wetlands regulations. Map 6 delineates hydric soils in the city's jurisdiction. The following summarizes the hydric soils acreage within the city's jurisdiction.

**Table 18. City of Roanoke Rapids Hydric Soils Acreage**

<b>Jurisdiction</b>	<b>Acres</b>	<b>% of City Acreage</b>
Corporate Limits	275.33	3.0%
Extraterritorial Jurisdiction	193.60	2.1%
Total	468.93	5.1%

Source: Holland Consulting Planners, Inc.

## Wetlands

Wetlands is a generic term for all the different kinds of wet habitats where the land is wet for some period of time each year but not necessarily permanently wet. Many wetlands occur in areas where surface water collects or where underground water discharges to the surface, making the area wet for extended periods of time. The Federal Clean Water Act defines wetlands as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, bogs, and similar areas."

Wetlands have both upland and aquatic characteristics, and thus they often have richer flora and fauna than other environments. In practice, wetlands are hard to define, precisely because they are transition zones. It is important to recognize that an area does not have to be wet all year long to be considered a wetland – as few as two or three consecutive weeks of wetness a year is all it takes for this determination to be made.

Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Activities in waters of the United States that are regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry. The basic premise of the program is that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded.



Map 7 delineates the potential wetlands located in the city's jurisdiction. The following summarizes the potential wetlands soil acreage.

**Table 19. City of Roanoke Rapids Wetland Acreage**

<b>Jurisdiction</b>	<b>Acres</b>	<b>% of City Acreage</b>
Corporate Limits	199.09	2.2%
Extraterritorial Jurisdiction	68.17	0.7%
<b>Total</b>	<b>267.26</b>	<b>2.9%</b>

Source: Holland Consulting Planners, Inc.

For an eastern North Carolina location, Roanoke Rapids' jurisdiction includes an unusually small amount of wetlands and hydric soils.

## **D. Transportation**

### *1. Roads*

Roanoke Rapids is strategically located on I-95 midway between New York and Florida. The city sits at the intersection of I-95 and US 158, a designated statewide strategic corridor that extends from I-85 to the North Carolina coast. Concurrent with the preparation of this plan, NCDOT was preparing a comprehensive transportation plan. Map 8 delineates the existing City of Roanoke Rapids vehicular transportation system. Clearly, the major highway in the city's planning jurisdiction is I-95. Roads with greater local transportation impact are Julian R. Allsbrook Highway, NC 48, and NC 125.

Map 9 provides annual average daily traffic counts for numerous locations. Obviously I-95 with an AADT of 39,000 is the most heavily traveled road. Within the corporate limits, the highest AADT is 23,000 on Boykins Street between I-95 and Mitchell Street. AADT within the Central Business District is much lower ranging from 8,100 on Roanoke Street to 13,000 on Tenth Street.

### *2. Bicycle, Pedestrian, and Multi-Use Facilities*

Map 10 depicts existing/potential multi-use (bike lanes) paths for the Roanoke Rapids area. These paths extend from the Central Business District out to the more rural areas in and beyond the city's extraterritorial jurisdiction. It should be noted that all multi-use paths need improvement. These improvements include marking, paving, and other safety measures depending upon location.





# Roanoke Rapids Comprehensive Transportation Plan

Plan date: 3-8-2013

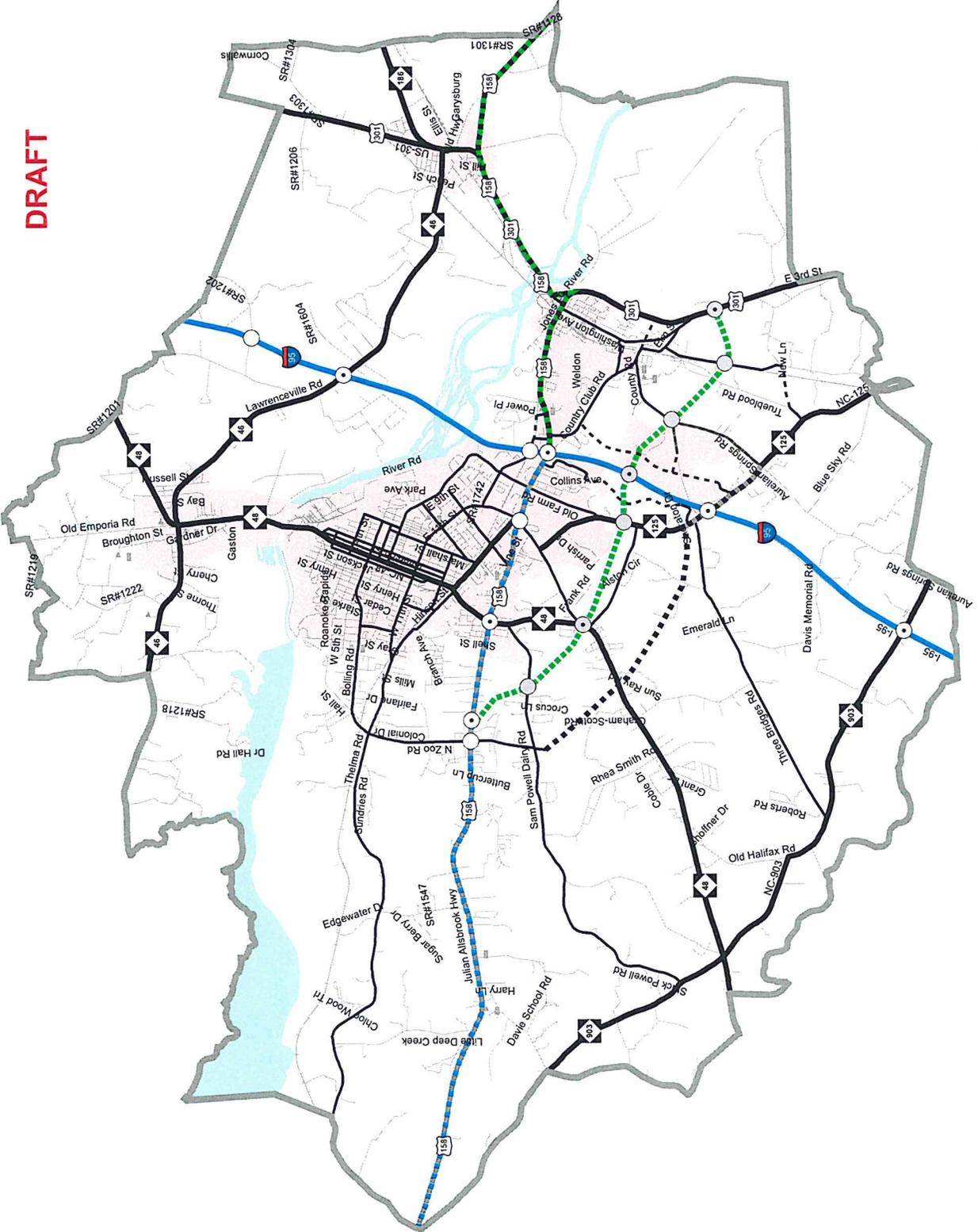
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  - Needs Improvement: Dashed blue line
  - Recommended: Dotted blue line
- Expressways**
  - Existing: Solid green line
  - Needs Improvement: Dashed green line
  - Recommended: Dotted green line
- Boulevards**
  - Existing: Solid red line
  - Needs Improvement: Dashed red line
  - Recommended: Dotted red line
- Other Major Thoroughfares**
  - Existing: Solid black line
  - Needs Improvement: Dashed black line
  - Recommended: Dotted black line
- Minor Thoroughfares**
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  - Needs Improvement: Dashed grey line
  - Recommended: Dotted grey line

- Existing Interchange: Circle with a dot
- Proposed Interchange: Circle with a dot and a dashed line
- Interchange Needs Improvement: Circle with a dot and a dashed line
- Existing Grade Separation: Circle with a horizontal line
- Proposed Grade Separation: Circle with a horizontal line and a dashed line

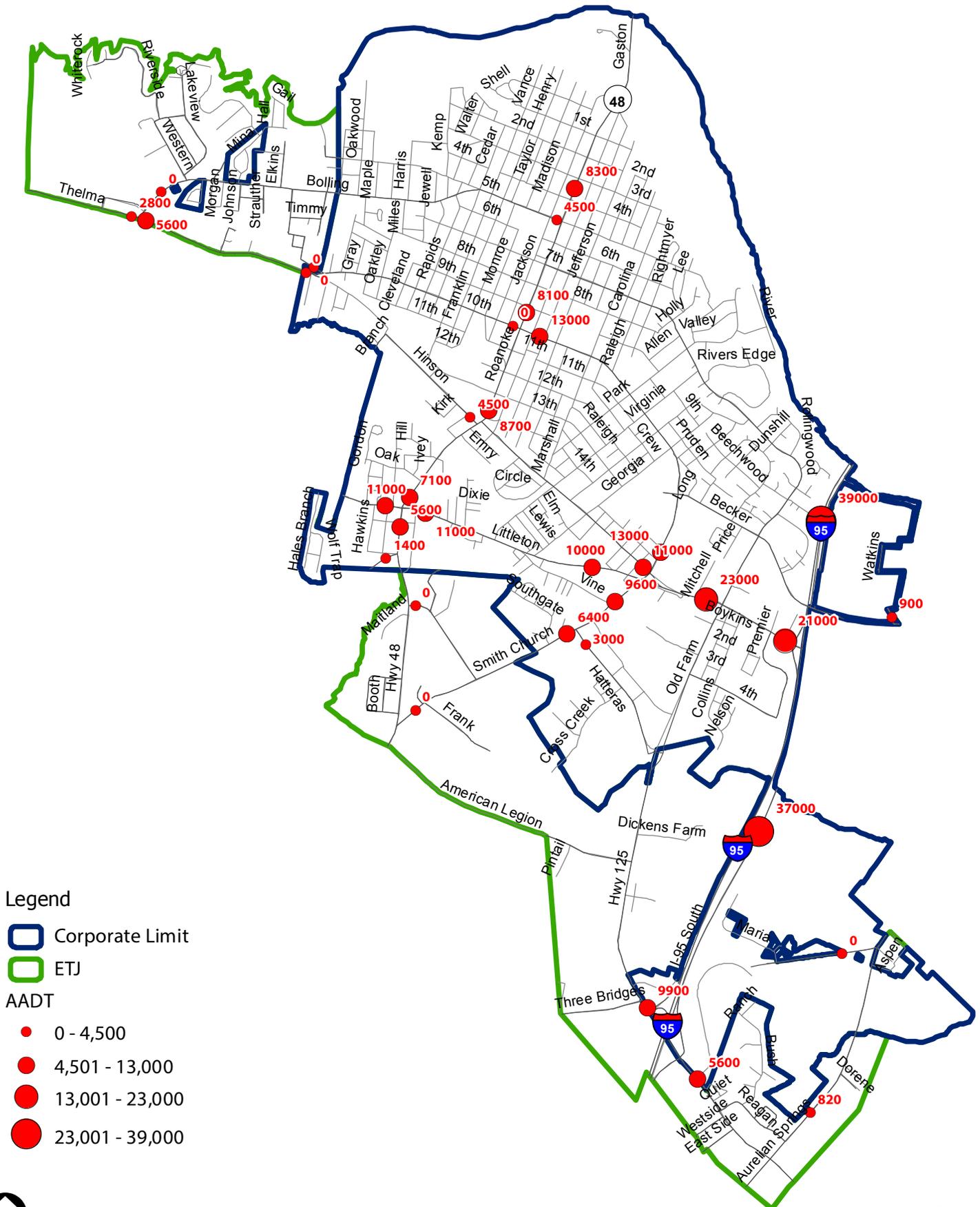


Sheet 2 of 5  
Base map date: 7-25-2011  
Refer to CTP document for more details

**DRAFT**



# Map 9: Traffic Volume-Annual Average Daily Traffic







### 3. *Regional/National Transportation*

#### **Rail**

Roanoke Rapids is served by CSX Transportation. CSX operates rail lines running north and south parallel to I-95, in addition to a line which runs from Roanoke Rapids to Norfolk, Virginia.

#### **Air**

The Halifax-Northampton Regional Airport opened in May 2009. It is a general aviation airport consisting of a 5,500 foot runway, modern terminal facilities, 18 T-Hangars, fuel farm, and corporate hangar facilities. Construction of a parallel taxiway and installation of an Approach Lighting System (ALS) are also planned. The airport is located at 700 Gregory Farm Road, approximately five (5) minutes from Interstate 95. The following facilities are available at the Halifax-Northampton Regional Airport:

- ▶ A 5,500' X 100' runway which can accommodate private and corporate aircraft.
- ▶ A modern terminal building which has a spacious lobby and vending area, visitor information center, operations room, offices, conference room, pilot lounge, quiet room and other facilities.
- ▶ Fuel facilities are available self-service 24 hours a day and offer Jet A and 100 LL fuels.
- ▶ 18 T-Hangars are located at the airport.
- ▶ The airport is equipped with an FAA-certified Automated Weather Observing System (AWOS). Minute-to-minute updates are available to pilots by VHF radio at 119.975 radio.
- ▶ The Halifax Corporate Park is a 700-acre industrial park located adjacent to the Halifax-Northampton Regional Airport.

Major commercial airports are located in Richmond, VA (90 miles) and Raleigh-Durham, NC (70 miles).

#### **Ports**

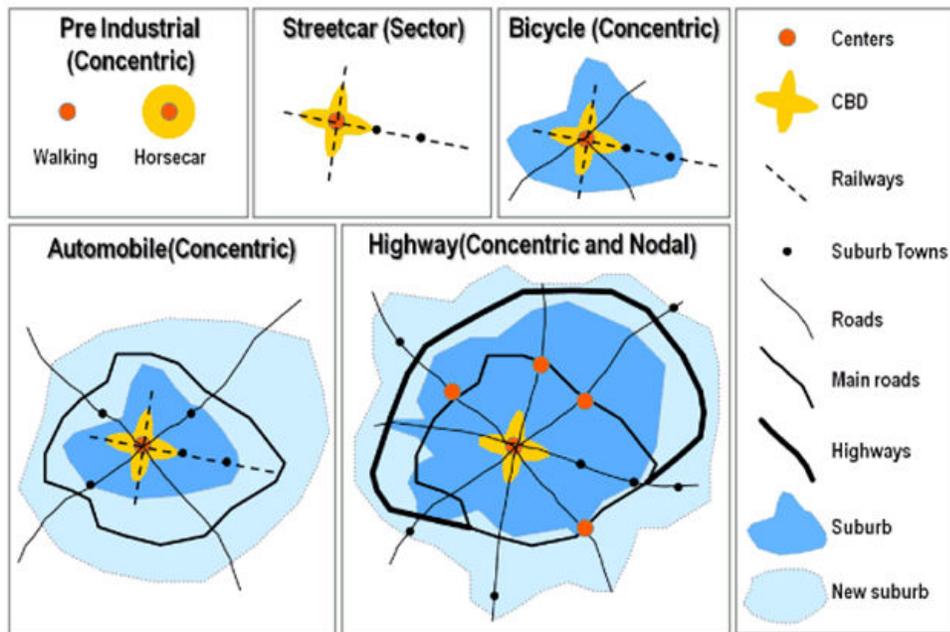
Access to ports is via Norfolk, Virginia (102 miles), Wilmington, North Carolina (170 miles), and Morehead City, North Carolina (165 miles).



### E. Transportation and Land Use Relationship

Understanding the relationship between transportation systems and land use planning is vital to fostering successful urban environments. Planning for where we live, work, and play should coincide with the design of transportation networks. Land use patterns are largely a result of the dominant transportation systems in a given community. In addition, planning that considers not just the automobile, but also the pedestrian, cyclist, and transit rider, will result in better urban form and more attractive places to live.

Looking back in US history, it becomes clear how the forms of cities and towns have changed along with the dominant kind of transportation, which in turn is connected to the availability of different energy sources and economic conditions. The following figure summarizes the relationship between urban form and prevailing means of transportation.



**Figure 1. Relationship Between Urban Form and Transportation** *Source: Geography of Transportation (Taaffe, E., 1996).*

As a general rule, over time communities expanded as more powerful transportation technologies became available. Starting from upper left, the town of the Agrarian era would have limited typical town size to the distance a horse could carry a cart. As streetcars became available, houses sprang up further from the city along sectors served by the streetcars. In contrast, a bicycle-based pattern is limited in range but spread over a more even area relating to a central business district (CBD), shown in yellow.



The lower left diagram shows a typical pattern for mid-to-late 20<sup>th</sup> century settlement, based on car commuting to a city or town center. The final diagram shows a pattern found in many communities with access to major highways. Because of the lake, river, and I-95, Roanoke Rapids' development pattern is skewed and more linear between US 158 (Julian R. Allsbrook Highway) and the Roanoke River floodplain.

Land use change is intricately linked to transportation systems. In turn, transportation systems are linked to available fuel, whether human power on foot or bicycle, horse power, or fossil fuels.

## **F. Existing Land Use**

### *1. Methodology*

All land has an inherent utilization that can be classified to better understand the existing conditions and makeup of a given jurisdiction. Because Roanoke Rapids is predominately urban, much of the existing lands are classified as residential, commercial, or industrial.

Existing land use should not be confused with zoning. Existing land use classifies the current land utilization, which differs from zoning that is used to specify what is allowed to be constructed on a particular piece of property.

Seven land use categories were used to create the existing land use surface. They are as follows:

- ▶ Commercial
- ▶ Industrial
- ▶ Multi-Family Residential
- ▶ Office and Institutional
- ▶ Recreation
- ▶ Single-Family Residential
- ▶ Vacant

The Halifax County tax parcel file, in coordination with aerial photos, was used to determine the existing land use classification for properties in the city. Field surveys and Google's street view were used to confirm the accuracy of the aerial photos and tax data. Further, property value was used to ensure whether parcels were unimproved.



## 2. Existing Land Use Patterns

The vast majority of lands in the city are single-family residential (32%). Vacant land is the second largest land use category in the city, occupying just over a quarter of the acreage. Map 11 and Table 20 delineate the existing land use in the city.

**Table 20. City of Roanoke Rapids Existing Land Use**

<b>Existing Land Use Category</b>	<b>Acres</b>	<b>% of Total</b>
Commercial	385.11	4.81%
Industrial	192.71	2.41%
Multi-Family Residential	302.40	3.78%
Office and Institutional	382.70	4.78%
Recreational	1,999.90	25.00%
Single-Family Residential	2,554.72	31.93%
Vacant	2,182.49	27.28%
<b>Total</b>	<b>8,000.04</b>	<b>100.00%</b>

NOTE: Right-of-way is not included.

Source: Holland Consulting Planners, Inc.

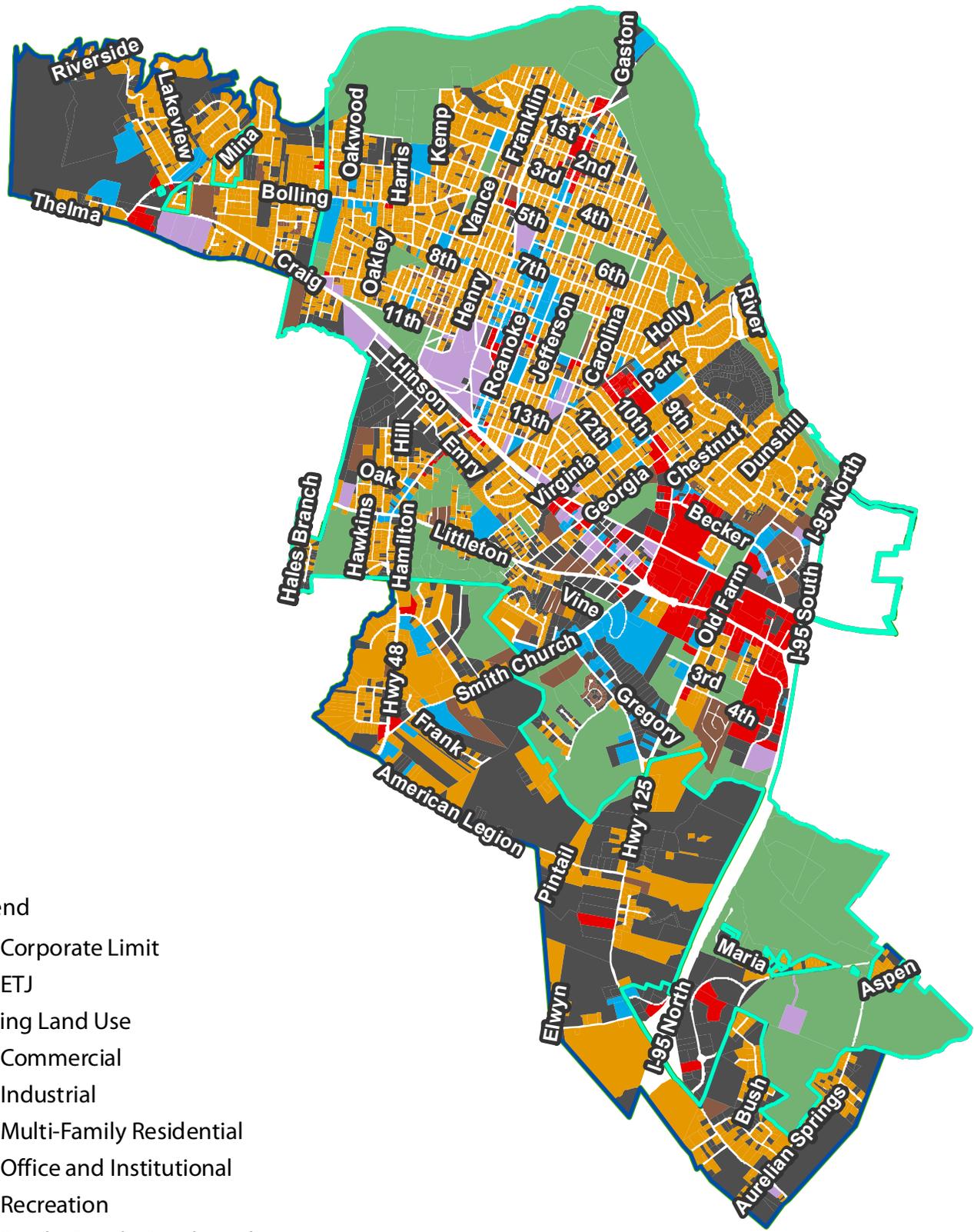
## G. Land Suitability Analysis (LSA)

### 1. Analysis Description

The Land Suitability Analysis (LSA) is a Geographic Information Systems (GIS) based tool for evaluating the relative suitability of land for development in Roanoke Rapids, North Carolina. The end product is a generalized map showing areas of the Roanoke Rapids corporate limits and ETJ that are categorized as having either least, low, moderate, or high suitability for development. The analysis does not provide site-specific results, nor does it make recommendations about how individual landowners may or may not use their land.

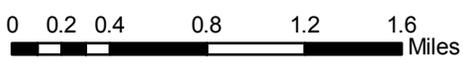
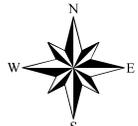
Suitability, for the purpose of this analysis, can be primarily defined in terms of physical limitations and/or regulatory restrictions. Physical limitations such as poorly drained soils make land less suitable for development. Features subject to regulatory restrictions, such as water supply watersheds, also pose challenges to development.

# Map 11: Roanoke Rapids Existing Land Use



**Legend**

-  Corporate Limit
-  ETJ
- Existing Land Use**
-  Commercial
-  Industrial
-  Multi-Family Residential
-  Office and Institutional
-  Recreation
-  Single-Family Residential
-  Vacant





## 2. *Objectives and Limitations*

The results of the LSA will be used to support planning efforts throughout the Roanoke Rapids planning area. Objectives of the LSA and appropriate uses of the final analysis include the following:

- ▶ Identify areas that are more or less suitable for development on a coarse scale;
- ▶ Inventory existing spatial information available for Roanoke Rapids;
- ▶ Identify data gaps that may be filled during later planning stages;
- ▶ Develop a tool that will assist the city in the implementation of new policies;
- ▶ Provide a base for GIS analysis to be used in other long range planning projects.

Limitations of the LSA include the following:

- ▶ The LSA results are not a zoning map, but will be used to support planning processes in Roanoke Rapids;
- ▶ Results and analyses do not support site-specific planning;
- ▶ The LSA does not make recommendations about how an individual landowner may or may not use their land;
- ▶ The LSA does not result in recommendations about where particular land uses (i.e., commercial vs. residential) should be concentrated;
- ▶ Results do not factor in projected population, carrying capacity, or commercial/housing demand.

## 3. *Data Preparation*

Spatial data sets were gathered from Roanoke Rapids, local, state, and federal agencies, and private organizations. Data from the following sources were used in the analysis:

- ▶ Roanoke Rapids GIS
- ▶ Halifax County Tax Records
- ▶ North Carolina Center for Geographic Information and Analysis (NCGIA)
- ▶ North Carolina Clean Water Management Trust Fund (NCCWMTF)
- ▶ North Carolina Department of Environment and Natural Resources (NCDENR)
  - Division of Water Quality (DWQ)
  - Wildlife Resources Commission (WRC)
  - Division of Parks and Recreation (DPR)
- ▶ U.S. Department of Agriculture (USDA)
  - Natural Resources Conservation Service (NRCS)
- ▶ U.S. Fish and Wildlife Service (USFWS)
  - National Wetlands Inventory (NWI)



The spatial data sets were prepared for each suitability class using the following techniques:

- ▶ Each data set was clipped to only include data within Roanoke Rapids' geographic boundary. For example, some of the data sets included information for the entire State of North Carolina. The Roanoke Rapids planning area boundary was used to remove any data outside the city.
- ▶ Some data sets were queried to select subsets of the data. Some data sets included information not relevant to the criteria developed for each suitability class. For example, distribution of data within watershed areas was queried and divided among the proper suitability classes.
- ▶ Some non-spatial data sets were joined to spatial data as a way to add information to spatial data. For example, tabular data for hydric soils and important farmland soil classifications were joined to soil polygons using unique soil map unit codes.

#### 4. *Technical Approach*

The LSA map considers regulatory, legal, and environmental constraints to development, which are defined as follows:

- ▶ **Regulatory Constraints** - These constraints are created by a regulatory body to mitigate impact in designated areas. Often, these constraints are temporary and are not legally binding in nature. The following layers are classified as regulatory constraints in the analysis of land more or less suitable for development in Roanoke Rapids.
  - Water Supply IV Waters (WS - IV)
- ▶ **Legal Constraints** - Any legally binding or permanent agreement to preserve or conserve land areas in perpetuity. The following layers are classified as legal constraints in the analysis of land more or less suitable for development in Roanoke Rapids.
  - Lands Managed for Conservation and Open Space
- ▶ **Environmental Constraints** - Any natural or physical resources that limit an area's potential for development. The two main types of environmental constraints in Roanoke Rapids arise as a result of (1) the presence of valued natural resources (i.e., wetlands) that are likely to be adversely affected by development and as such should be preserved or protected where possible; and (2) a hazard issue (i.e., flooding). These areas are delineated due to the potential for adverse effects on human life or property. The following layers are classified as environmental constraints in the analysis of land more or less suitable for development in Roanoke Rapids.



- National Wetlands Inventory
- Surface Waters
- 100 Year Flood Plain
- Prime Farmland Soils
- Hydric Soils

## 5. *Suitability Classes*

Suitability areas are ranked in hierarchical order from 1 to 4, with Area 1 (Least Suitability) posing the greatest constraints to development. Areas of least suitable land take precedence over the remaining three suitability classes as they pose the most significant challenges to development. For example, wetland areas (included in the least suitable category) may also include prime farmland soils or floodplain, but will be shown as least suitable because they hold a greater significance than the latter.

The following layers were used in the formation of the draft Land Suitability Analysis Map (see Map 11).

### **Least Suitable**

Areas of Least Suitable land are more restrictive to development than other land in the city as they are either protected or environmentally sensitive areas.

- ▶ Surface Waters (see Map 4)
  - All above ground water bodies in Roanoke Rapids.
- ▶ Lands Managed for Conservation and Open Space
  - This GIS data layer consists of lands managed for conservation and open space based on multiple source layers. This is a composite inventory that integrates digital depictions of lands from multiple sources and resolves boundary discrepancies among sources. This data layer is intended to inform the user about the location of existing conservation lands that are in "permanent conservation" and are actively managed by a public entity.
- ▶ National Wetlands Inventory (NWI)
  - NWI digital data files are records of wetlands locations and classifications as defined by the U.S. Fish & Wildlife Service. When completed, the series will provide coverage for all of the contiguous United States, Hawaii, Alaska, and U.S. protectorates in the Pacific and Caribbean. The digital data as well as the hardcopy



maps that were used as the source for the digital data are produced and distributed by the U.S. Fish & Wildlife Service's National Wetlands Inventory project. Base map dates range from Oct. 1981 to present.

Source: The U.S. Fish & Wildlife Service, National Wetlands Inventory.

- ▶ Floodway
  - The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without causing any cumulative increase in the water surface elevation. The floodway is intended to carry the dangerous and fast-moving water.

### **Low Suitability**

Areas of Low Suitability contain development limitations and are more restrictive to development than areas of moderate or high suitability.

- ▶ Prime Farmland Soils (ETJ only)
  - Prime farmland soils, as defined by the U.S. Department of Agriculture (USDA), are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. Spatial and tabular soil data was compiled by the USDA's Natural Resources Conservation Service.
- ▶ Hydric Soils (Poorly Drained Soils)
  - Hydric soils, as defined by the U.S. Department of Agriculture, are soils that are wet frequently enough to periodically produce anaerobic conditions, thereby influencing the species composition or growth, or both, of plants on those soils. Spatial and tabular soil data was compiled by the USDA's Natural Resources Conservation Service.

### **Moderate Suitability**

Areas of Moderate Suitability are more restrictive to development than areas of High Suitability.

- ▶ Water Supply IV Waters (WS - IV)
  - The North Carolina Department of Environment and Natural Resources, Division of Water Quality, in cooperation with the NC Center for Geographic Information and Analysis, developed the digital Water Supply Watersheds data to enhance planning, siting, and impact analysis in areas directly affecting water supply intakes.



This file outlines the extent of protected and critical areas and stream classifications for areas around water supply watersheds in which development directly affects a water supply intake. Water Supply IV waters are used as sources of water supply for drinking, culinary, or food processing purposes. WS-IV waters are generally in moderately to highly developed watersheds or protected areas.

Source: NC DENR, NC Division of Water Quality

- ▶ 100 Year Floodplain
  - Areas subject to a one percent or greater annual chance of flooding in any given year. Digital flood data was compiled by the North Carolina Flood Mapping program.
- ▶ Land mass not covered by an existing layer
  - Due to the hierarchical nature of the Land Suitability Analysis, areas of land not occupied by another layer are by default classified as moderately suitable for development.

### High Suitability

Areas of High Suitability take precedence over land classified as low or moderately suitable due to the availability of water and sewer infrastructure.

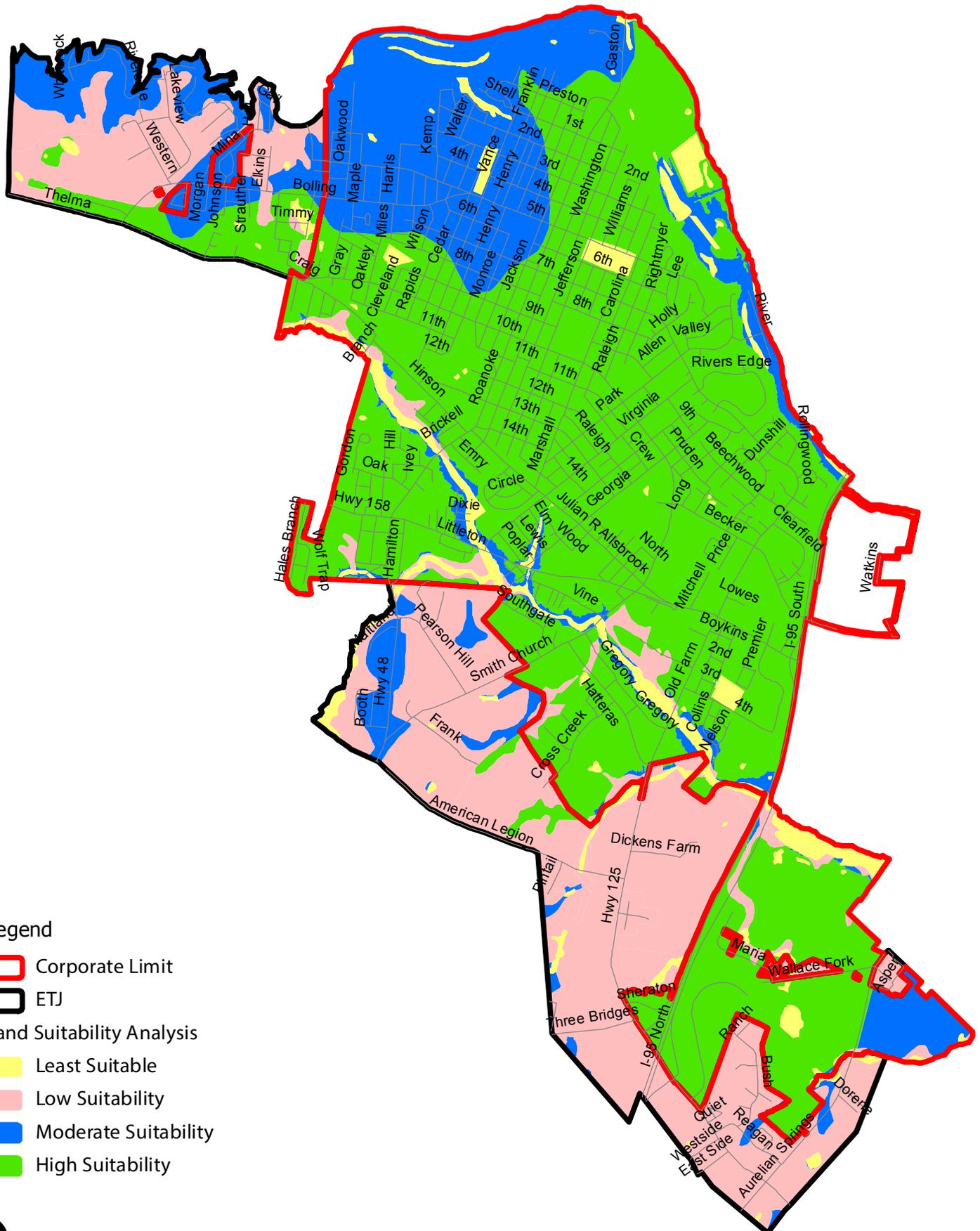
- ▶ Public Sewer Systems
  - The NC Center for Geographic Information and Analysis developed the GIS data set, as mapped by contractors to the NC Rural Center during 2004, 2005, and 2006 to facilitate planning, siting, and impact analysis in the 100 individual counties of North Carolina. This file enables the user to make various county-level determinations when used in conjunction with other data layers.

**Table 21. City of Roanoke Rapids Land Suitability Analysis**

<b>Suitability Class</b>	<b>Acres</b>	<b>% of Total</b>
Least Suitable	439.53	4.8%
Low Suitability	2,261.79	24.5%
Moderate Suitability	1,707.52	18.5%
High Suitability	4,817.92	52.2%
Total	9,226.76	100.0%

Source: Holland Consulting Planners, Inc.

# Map 12: Land Suitability Analysis



## Legend

- Corporate Limit
- ETJ
- Land Suitability Analysis**
- Least Suitable
- Low Suitability
- Moderate Suitability
- High Suitability



1,400 700 0 1,400 2,800 Feet