

Reedy Creek Crossroads Area Plan

A Land Use and Transportation Strategy



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Background

Throughout history, human settlements have been shaped significantly by the ability to be accessed easily by transportation features. Whether by water or by road, early cities were sited only if dependable transportation access was available. The Kingsport area was host to some of the earliest settlers in what became the state of Tennessee. These settlers improved on the natural setting found in the Holston Valley to facilitate travel both by river and overland. Located just east of downtown Kingsport (in approximately 1770), the Fall Creek and Reedy Creek settlements were among the first in the area. These places were situated respectively along Island Road and Reedy Creek Road, two routes leading from Virginia to the Holston River.

The wide and flat valley through which Reedy Creek flows later became the location of a new and major route for the Kingsport area. Situated in between the old Reedy Creek Road (now Bloomingdale Pike) and Island Road, Stone Drive became the primary east-west route for mobility and commerce in this part of Sullivan County.

Stone Drive (US 11W) east of Kingsport is today an urban principal arterial and is a primary route connecting Kingsport and Bristol, Tennessee. It is also a major retail and office destination, attracting new developments or redevelopments such as East Stone Commons, Kingsport Pavilion, and Reedy Creek Terrace over the past few years.

In this same area, two major roadway intersections exist. The at-grade intersection of Stone Drive and Eastman Road is the busiest in the Tri-Cities. The grade-separated interchange of Stone Drive and John B. Dennis Highway provides a connection to Interstate 26 to the south via a partially access-controlled facility and connects Kingsport to Virginia to the north.

Given the development efforts already mentioned and the renewed interest in the Reedy Creek Crossroads area, City leaders have recognized a need for specific planning in this area. A comprehensive plan regarding future land use and transportation needs is desired. As land parcels are transferred, developed, or redeveloped, the City, citizens, and those invested as land owners and developers should be aware of the plan and the expectations it brings.

Study Area

The area of interest for this corridor study is termed the Reedy Creek Crossroads area. The study area is irregular in shape and is generally defined as Stone Drive from Idle Hour Road to New Beason Well Road, John B. Dennis Highway from Reedy Creek to Sullivan North High School, and Eastman Road from Center Street to E. Stone Drive. Because land uses affecting these roads are a primary interest, significant land areas adjacent to and served by these and other more minor streets within the study area are included as well. The total study area consists of approximately 905 acres of land roughly centered around the Stone Drive and John B. Dennis Highway interchange. The majority of this land lies south of Stone Drive between Idle Hour Road and John B. Dennis Highway.

*The Reedy Creek Crossroads Study Area
(Large Size 11x17 map included in the Appendix)*

Study Purpose

Recognizing the need for a studied and deliberate effort to ensure the sustainable growth of the corridor, the City partnered with RPM Transportation Consultants to develop this Reedy Creek Crossroads Study.

The purpose of this plan is to identify and recommend appropriate transportation strategies for the near and long-term development of the Reedy Creek Crossroads study area. The plan contains two major components of the potential development, transportation and land use.

The relationship between transportation and land use has become increasingly emphasized in communities around the region in the past few years as growth has generally well outpaced accommodating infrastructure. This plan seeks to promote a coordinated approach of these components in a relatively small planning area and provide complementary recommendations for the corridor's transportation and redeveloped land use.



Historic setting of Stone Drive



The Reedy Creek Crossroads area has been a subject of interest to City leaders, developers, and Kingsport citizens for many years. As the Stone Drive corridor has continued to attract retail and other types of development, limited-scale traffic studies and forecasts have been completed. These were generally too specific to address the longer-range, area-wide needs of the study limits. At the same time, one of the mandated tasks of the Kingsport MPO is to develop a long range transportation plan (LRTP) for its planning area. The LRTP planning area includes all of the Reedy Creek Crossroads area and several transportation improvement projects affecting the area which are currently included in the LRTP. However, this multi-jurisdiction planning area is somewhat too large to effectively plan for the access and other development-related needs found within this unique area.

This plan combines characteristics of a site-specific traffic study and long range transportation plan. Planning assumptions and forecasts are made on a 25-year planning horizon and individual parcels and groups of parcels particularly suitable for redevelopment are considered.

Utilizing the City’s geographic information system or GIS, a parcel level analysis of existing and future land uses located within the study area was conducted. Understanding not only the relative amount of land which is currently developed and/or vacant provides valuable information as to the likely amount of development potential that could occur within the study area over time. Additionally, through the analysis of current property value to improvement value, a baseline assessment can be made of underutilized properties, that is those lands where the improvement value is less than the land value of the parcel. Overlaying this information with other data, such as steep topography and areas along the creek which are considered within the floodway, a planning level assessment can be made as to the actual amount of land that could be developed or is suitable for development.

Combining this information with an assessment of the City’s current zoning, which is the City’s desired future land use, an evaluation of likely development can be made as to future development conditions within the study area. Lastly, combining this information with the existing square footage of developed properties, by existing and future land uses, the current amount and scale of existing development, by use, can be derived. Capturing this information then allows for a reasonable assessment of future development conditions and the associated impacts of the intended future land use for the study area.

A properly planned transportation network is an integral component of the area’s land use and vice versa. Therefore, this strategic plan is comprised predominately of transportation recommendations which are based on the land use projection methods. In making transportation recommendations for the Reedy Creek Crossroads area, details such as exact driveway locations, signal timings, and internal circulation issues are not intended to be identified. Specifics such as these are design elements and generally should be developed as part of detailed site planning. The purpose of the plan is to provide a developmental framework of guidelines around which the improvement of the area’s transportation network should be made as development projects occur. The objective of this plan and of the future development of the area is to strike an appropriate balance between mobility through the corridors and access along

them. The guidelines and improvement recommendations made here will provide a network capable of sustaining the anticipated growth of this part of Kingsport while continuing to allow the major corridors found here to effectively serve as regionally significant roadways.

To estimate the trip making needs of the future study area, land use assumptions were used to drive an application of the standard four phase planning analysis of trip generation, trip distribution, modal choice, and trip assignment.

TRIP GENERATION provides an estimate of the amount of new traffic produced by future development. ITE’s Trip Generation was used to estimate the number of new trips made to and from each general land use area on a daily basis. Growth of traffic from causes external to the study area were also estimated as part of trip generation. General growth rates based on TDOT historical counts were used to estimate growth of travel through the corridor.

TRIP DISTRIBUTION assumes the patterns new traffic will use to arrive at or depart from the future development. Existing traffic counts and areas of likely future residential and employment growth are used to make these distribution estimates. Because of the size of the planning area and the relative generality of land use assumptions, trips were distributed

across the network on a broad level.

MODAL CHOICE accounts for trips being made within the network by a mode other than private vehicle. Trips made by transit, walking, or bicycling have unique effects on the transportation network and are therefore accounted for differently than auto trips.

TRIP ASSIGNMENT is the final forecasting step, once the number of trips, their relative origins and destinations, and the travel modes used have been identified. Here, actual traffic volumes are assigned to the existing and proposed roadways based on the three previous planning steps.

Most of the land use and resulting trip-making analysis was performed within the commercial center of the study area. This is generally the segment of Stone Drive between Idle Hour Road and John B. Dennis Highway, including properties between Reedy Creek and Pavilion Drive. This area was targeted for several reasons. First, it currently contains the most intensive land uses as well as access problems. Correcting the transportation-related deficiencies in this area will be the most difficult, but will also have the greatest impact on the study area. Second, it is by far the most developed segment within the study area, meaning that other, less developed areas can be better addressed by guidelines on future development than by major reconstruction. Third, the amount of developable land in other areas is far less than in the commercial center. Creek floodplains and steep topography severely limit these outlying areas as evidenced by the “fingers” present on the study area limits. Since the developable lands in these areas are so narrow, changes to zoning such as an allowance of mixed-use development would have limited, if any, effect.

Plans in the Study Area

The Reedy Creek Crossroads area is the subject of several existing transportation plans. These plans are in varying stages of implementation.

Location	Project	LRTP No.	Complete	Under Construction	Planned
John B. Dennis Hwy and Stone Dr.	Improve intersection geometry and signals	E-3a, PA-3			x
Stone Dr. and Indian Trail	Install traffic signal	PA-3	x		
Stone Dr. from Eastman Rd. to Indian Trail	Install raised median	PA-3		x	
Ryder Dr. and Eastman Rd.	Install traffic signal	MNA-6	x		
Eastman Rd. from Stone Dr. to study limit	Install raised median	MNA-6			x
John B. Dennis Hwy and Pavilion Dr.	Install traffic signal	N/A			x
Cleek Rd. from Stone Dr. to study limit	Minor reconstruction (shoulders, also multi-use path)	C-3			x

Other projects (and potential projects) in the area will also have impacts on the transportation network. These include:

- New access from Stone Drive to Boys and Girls Club
- Potential new main entrance(s) to Indian Path Hospital
- Continued development of Reedy Creek Terrace shopping center
- Potential new access to YMCA
- Moccasin Gap intersection, Waldalow Gap Road (VDOT)

Land Use

As mentioned, the area of interest for this corridor study is termed the Reedy Creek Crossroads area. The study area is irregular in shape and is generally defined as Stone Drive from Idle Hour Road to New Beason Well Road, John B. Dennis Highway from the Stone Drive ramps to Sullivan North High School, and Eastman Road from Center Street to Stone Drive. Because land uses affecting these roads are a primary interest, significant land areas adjacent to and served by these and other more minor streets within the study area are included as well. The total study area consists of approximately 905 acres of land roughly centered along Stone Drive, North Eastman Road, and John B. Dennis Highway. The majority of this land lies south of Stone Drive between Idle Hour Road and John B. Dennis Highway.

Existing Land Use

The City believes the Reedy Creek Crossroads area is on the verge of experiencing significant change in the current land use patterns and believes that there are opportunities to better coordinate future land use changes to improve overall access and mobility within and through the study area. Changes can already be seen when considering the major investments recently made in the East Stone Commons shopping center (2005), the Kingsport Pavilion shopping center (2007), Reedy Creek Terrace shopping center (2008), and the new 44,000 square foot Boys and Girls Club of Greater Kingsport facility (2008).

To establish a comprehensive understanding of existing land use patterns for the study area, the most recent existing land use data available and used for this report were obtained from the City of Kingsport. These data come from the State of Tennessee Comptroller of the Treasury Division of Property Assessments. Land use areas were identified from the City of Kingsport GIS data. In total, there are ten different land use categories located within the study area. The primary land use is commercial, approximately 52% of the study area. Lands classified as undeveloped make up the next largest majority of the study area accounting for roughly 24% of the study area land use. The next largest classification of lands is agricultural and farm lands followed by medical/charitable.

The following is a brief description of the land uses within the study area.

Commercial

Commercial properties comprise the largest percentage of land in the study area accounting for nearly 52% of all properties. Commercial properties include uses that provide a range of services, including retail goods, office, financial, restaurants, and auto sales. Existing commercial properties within the study area are most prevalent along Stone Drive, Eastman Drive, Brookside Drive, Pavilion Drive, Indian Trail Drive, and American Way.

Undeveloped

This classification includes properties which are considered undeveloped. This classification of land is the second largest classification of existing land uses accounting for roughly 24% of the study area. In total there are 55 parcels accounting for approximately 216 acres. Four properties in this classification represent over 55% of these properties. The largest concentration of undeveloped lands is located along Reedy Creek throughout the study area and along Stone Drive in the eastern part of the study area.

Agriculture & Farm

Nearly 12% of the study area is comprised of properties classified as agriculture or farm. These classifications represent approximately 106 acres of lands that are either used for farming or for the raising of livestock. Most of these parcels border Reedy Creek with other properties located at the edge of the study area along Stone Drive to the east and John B. Dennis Highway to the north.

Medical/Charitable

Medical and charitable properties within the study area account for approximately 4% of the lands within the study area. Medical and charitable lands are properties which are hospitals, health related, or represents a scientific and/or historic significance. Properties of this classification within the study area include Indian Path Medical Center, which is a 330 inpatient bed hospital and the Exchange Place, which is a historic property and museum which is on the National Register of Historic Places.

Industrial

There are four parcels within the study area classified as industrial totaling 4 acres. This classification covers a broad spectrum of industry activities. Properties within the study area that are classified industrial are largely light industrial establishments such as mini storage facilities and

construction related businesses. Properties classified as industrial within the study area are located off Brookside Drive north of Bridgewater Lane.

Religious

There are eight parcels within the study area which are classified as religious. This classification covers churches, places of worship, and cemeteries. There is a total of 30 acres classified as religion within the study area. The largest concentration of properties of this classification is north of the study area off John B. Dennis Highway.

Residential

This classification includes both single family and multi-family residential properties. Within the study area there is approximately 28 acres of land classification as residential. This land use classification represents roughly 3% of the land uses in the study accounting for 50 residential dwelling units.

Public Utilities

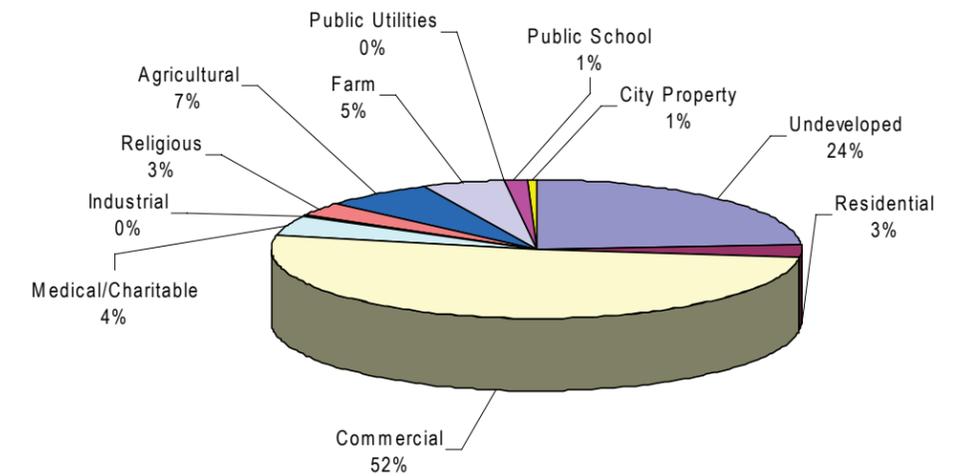
There is one parcel classified as public utilities within the study area accounting for less than one acre. This property is located along Stone Drive in the eastern part of the study area and is owned by the telephone company.

Public School

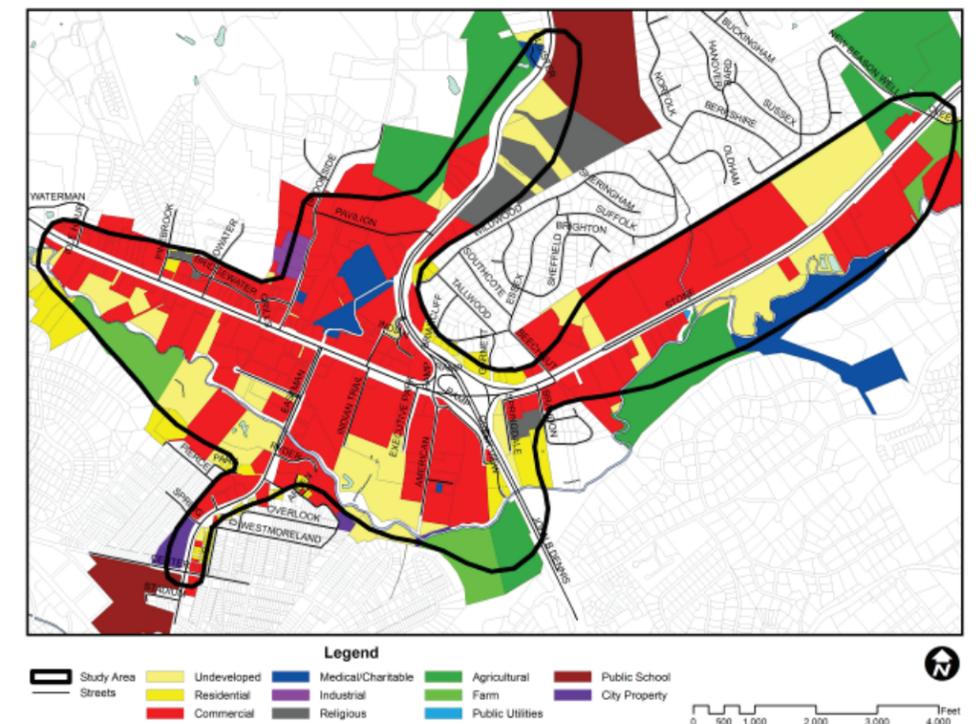
Within the study area there are two public schools - Dobyns-Bennett High School, which has an enrollment of 1,800 students, located at the corner of Center Street and North Eastman Drive and Sullivan North High School, which has an enrollment of 900 students, located off John B. Dennis Highway near Cloister Lane. Only a portion of the school's properties are located within the study area.

City Property

Within the study area there are five parcels classified as City. These properties are owned by the City of Kingsport and total roughly 6 acres. The largest property is that off Eastman Drive between Spring Street and Center Street which is Indian Highland Park, a 4.8 acre City park.



Breakdown of existing study area land uses.



Though primarily commercial, the Reedy Creek Crossroads area has a wide variety of land uses. (Large Size 11x17 map included in the Appendix)

Land Use

Future Land Use - Zoning

Zoning ordinances are written to help guide future development and protect the health, safety, and welfare of the community. They also assist to preserve or establish community character, prevent undesirable development and help maintain property values. Zoning describes what types of land use activities can occur in specific areas of the city and establishes minimum district use requirements that must be met. These bulk regulations include building height, lot dimensions, setbacks and densities for each use. Design standards are also dictated in the zoning ordinance. These design standards help guide building styles, parking, open space, and landscaping.

The following summarizes the specific categories that are included within the boundaries of the Reedy Creek Crossroads Study Area. Because zoning district data are somewhat different in form from the existing land use data the number of acres and percentages presented below are slightly different.

R-1A Residential District

This use accounts for approximately 3% (32 acres) of the study area and is primarily located south of Reedy Creek in the vicinity of Idle Hour and Bowater Drive. Permitted uses include single-family detached dwellings and small group residential projects with a minimum lot area of 10,000 square feet.

There are also a number of conditional uses allowed such as cemeteries, daycare nurseries, country clubs and golf courses, churches and other places of worship, and schools and colleges.

A large portion of the R-1A zoned land within the study area is that of the Bunny B Stables property.

R-1B Residential District

This use accounts for approximately 10% (108 acres) of the study area and is primarily located along the John B. Dennis Highway to the north and near the interchange of Stone Drive and John B. Dennis Highway. Permitted uses include single-family detached dwellings like R-1A with a minimum lot area of 7,500 square feet. Conditional uses are the same as the R-1A district.

A large portion of R-1B zoned land within the study area is occupied by several churches and Sullivan North High School.

R-1C Residential District

This use accounts for less than 0.5% (3 acres) of the study area and is primarily east of Eastman Road just north of Center Street. Permitted uses include single-family detached dwellings like R-1A with a minimum lot area of 5,000 square feet. Conditional uses are the same as the R-1A district.

A-1 Agriculture District

This use accounts for less than 2% (20 acres) of the study area and is primarily south of Reedy Creek in the eastern portion of the study area. Only one property is zoned A-1 in the study area and that is the Exchange Place, which is on the National Register of Historic Places.

Permitted uses for the A-1 district include general farming and livestock, single-family detached dwellings, small group residential projects, and hunting, fishing, and forestry. Conditional uses are the same as the R-1A district.

R-3 Low Density Apartment District

This use accounts for less than 2% (17 acres) of the study area with properties of this district located to the north of the study area on the west side of John B. Dennis Highway, east of John B. Dennis Highway off Beechnut Drive and Stone Drive, and south of Reedy Creek south of Executive Park. Permitted uses include that of the R-1A district as well as multifamily dwellings, dormitories, and group residential projects with a minimum lot area of 6,000 square feet. Conditional uses for the R-3 district include rest homes, rehabilitation centers, hospitals, religious and charitable institutions, community centers (such as YMCA, etc.), daycare nurseries, and communication facilities.

R-4 Medium Density Apartment District

This use accounts for less than 1% (8 acres) of the study area with properties of this district located to the west of Eastman Drive near Center Street and north of Bridgewater Lane off Bowater Drive. Permitted uses include that of the R-3 district. Conditional uses for the R-4 district are the same as that of the R-3 district.

P-1 Professional Offices District

This use accounts for approximately 12% (134 acres) of the study area with the vast majority of the properties of this district located west of John B. Dennis Highway in the vicinity of Pavilion Drive and Brookside Drive. Other properties of this district are located south of Stone Drive within the study area.

Permitted uses include offices for business, professional, medical, governmental, civic, insurance or other groups (such as credit agencies, brokers, travel agencies, computer or data processing centers, real estate offices, finance, photography studios, and law offices).

Conditional uses for the P-1 district include offices of veterinarians, hospitals, group homes, communication facilities, golf courses, and high density apartments (as described in the R-5 district).

B-1 Neighborhood Business District

This use accounts for less than 0.1% (1 acre) of the study area with the sole property located south of Center Street off Eastman Road. Permitted uses include retail and service activities oriented to serving nearby neighborhoods; retail uses for sale of goods and merchandise, including food, groceries, gasoline, meals or prepared food, off-premises sale of beer/alcoholic beverage sales, clothing, medicine, toiletries, hardware, magazines and similar uses; service uses such as laundries and dry cleaning, appliance repair, barbershops, beauty shops and similar uses; and the same as for R-3 district.

Conditional uses for the B-1 district include self-service carwashes, offices, communication facilities, and uses the same as for R-3 district.

B-3 General Business District

This use accounts for 58% (525 acres) of the study area. Essentially all properties fronting Stone Drive and Eastman Road are zoned B-3. Permitted uses include ambulance services; animal hospitals; antennas; antique shops; artist studios; automobile sales and services; automobile service stations; bakeries, retail and wholesale; boat sales; building materials and services; business services and supplies; catering services; convenience stores; eating and drinking establishments; equipment sales, service and rentals; financial institutions; fitness centers; food and beverage sales; funeral and interment services; hotels and motels; laboratories; maintenance and repair services; major and minor motor vehicle repair; manufactured and mobile home sales; off and on-premise alcohol sales; plant nurseries; offices; open air uses (garden supplies, lawn furniture, plant nurseries, playground equipment); pawn shops; personal improvement services; printing and publishing; recreation vehicle sales; research and development; restaurants; retail sales; shopping centers; clubs and lodges; cultural institutions; community centers; institutions for human care; daycare centers; parking lots and structures; public facilities; meeting centers; commercial recreation and entertainment; park and recreation facilities; public and private campgrounds; RV parks; golf courses; theaters and auditoriums; government uses; religious assembly; schools, public, private, trade; communication facilities; and adult oriented establishments (with specific stipulations as to location).

Conditional uses for the B-3 district include automobile storage; automobile impoundment yards; lumber yards; and electronic message boards.

B-4P Planned Business District

This use accounts for less than 5% (50 acres) of the study area. Properties of this district are located at the corner of Stone Drive and

Eastman Road. Permitted uses include ambulance services; animal hospitals; antique shops; artist studios; automobile sales and services; automobile service stations; bakeries, retail and wholesale; boat sales; building materials and services; business services and supplies; private clubs and lodges; commercial recreation and entertainment; community centers; convenience stores; cultural institutions; day care centers; eating and drinking establishments; equipment sales, service and rental; financial institutions; fitness centers; food and beverage sales; funeral services; golf courses; government uses; hotels and motels; laboratories; malls; manufactured and mobile home sales; meeting centers; offices; off- and on-premises alcohol sales; park and recreation facilities; pawn shops; personal improvement services; printing and publishing; public facilities; recreation vehicle sales; religious assembly; research and development; restaurants; retail sales; schools (public, private, trade); shopping centers; theaters and auditoriums; utilities; and welcome centers.

Properties of this zoning district must adhere to specific design standards. Example provisions include shared parking provisions, pedestrian way access, landscaping requirements, and lighting standards.

M-1 Light Industrial District

This use accounts for less than 0.5% (4 acres) of the study area with the area within this district being west of Brookside Drive near Pavilion Drive. Permitted uses include manufacturing, compounding, assembling, processing, packaging and similar treatment of articles of merchandise ranging from leather, paper, and plastics to bakery goods, candy, and electrical parts and appliances. Other industrial and manufacturing activities are also allowable including auto parts rebuilding, battery manufacturing; and nondairy and nonfood product bottling plants.

Conditional uses for the M-1 district include public utilities and public service uses and structures and indoor recreational facilities such as tennis courts, racquet ball courts, gymnasiums, offices, etc.

M-1R Light Industrial District

This use accounts for over 17% (191 acres) of the study area. Properties within the study area that are zoned M-1R can generally be found along Reedy Creek just west of Eastman Road and east of Eastman Road to John B. Dennis Highway and just east of John B. Dennis Highway.

Permitted uses include that of the M-1 district. Conditional uses for the M-1R district are the same as that of the M-1 district.

Natural Features

Hydrology

Reedy Creek is the primary waterway running the complete length of the study area from east to west. Reedy Creek runs south of Stone Drive with the creek's edge as close as a few hundred feet from the roadway in a few locations to nearly a half mile in distance at other points along Stone Drive. Reedy Creek crosses underneath Eastman Road and John B. Dennis Highway within the study area. Additionally, there are three branches off of Reedy Creek within the study area: Miller Branch which runs north from Reedy Creek between Pinebrook Drive and Bowater Drive, Leslie Branch which runs north from Reedy Creek about a half mile east of Beechnut Drive, and Clark Branch which runs north from Reedy Creek and parallels Sussex Drive to the north.

There are significant restrictions for development in the floodway near rivers and streams found in the City of Kingsport Zoning Ordinance. The floodplain consists of the floodway and the floodway fringe, which is the area between the floodway and the 100-year floodplain. These restrictions are in place to protect both public and private land as well as protect the beneficial aspects of floodways such as water quality, habitat, and ecological value, as well as stream bank and wetland preservation. New construction of both residential and non-residential buildings is restricted in the limits of the floodplain.

Topography

In broad terms, the area's topography represents a challenge for new development to occur that will not significantly impact the natural landforms, ecology, water quality, drainage patterns and character of the area. Development on steep topography can result in higher initial construction costs and difficulty in establishing supporting infrastructure. In addition, potential erosion during construction and permanent slope stabilization after construction must be taken into account. Despite this, it is common practice to mass grade areas for new development even with these significantly higher development costs and negative effects on the natural landforms.

A slope analysis was used to interpret development suitability. Suitability, for the purpose of this report, is a means to analyze topographic conditions based on their impact toward new construction and development.

Areas that are considered "most suitable" have relatively gentle topography that does not significantly impact new developments. Most roads and impervious surfaces are more ideally suited on final grades that are less than 10%. Slopes within these ranges can minimize grading and address manageable storm water drainage. Areas that are considered "suitable" include areas with slopes that are greater than 10% but less than 15%. These areas have the potential to create some challenges, but proper planning, increased initial grading and site maintenance allows new construction to take place that meets development codes. Areas that are considered "least suitable" are areas over 15% or steeper that present extreme challenges for new construction. Mass grading involving extensive amounts of cut and fill will likely be required to build roads and hardscapes that meet development codes.

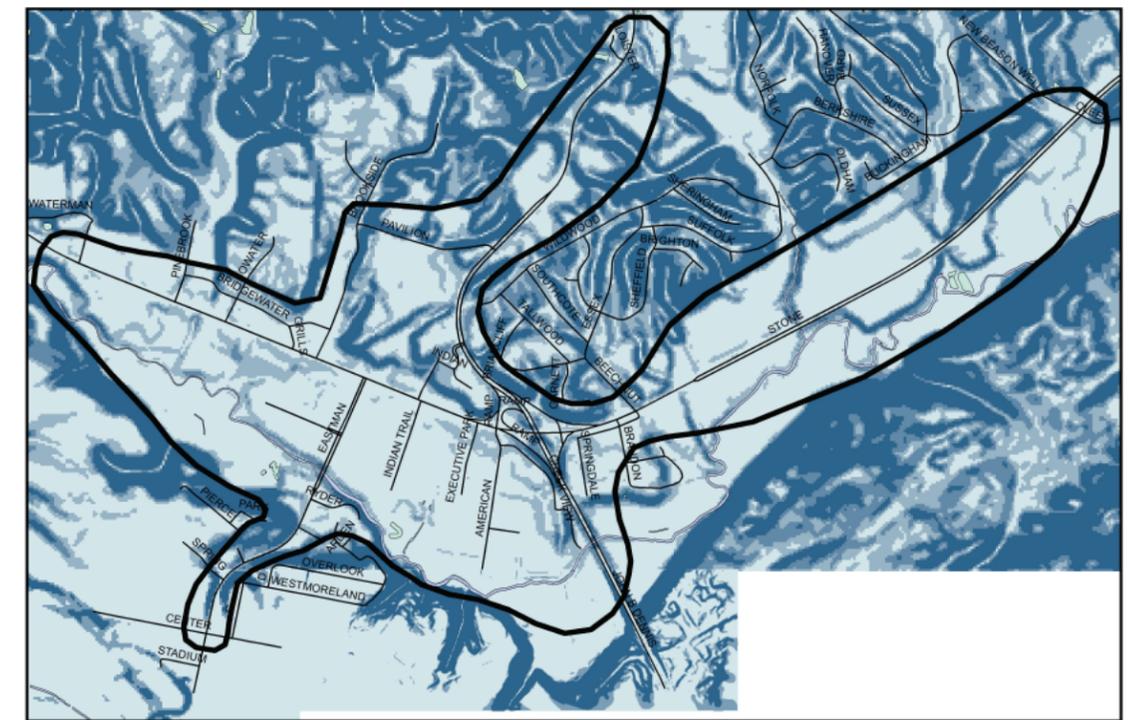
Impacted areas were taken into consideration when analyzing the suitability of the study area. These are areas where, either development cannot physically occur, such as rivers, or areas where regulations have stipulated no development should occur such as within the floodway.

Existing Land Use	Total Study Area Acres	Acres Impacted by Floodway	Acres Impacted by Slope (>15%)	Acres Impacted by both Floodway and Slope	Total Acres Impacted	Total Acres Non-Impacted	Percent of Land Non-Impacted
Undeveloped	216	44	43	2.3	85	131	61%
Residential	28	2	12	0.3	14	14	50%
Commercial	465	37	43	0	80	385	83%
Medical/Charitable	39	10	4.5	0.1	15	24	62%
Industrial	4	0	0	0	0	4	99%
Religion	30	0	6	0.3	6	24	80%
Agricultural	60	34	11	0	45	15	25%
Farm	46	33	2	1.5	33	13	28%
Public Utilities	0.2	0	0	0	0	0.2	100%
Public School	11	0	3	0.4	3	8	73%
City Property	6	1	1	0	2	4	67%
Total	905	161	126	5	283	622	69%

A significant amount of land within the study area is impacted by either steep slopes or floodway. Development or redevelopment in these areas is severely constrained. The non-impacted lands in the chart above would be more suitable to development or redevelopment activity. These areas may or may not currently be vacant or actively used.



Legend
 Study Area (black outline), Streets (black line), Floodway (light blue with diagonal lines), Flood Fringe (yellow with diagonal lines)
 Scale: 0 to 4,000 Feet
 Flood areas within the study area (Large size 11x17 map included in the Appendix)



Legend
 Study Area (black outline), Streets (black line), > 5% (light blue), 5% - 10% (medium blue), 10% - 15% (dark blue), > 15% (very dark blue)
 Scale: 0 to 4,000 Feet
 Steep slopes within the study area (Large Size 11x17 map included in the Appendix)

Cross-Section and Right-of-Way

The roads in the Reedy Creek Crossroads Study Area are as varied as the land uses they serve, ranging from narrow two lane streets to a seven lane arterial.

As development opportunities have grown in this part of east Tennessee, so has traffic, making the intersection of Stone Drive and Eastman Road the busiest in the Tri-Cities. To accommodate the traffic demands, roads have generally been constructed to a generous scale. The largest cross-section in the study area belongs to Stone Drive. For much of its length in the study area, this road accommodates seven lanes of traffic inside a right-of-way approximately ranging between 140' and 230'. Eastman Road is five lanes wide (90' typical right-of-way) and John B. Dennis Highway is a four lane divided highway inside of a right-of-way typically 200' wide. Other streets in the area are two lane roads having standard rights-of-way of 50'-60'.

In addition to these travel lanes, roads here generally have separate turn lanes where appropriate. The interchange of Stone Drive and John B. Dennis Highway also has several high-speed type ramps that require merging into or away from traffic. Due to these ramps (particularly a southbound loop on-ramp), this interchange takes up approximately 24.5 acres of this area, Kingsport's leading commercial district.

Owing to the significant traffic demands on the three major corridors intersecting within the study area, roads tend to be dominated by traffic considerations. Typically, lanes are fully 12' wide, shoulders are wide (except on Eastman Road which is more appropriately designed as a semi-urban roadway), high speeds are encouraged (for instance, by wide, channelized right turn lanes), no streetscape measures (landscaping, scaled lighting, furniture, etc.) exist, and few sidewalks and crosswalks and no bike facilities exist. Non-roadway cues also add to the auto-centric nature of the roadways such as large building setbacks with only surface parking between buildings and the street.

Off of Stone Drive, streets providing alternative access to properties along Stone Drive (like Bridgewater and Jack White) are smaller and are underutilized due to prevalent access from Stone Drive. These streets are capable of providing primary access to commercial properties, adding capacity back into Stone Drive.

Road Name	Segment	No. Lanes	Lane Width	Shoulders	C&G	ROW
Stone Drive	West of Beechnut	7	12'	12' paved	No	Variable
Stone Drive	East of Beechnut	4	12'	10' paved	No	180'
John B. Dennis Highway	All	4	12'	10' paved	No	200'
Eastman Road	All	4-5	12'	No	Yes	90'
Idle Hour Road	All	2	10'	No	No	50'
Pinebrook Drive	All	2	10'	1' paved	No	50'
Bridgewater Lane	All	2	14'	No	No	40'
Bowater Drive	All	2	9'	No	No	30'
Grills Street	All	2	12'	No	No	50'
Brookside Drive	All	3	9.5'	No	Yes	70'
Pavilion Drive	All	2	12'	1' paved	No	60'
Indian Trail	North of Stone Dr.	2	14'	No	No	30'
Indian Trail	South of Stone Dr.	2	20'	No	No	40'
Executive Park Boulevard	All	4	11'	No	Yes	80'
American Way	All	2	13'	No	No	50'
Creekview Drive	All	2	11'	2' paved	No	50'
Beechnut Drive	All	2	11.5'	No	No	50'
New Beason Well Road	All	2	11'	1' paved	No	50'



Northbound John B. Dennis Highway



Westbound Stone Drive



Southbound Eastman Road



Southbound Executive Park Drive



Southbound Cleek Road



Northbound Indian Trail Drive

Some cross-sections in the study area are appropriate for their context and function. Others should be modified to better serve their function within the growing urban area.

Access

One of the major aspects of the character and function of a highway is its form of allowed access. Access to roadways within the Reedy Creek Crossroads Study Area ranges from strict full access control to virtually no access restrictions. The following summary of access for major study area roads helps to identify the current nature of traffic operations on each.

Stone Drive

Stone Drive is a major arterial route serving as both a primary mobility corridor for through traffic as well as the backbone of Kingsport's leading commercial corridor. Access control is virtually non-existent, primarily due to the number of individual small parcels lining the corridor, each having direct access to the highway. For example, a selection of 28 parcels between Idle Hour Road and Eastman Road showed an average parcel size of approximately 0.6 acres with an average frontage length of approximately 100 feet. These 28 parcels alone are served by 33 individual driveways.

Cross-access and shared-access arrangements do exist along Stone Drive properties, but are not common. On many adjoining parcels, cross access could be established either in front or behind the buildings. Combining multiple existing driveways into single shared points of access to Stone Drive could be done for most fronting properties.

Access allowance on Stone Drive has been recognized as one of the principal problems within the Reedy Creek area. One plan which has been developed to partially mitigate access problems is the construction of a raised median. Construction is imminent on the median which will extend from Eastman Road to Indian Trail Drive. This median will restrict left turn movements along this portion of Stone Drive and will further structure major access to the East Stone Commons shopping area.

East of John B. Dennis Highway, parcels generally are larger and have been developed less intensively. This has resulted in fewer driveways and a somewhat more preferable access situation on this segment of Stone Drive. The most recent major activity here, the Kingsport Pavilion shopping center, was also developed with a comprehensive traffic impact study. This study analyzed proposed driveway locations, helping to strategically plan access needs in this area.

Through the entire length of the study area, average signalized access spacing is good at approximately 1/3 mile. However, between Idle Hour Road and the northbound ramps of John B. Dennis Highway, the average signal spacing is less than 0.2 mile, somewhat less than desirable.

Eastman Road

The access situation on Eastman Road incorporates several aspects of good corridor management, giving it a greater degree of safety and efficiency as compared to Stone Drive. Its major access-related characteristic is the presence of a central raised median from Ryder Drive to Stone Drive. It is through this area that most of the commercial development exists on Eastman Road. Only one break in the median exists, at the signalized intersection of Eastman Road and Stone Drive.

The presence of this median gives a logical location for major driveways (East Stone Commons traffic uses a driveway aligned with Jack White Road). It also limits other driveways to efficient right-in, right-out only access. It also increases the likelihood that adjacent parcels will want to utilize cross-access agreements (it's currently possible to drive from Stone Drive to Reedy Creek on parcels adjacent to Eastman Road without using Eastman Road).

Eastman Road can serve as a good local example of how access restrictions can enhance roadway operations while also sustaining business activity requiring easy access.

John B. Dennis Highway

Different than any other study area roadway, John B. Dennis Highway is a combination of fully access controlled highway (south of Stone Drive) and rural-designed road allowing private driveway access. Because of the interstate-type characteristics of John B. Dennis Highway south of Stone Drive, little functional or future development considerations can be made. This segment of highway is therefore not significantly considered in this study. North of Stone Drive, however, at-grade access is allowed, creating some access issues on this high speed highway.

One problem with changing the access policy of a roadway is a lack of operational consistency. Once getting to Indian Lane, a driver traveling northbound on John B. Dennis Highway has not encountered an at-grade intersection since Wohlford Place, a minor residential street just west of the Ft. Henry Drive interchange and almost three miles away. Many drivers, even those familiar with the area, will not be expecting traffic entering the highway from a side street after driving on a strictly access-controlled facility for approximately four minutes.

One positive aspect of the access on John B. Dennis Highway north of Stone Drive is the presence of a depressed grass median. Median openings have also been managed well and are generally spaced at least 500 feet apart. No major access problems have been noted for private driveways, but several street intersections in the vicinity of Indian Path Hospital have access-related issues.

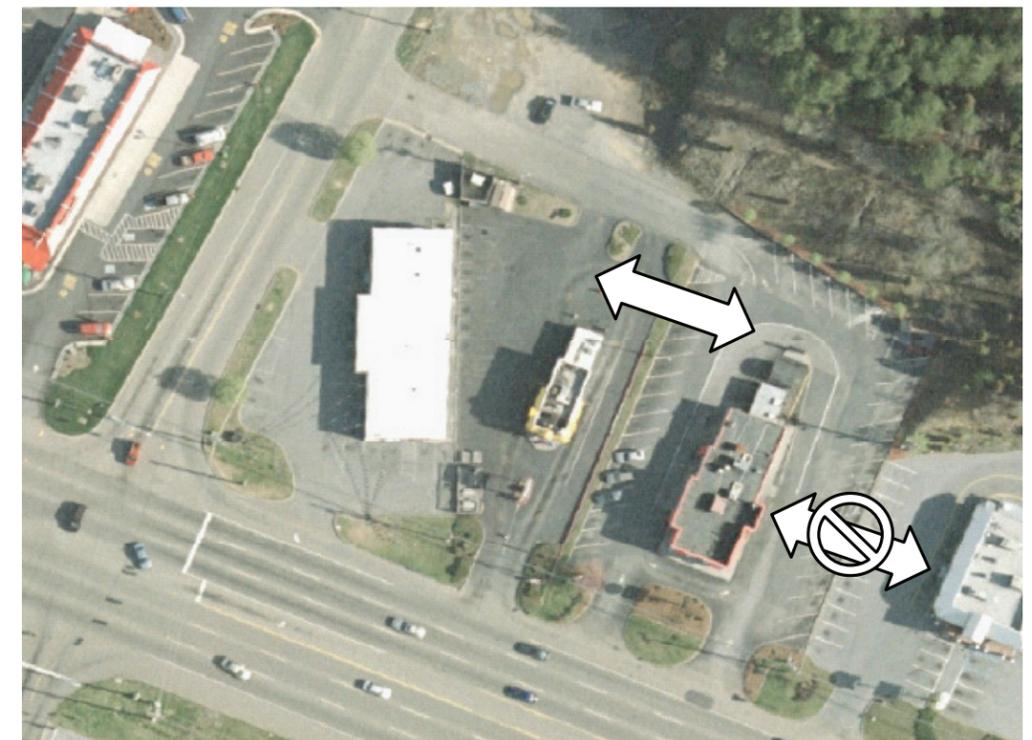
Four locations on this segment of John B. Dennis Highway have stop-controlled intersections that allow all turning movements. These are at Indian Lane, the Kingsport Stockyard, Indian Path Hospital main entrance, and Pavilion Drive. A combination of factors such as high speeds, sight distance, and traffic volumes make all of these intersections problematic. A fourth access location immediately south of the hospital main entrance further complicates operations in this area.

Idle Hour Road, Brookside Drive, New Beason Well Road, and Cleek Road

These roads in the study area provide an appropriate mixture of mobility and access inside the study area. While they do serve as access to some land within the study area, their current primary role is to bring traffic to or from the Reedy Creek area from surrounding residential areas. Three of these roads provide a form of alternate access to land north of the study area. Unfortunately, no route exists for lands south of Stone Drive as an alternate to John B. Dennis Highway or Eastman Road. Allowance of full access on these roads is not problematic.

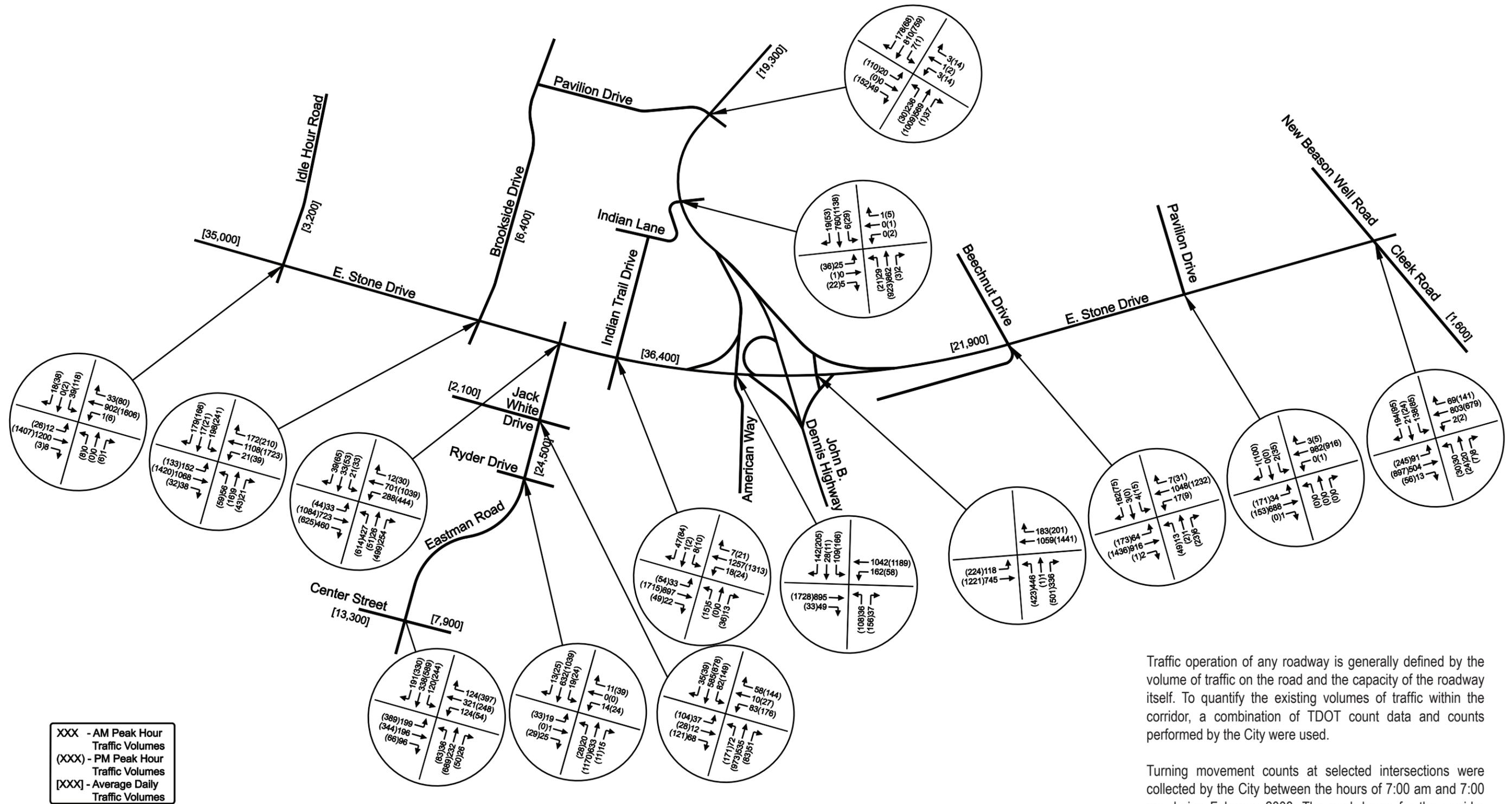
Other Study Area Roads

All other streets in the area serve to access parcels within the study area or immediately outside of it. These low volume, low speed streets are adequate to serve traffic accessing the adjacent parcels.



Although rare, some parcels, like these at the intersection of Brookside Drive and Stone Drive have cross-access. Many opportunities for this type of access improvement exist for properties along Stone Drive.

Traffic Volumes



Traffic operation of any roadway is generally defined by the volume of traffic on the road and the capacity of the roadway itself. To quantify the existing volumes of traffic within the corridor, a combination of TDOT count data and counts performed by the City were used.

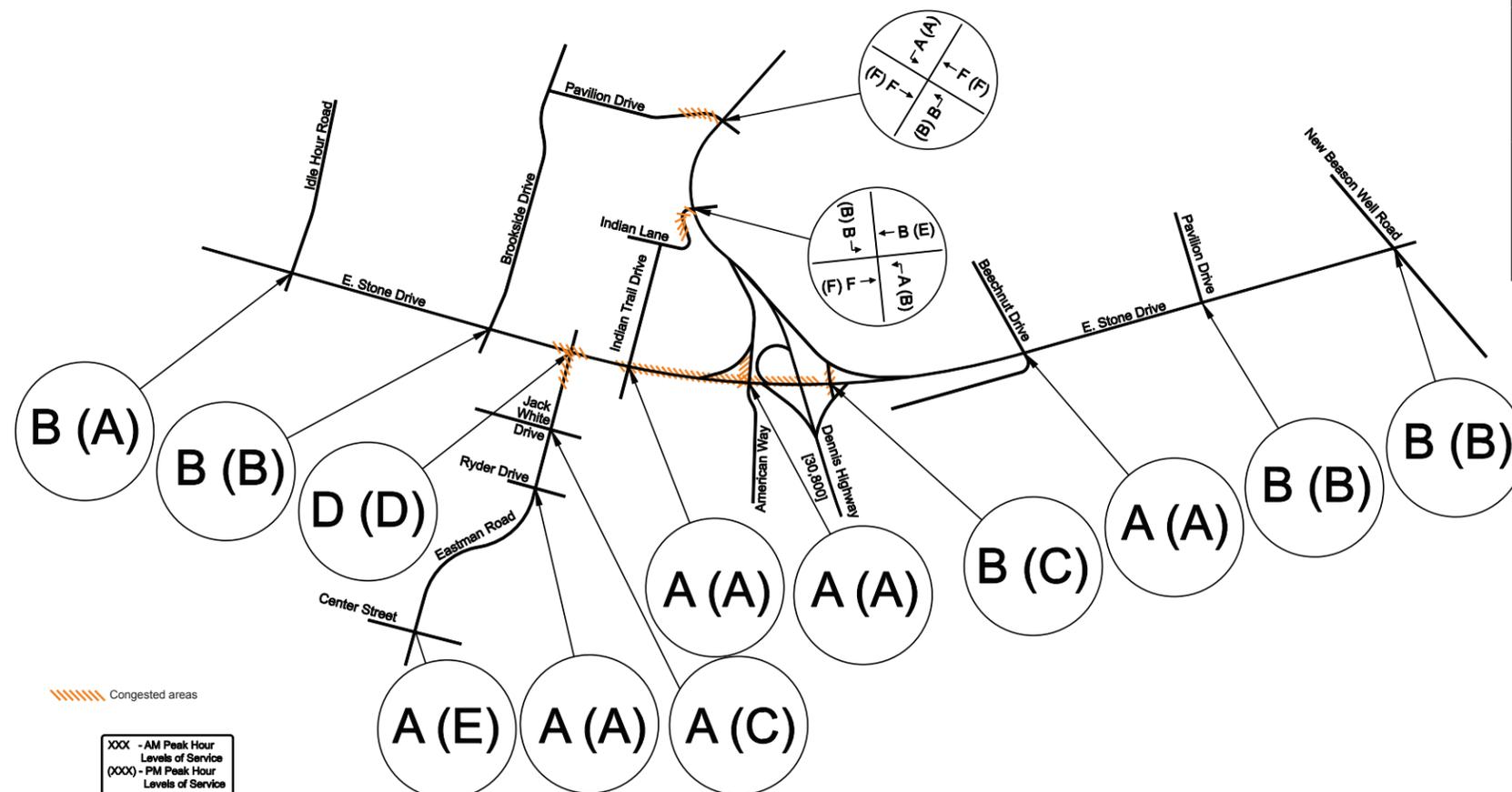
Turning movement counts at selected intersections were collected by the City between the hours of 7:00 am and 7:00 pm during February 2008. The peak hours for the corridor were found to be 7:30 – 8:30 am and 4:45 – 5:45 pm.

Operations

CRITICAL INTERSECTIONS	TURNING MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
		LOS	DELAY (sec/veh)	LOS	DELAY (sec/veh)
Stone Drive and Eastman Road	Overall Intersection	D	35.9	D	41.2
Eastman Road and Center Street	Overall Intersection	A	9.0	E	55.7
John B Dennis Highway and Indian Trail	Eastbound Left Turns	F	53.3	F	276.8
	Eastbound Right Turns	B	11.2	B	13.8
	Westbound Left and Right Turns	B	11.7	E	47.3
	Northbound Left Turns	A	9.8	B	12.1
	Southbound Left Turns	B	10.0	B	10.5
John B Dennis Highway and Pavilion Drive	Eastbound Left Turns	F	119.8	F	455.7
	Eastbound Right Turns	F	76.8	F	99.0
	Westbound Left and Right Turns	B	14.2	B	10.0
	Northbound Left Turns	A	0.2	A	0.1

Note: For signalized intersections an overall LOS is presented; for two-way stop-controlled intersections, critical turning movement LOS is presented.

Level of Service	Description	Signalized	Unsignalized
		Stopped Delay per Vehicle (sec/veh)	Control Delay per Vehicle (sec/veh)
A	Operations with very low delay. This occurs when progression is extremely favorable. Most vehicles do not stop at all.	≤ 10.0	≤ 10.0
B	Operations with stable flows. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	10.0 – 20.0	10.0 – 15.0
C	Operations with stable flow. Occurs with fair progression and/or longer cycle lengths. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	20.0 – 35.0	15.0 – 25.0
D	Approaching unstable flow. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop.	35.0 – 55.0	25.0 – 35.0
E	Unstable flow. This is considered to be the limit for acceptable delay. These high delays generally indicate poor progression, long cycle lengths, and high V/C ratios.	55.0 – 80.0	35.0 – 50.0
F	Unacceptable delay. This condition often occurs with oversaturation or with high V/C ratios. Poor progression and long cycle lengths may also cause such delay levels.	>80.0	> 50.0



Given the traffic data collected and the roadway inventory conducted, the operation of roadways within the study area can be determined. To determine the current operation of the intersections studied, capacity analyses were performed for the AM and PM peak hours. The capacity calculations were performed according to the methods outlined in the Highway Capacity Manual, TRB 2000.

The capacity analyses result in the determination of a Level of Service (LOS) for an intersection. The LOS is a concept used to describe how well an intersection or roadway operates. LOS A is the best, while LOS F is the worst. LOS D is typically considered as the minimum acceptable LOS for a signalized intersection in an urbanized area.

Crash Experience

A summary of crash data for the study area was obtained from the City for the years 2005 – 2007. Normalizing the crash numbers by the amount of traffic on the road, the crash rate can be presented as crashes per one million vehicle miles traveled (crsh/mvm). For intersections, crash numbers are normalized by the number of vehicles entering the intersection, or million entering vehicles (crsh/mev).

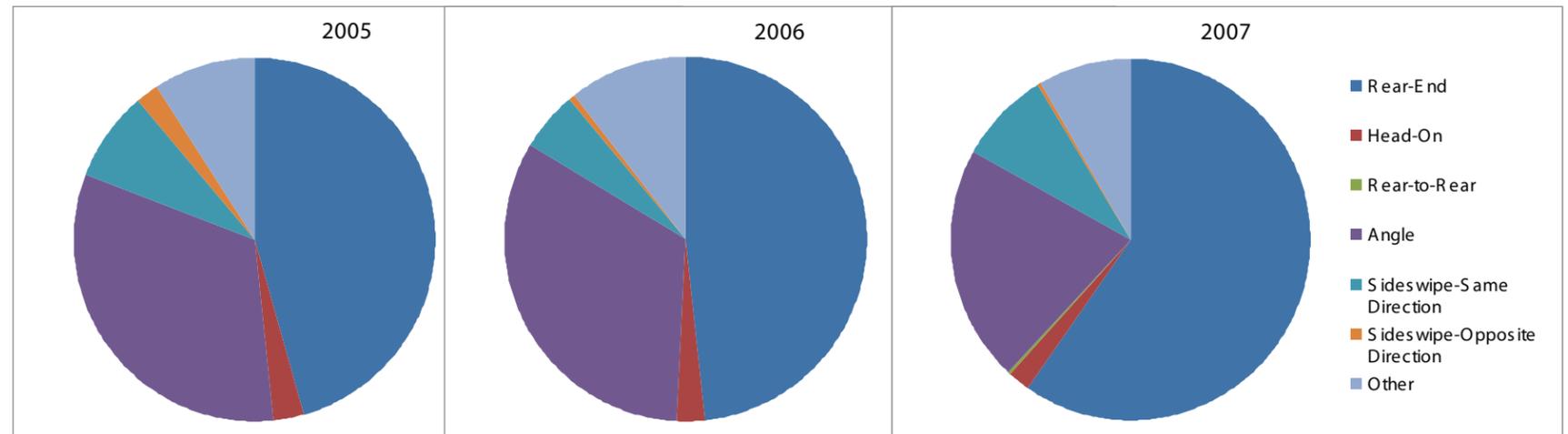
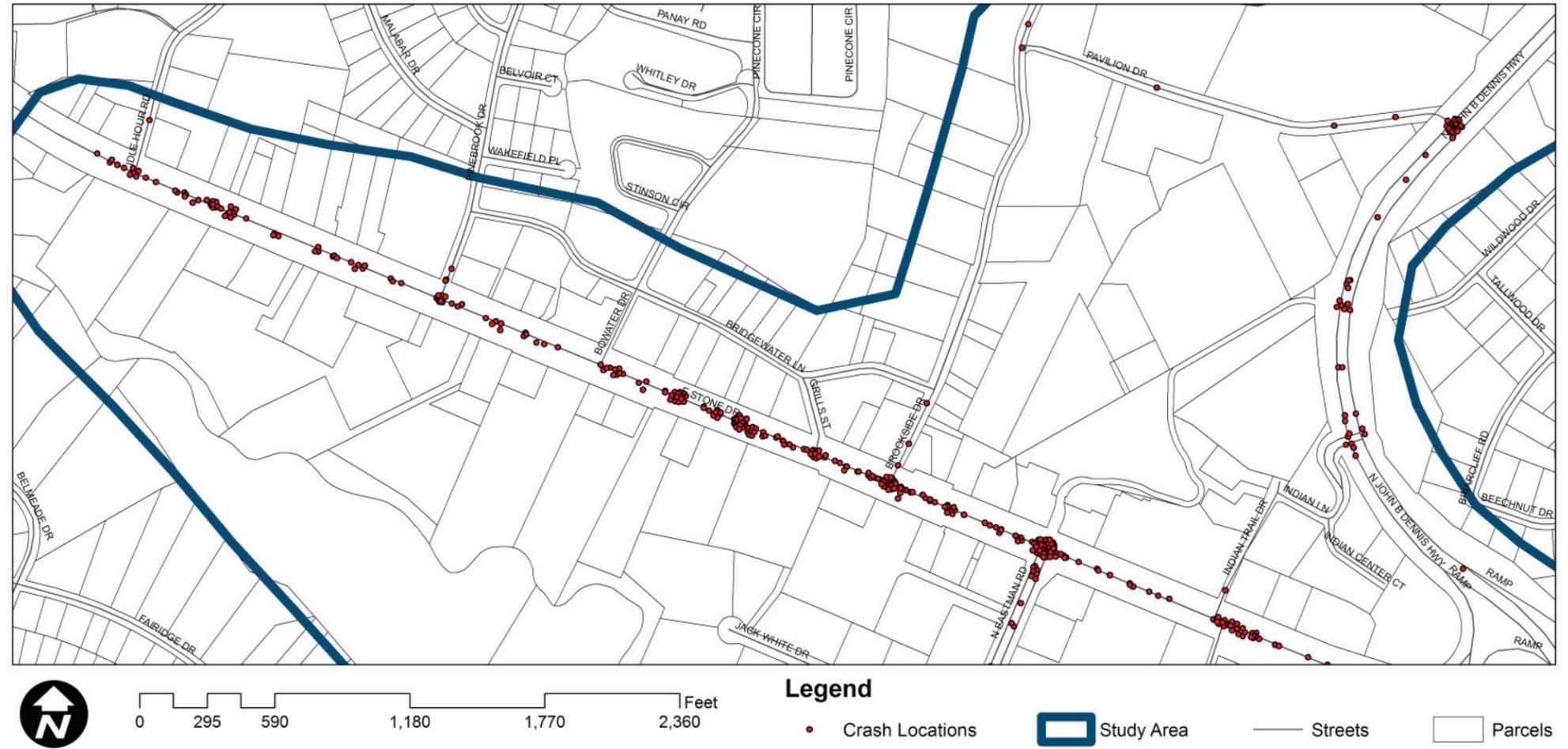
From the tables shown, it is apparent that the overall crash experience along the length of the Stone Drive corridor is significantly higher than other similar roadways in Tennessee’s urban areas. The data also show high occurrences of rear-end and angle crashes, common on facilities having many conflict points with driveways. Fortunately, these crashes resulted in no fatalities along Stone Drive over the past three years.

Stone Drive Segment Crash Summary 2005-2007			
Roadway	Total vehicle-miles (millions)	All Crashes	
		No. of crashes	Crash rate (crash/million vehicle miles)
Stone Drive ¹	10.24	126	12.30
Tennessee statewide rate			3.41
Statewide critical rate			4.80

¹ Sampled segment: Stone Drive from Bowater Drive to Brookside Drive (0.26 miles)

Stone Drive Intersection Crash Summary 2005-2007			
Intersection	Total entering vehicles (millions)	All Crashes	
		No. of crashes	Crash rate (crash/million entering vehicles)
Stone Drive and Eastman Road	53.38	87	1.63
Tennessee statewide rate			0.32
Statewide critical rate			0.34

Crash rates indicate that built-up areas of Stone Drive experience a higher-than-average number of crashes. This holds true for both mainline segments of the arterial as well as intersections such as the intersection of Stone Drive and Eastman Road.





The Kingsport Greenbelt bisects the southern portion of the study area, but is used almost exclusively for recreation.

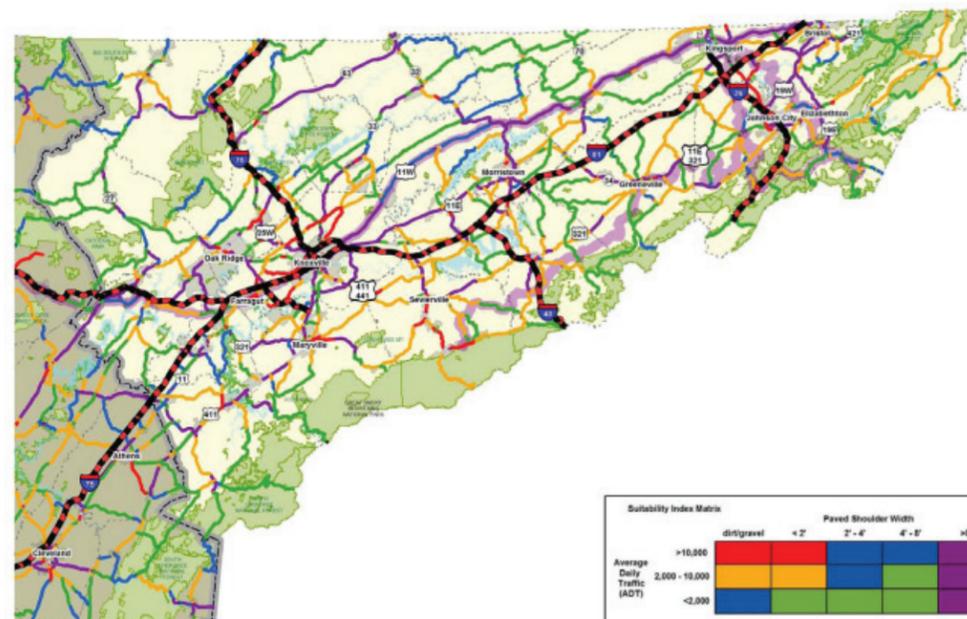


Wide shoulders on Stone Drive are suitable for bicyclists.

Sidewalks are not required as part of new construction in the study area.



Legend
 0 475 950 1,900 2,850 3,800 Feet
 Greenbelt Sidewalk Study Area Parcels
 Sidewalks are few within the study area. Besides preventing easy pedestrian travel in the area, the lack of sidewalks also limits the benefits of the Greenbelt. Only one connection between sidewalks and the Greenbelt exists, making interaction between the Greenbelt and the land uses of the study area impractical.



**Tennessee Long-Range Transportation Plan
 Region 1 Roadway Suitability for Bicycles
 Map 4-5**
 TDOT
EXISTING FACILITIES
 State Bicycle Route
 Interstate Highway: Bicycles and Pedestrians Prohibited
 TDOT Region Border
 Cities
 Counties
 Parks and Public Lands
 Water

Bicycle and Pedestrian Facilities

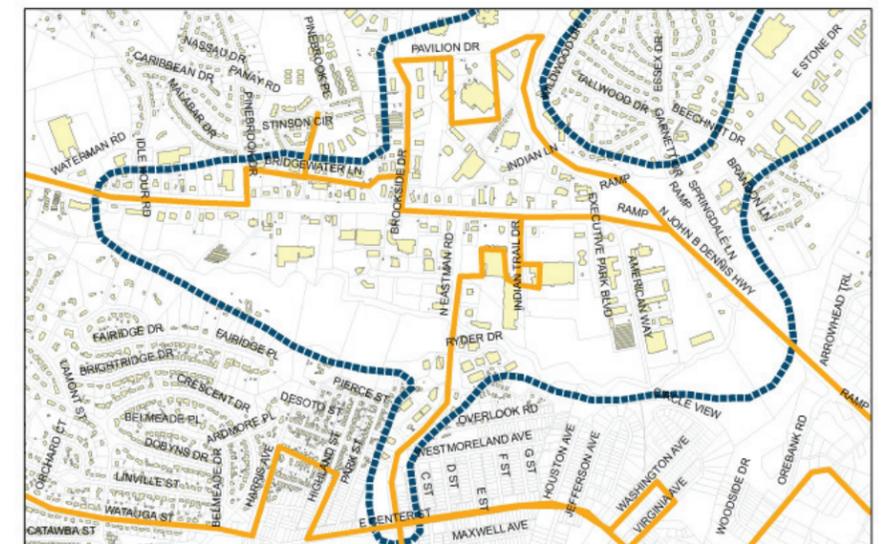
Currently, few opportunities exist for non-auto travel within the study area. No dedicated on-street bike facilities and only a few segments of sidewalk exist. The shoulders of Stone Drive are suitable for bicycle travel (US 11 from Bristol to Knoxville is designated as a state bicycle route), but are not signed or maintained as bike routes locally. The lack of shoulders and narrow lanes of most cross-streets in the area make non-auto travel dangerous.

John B. Dennis Highway south of Stone Drive is signed as a bike route and is designated as such on the state bicycle route system. This routing is questionable given that this segment of John B. Dennis Highway is a high-speed, fully access controlled facility.

Portions of the Kingsport Greenbelt extend from Rotherwood Mansion to the Exchange Place. In the study area, the Greenbelt is an off-road paved multiuse path on the north side of Reedy Creek. A trailhead exists along Reedy Creek just south of the East Stone Commons shopping center.

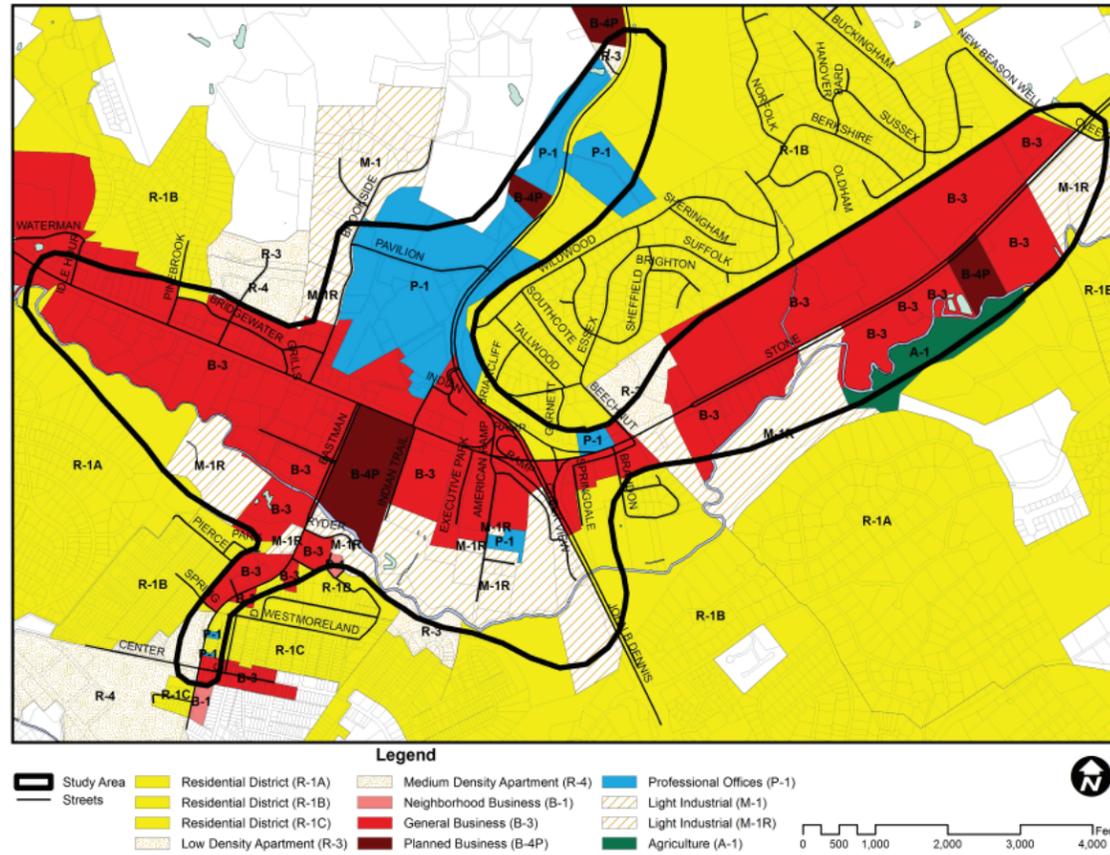
Transit

The Kingsport Area Transit Service (KATS) provides regular and paratransit service within the study area. Regular fixed-route, fixed-schedule service is via Routes 3 and 4. Route 3 is a linear route serving areas south of Stone Drive having headways of approximately 1 hour, 20 minutes. Route 4 serves more of the study area including Indian Path Hospital and other destinations primarily north of Stone Drive. It is a loop route, also operating on 1 hour, 20 minute headways. No service is provided east of Beechnut Drive.



Legend
 0 480 920 1,840 2,760 3,680 Feet
 Building Parcels TransitRoutes Study Area
 Indian Path Hospital and commercial areas in the corridor are served by transit, but few surrounding residential neighborhoods are.

Based solely on its wide shoulders, Stone Drive is rated as the most suitable for bicycling by TDOT's long range plan. US 11W and portions of John B. Dennis Highway are state bicycle routes.



In sum, the Reedy Creek Crossroads area is a combination of unique and typical subarea characteristics.

Unique characteristics of the Reedy Creek Crossroads area are:

- Natural features (waterways, terrain) present growth and infrastructure constraints
- Wide variety of existing land uses
- Contains intersections of three of the most significant regional roadways in upper east Tennessee
- Uncommon roadway characteristics including seven lane cross-section (Stone Drive) and transition from full access control to partial access control (John B. Dennis Highway)
- Presence of a shared use path through the study area

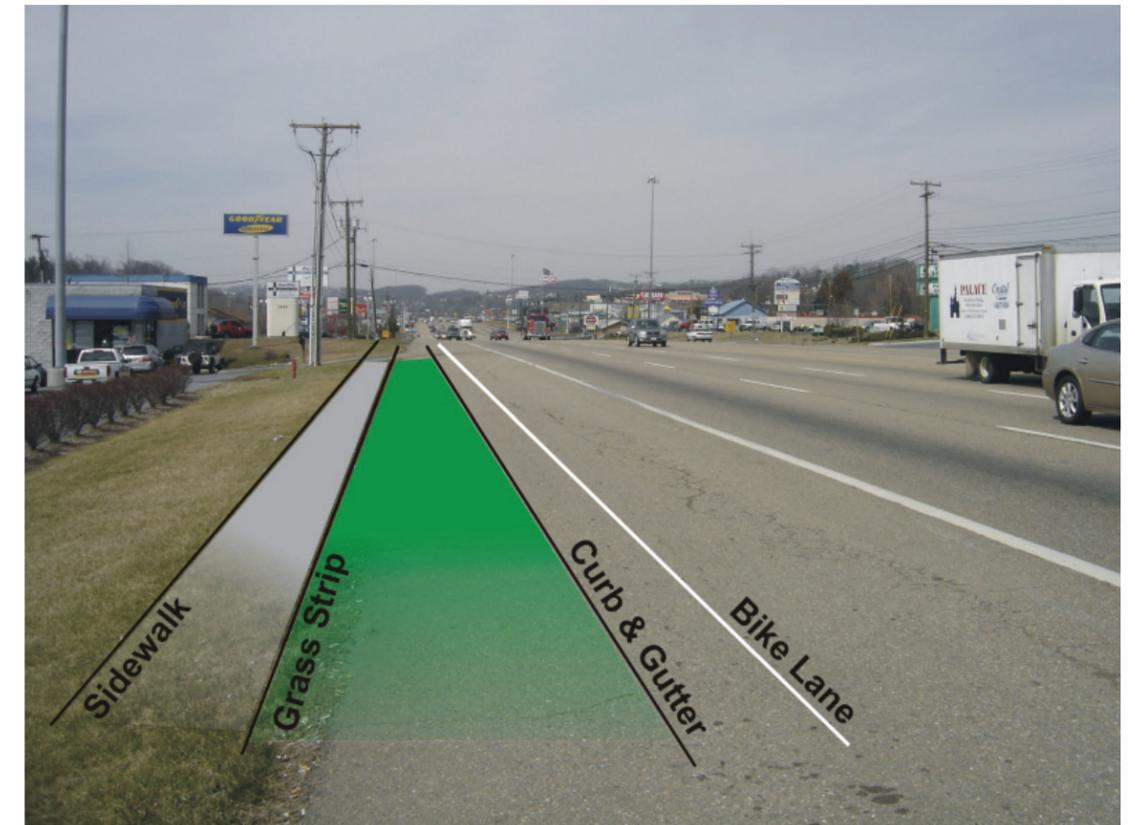
Typical characteristics of the Reedy Creek Crossroads area are:

- Linear development pattern driven by access to a major arterial (Stone Drive)
- Study area surrounded by residential areas, but almost no residential use in the area itself (segregation of land uses)
- Infrastructure built for rural or semi-rural land uses which have now become urbanized
- Little provision has been given to non-auto travel modes

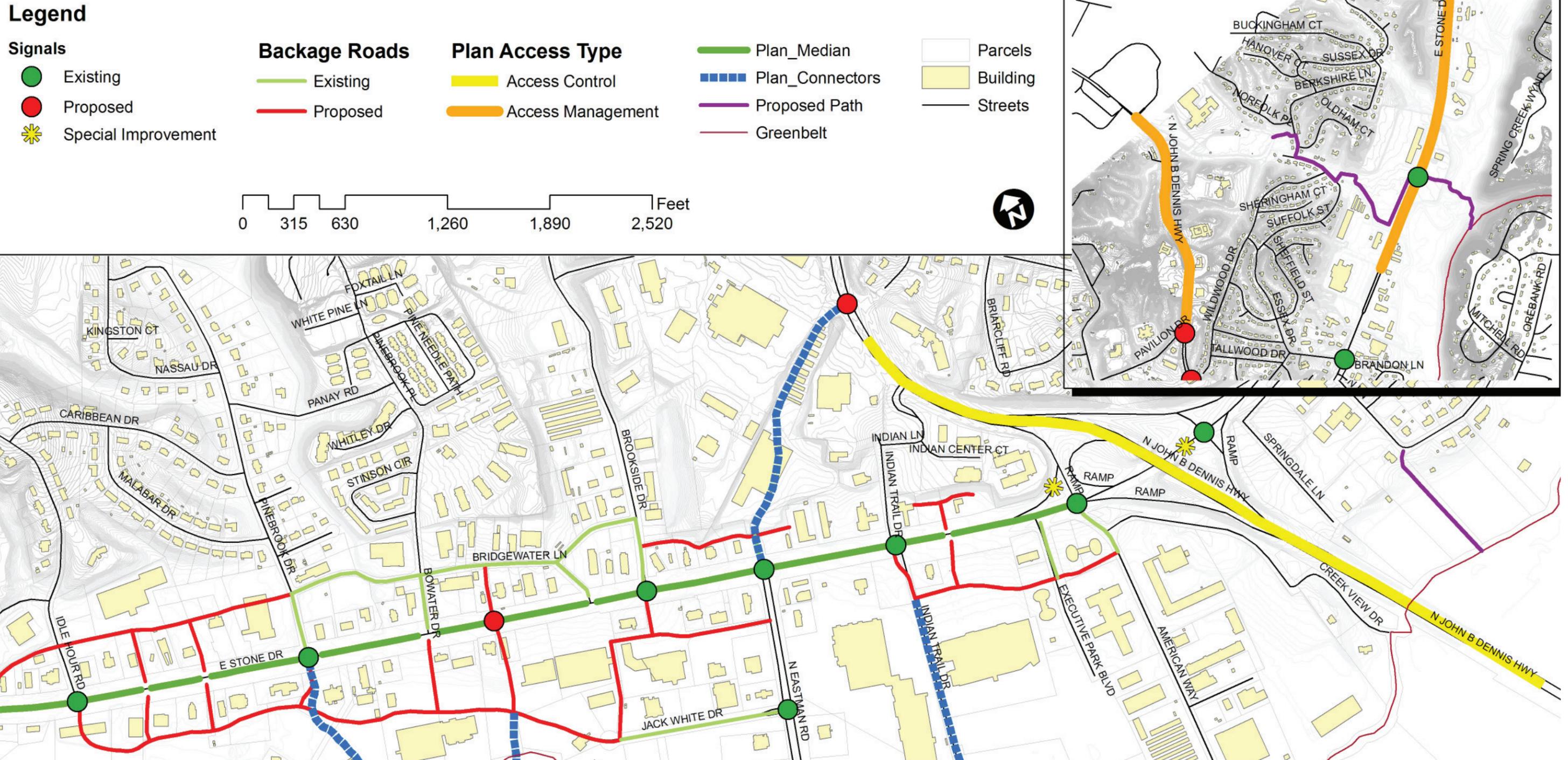
Current zoning places little emphasis on residential and mixed land uses within the study area. Consideration should be given to replacing light industrial land uses with those more supportive of the Reedy Creek Crossroads area as a community-oriented destination. (Large Size 11x17 map included in the Appendix)

Acknowledging and countering the weaknesses of the area, and building on its strengths leads to a more functional and efficient land use and transportation system for this part of Kingsport. Several broad-level opportunities for the Reedy Creek Crossroads study area have been established from analysis of the area's existing conditions. Exploration of these opportunities has led to the Reedy Creek Crossroads Strategic Plan and the specific plan components. These opportunities are:

- The already established commercial areas can be enhanced with residential and mixed land uses. A potential also exists for additional office uses.
- Stone Drive can be returned to a more mobility-oriented corridor by restructuring the existing access to it.
- Transitioning from total access control to partial access control can be made by traffic control changes on John B. Dennis Highway.
- Rural roadway designs can be modified to include other street features.
- Lack of existing access means future access requests can be better structured (Stone Drive and John B. Dennis Highway).
- Private interest in redevelopment of the Reedy Creek Crossroads area can be leveraged to construct critical plan components for mutual public/private benefit.



The generous cross-sectional elements provided by rural designs found in the study area can be converted into a street having more transportation options while maintaining the capacity needs of arterials with regional significance.



The Reedy Creek Crossroads Strategic Plan, which is illustrated above and discussed in detail as follows, is a long-range vision for this fast-growing community-oriented area of Kingsport. The plan seeks to build on the successes of the area including its retail trade, employment, and infrastructure while diversifying its land uses and transportation options. The following plan strategies make up the Reedy Creek Crossroads Strategic Plan:

- Land Development – Land use and redevelopment areas of emphasis are identified.
- Stone Drive Access – Recommendations for providing alternative access to existing businesses as well as guidelines for undeveloped areas are presented.
- New Connectors – New routes will be needed as alternatives to the Stone Drive and Eastman Road intersection to allow the high traffic volumes at this intersection to be distributed to other locations within the area.
- John B. Dennis Highway Intersection/Interchange Improvements – Improvements to the John B. Dennis Highway intersections are needed on this high speed roadway.
- Bicycle and Pedestrian Improvements – Future connections to the Kingsport Greenbelt in the area are possible and should be considered.

Growth and development patterns play a significant role in the function and form of the transportation system. The placement of land uses and their formation drive individual travel decisions. An environment which is more compact and walkable in scale can allow for a greater share of trips to be made by walking and biking as opposed to by automobile.

As previously discussed, the Reedy Creek Crossroads study area is largely comprised of commercial land uses of which are mostly strip in form. Other prevalent uses include medical and office which are largely located around the Indian Path Medical Center north of Stone Drive and along American Way. The lack of residential lands and mixed use development within close proximity to these uses make virtually all trips within the corridor study area auto dependent.

The Reedy Creek Crossroads study area presents unique opportunities to capitalize on the current development concentrations and development changes which are occurring within the study area. To better understand these changes and future land use demand the City should undertake a market research analysis to better determine specific development opportunities, by use, within the Reedy Creek Crossroads study area.

The following are potential land use strategies intended to build upon the opportunities within the study area forging a stronger linkage between future land use decisions and transportation infrastructure needs.

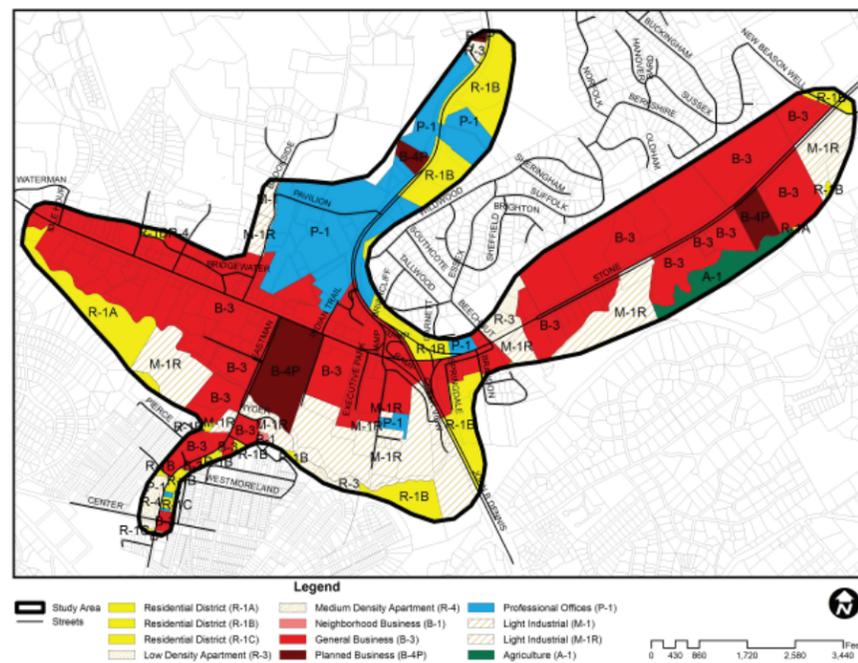
Increased Residential Opportunities – Residential growth within the corridor which is compact, at a walkable scale, and interwoven with other uses such as commercial and office provides greater opportunities for trips to be made by non-motorized means. Additionally, by allowing more residential development within the corridor study area there is a higher likelihood that future residential growth within the City would be captured in an area that already has a significant amount of public infrastructure opposed to suburban development which can lack adequate public infrastructure.

Greater Mixed Use Development – Many properties within the corridor area are segregated by type of use. This pattern of development diminishes the opportunity for capturing internal trips which could be made by walking or biking. By allowing commercial, residential, and office uses to coexist there is a greater opportunity for trips to be made by non-motorized means and for a variety of development that would not otherwise occur at a desirable scale and intensity. Additionally, parking requirements may be reduced which allows for a greater share of the land to be used for additional development.

Redevelopment of Existing Uses – Numerous locations within the corridor study area are prime candidates for redevelopment. Many of these properties over the next 5-10 years will see a sharp increase in reinvestment activity as parcels, structures, and uses change. There is already evidence of this within the study area. The use of incentives for developers and land owners could play a valuable role in ensuring the right type, scale, and design is achieved as the region continues to grow.



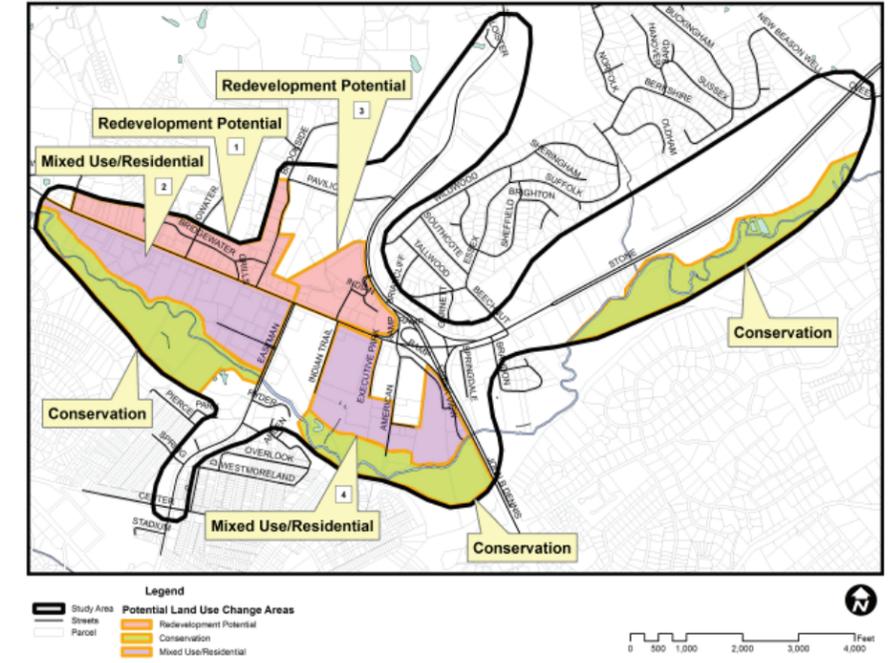
Examples of mixed-use developments.



Commercial development is the prevailing land use policy for the corridor followed by light industrial and professional office. Future policies for residential and more mixed-use development could offer the City greater development opportunities within the corridor which is more supportive of community-based activity centers.



When considering improvement value to land value as an indicator of maximum use, there are a considerable number of parcels within the study area which could see development/redeveloped activity in the future. (Large Size 11x17 map included in the Appendix)



These potential land use changes illustrate areas of opportunity within the corridor for increased residential development, mixed-used development, and redevelopment activities. (Large Size 11x17 map included in the Appendix)

There are a number of land use and development strategies available to the City of Kingsport which can aid in the implementation of the proposed recommendations of this plan. These strategies allow for the implementation of specific land development policies and for the advancement of needed infrastructure improvements. The following land use and development strategies should be considered, as appropriate, to guide development and transportation investments within the study area.

Land Use Rezoning - Zoning determines a number of factors relating to land use. The zoning code determines what land uses will be allowed in a particular area. Zoning also determines the density at which an area can be developed, as well as the height and size of buildings. The City of Kingsport may wish to rezone several property areas within the study area to encourage land use activities which are consistent with the findings of this study. An example may be the use of the City's Planned Village District (PVD) which allows for mixed use development opposed to homogeneous uses like Residential and/or Industrial.

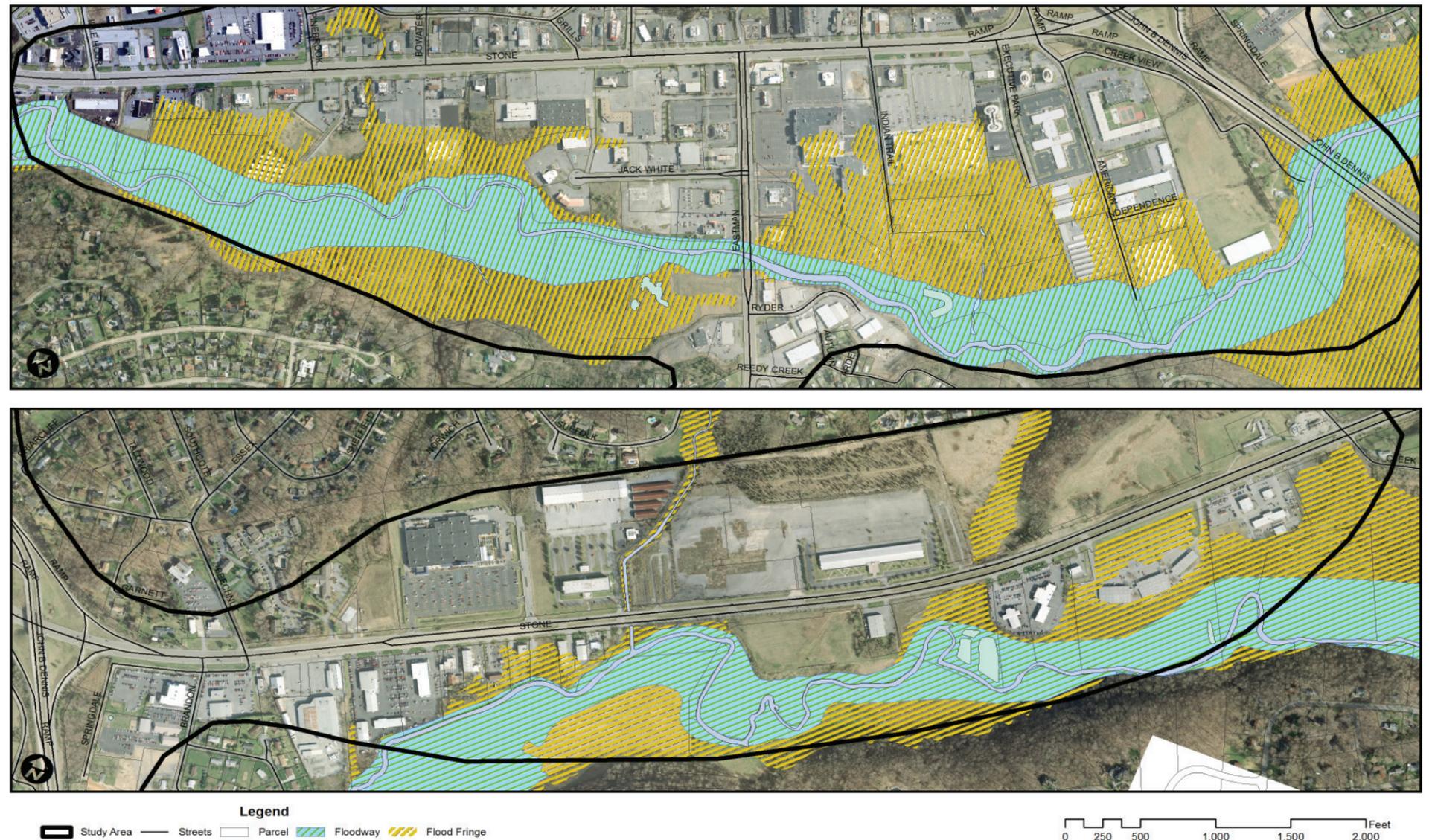
Overlay Zones - An overlay zone can be used to protect particular natural, cultural, or built features in a community that are under pressure from development. Such zones can be used to carry out a variety of community objectives: to protect the character of a neighborhood, downtown, waterfront, or road corridor; to protect a scenic view, an aquifer recharge area, natural slopes, wetlands, and watersheds; and to address safety and compatibility issues, such as airport, fire, and flood hazard areas. An overlay zone can also be used to promote a type of development in designated areas (for example, to provide affordable housing as a use by right or to promote mixed-use, transit-oriented development in certain areas). Overlay zones provide a community with a flexible tool to provide a higher level of protection or quality of growth within a defined area (for example, to achieve higher densities or reduce parking requirements in downtowns or to apply design guidelines to protect the character of a neighborhood or commercial area). The City of Kingsport has two overlay districts within the City, a Conservation Overlay District and a Gateway Overlay District. Both allow specific development provisions within the specified district and each has requirements which control the type and scale of development within the specific district. The use of an overlay district may be an acceptable option for the Reedy Creek Crossroads area.

Incentive Zoning - Incentive zoning provides incentives that reward developments that achieve community goals (for example, providing public benefits such as parks or pedestrian amenities, protecting specific natural resources, or adding certain design features). Incentive zoning can also be used to achieve a specific form of development such as transit-oriented development, mixed-use development, or the development of traditional neighborhoods. Incentive zoning is different from traditional zoning, which limits what can be done on a piece of land but does not provide rewards. Commonly used rewards are those that help improve a development's profitability. They include density bonuses, which allow developers to build more units than would normally be allowed in a zoning district; expedited permitting; tax breaks or reductions or exemptions from certain impact or other fees; reductions in parking space requirements; and public provision of infrastructure or low-interest loans.

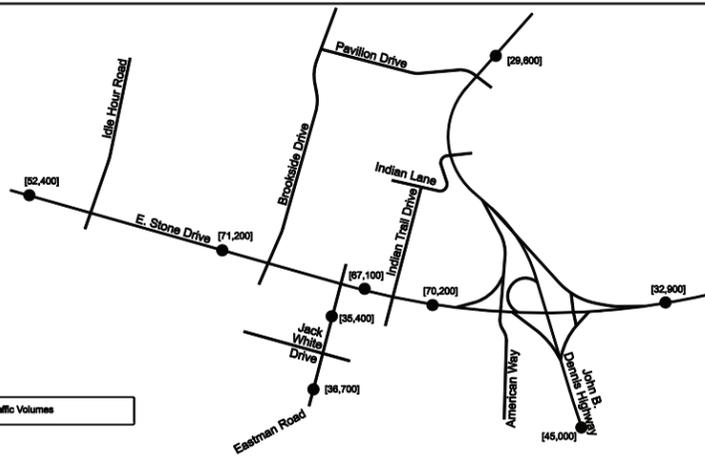
The City of Kingsport should consider establishing incentive zoning provisions to increase implementation of specific land development activities. The use of an overlay district could be an effective means of promoting mix-used development as well as the preservation/conservation of sensitive lands.

Tax Increment Financing, or TIF, is a tool which has been used for redevelopment and community improvement projects throughout the United States for more than half a century. With federal and state sources for redevelopment generally less available, TIF has become an often-used financing mechanism for municipalities. As property within the TIF is redeveloped and improved, the municipality receives new property tax revenues as a result of the increased property values. This new revenue is used to make improvements in the TIF without raising taxes or dipping into the municipality's current tax revenues. The municipality's investment in the TIF is repaid through improved properties that become permanent sources of increased property tax revenues.

Business Improvement District (BID) or Community Improvement District (CID), is a public-private partnership in which businesses in a defined area elect to pay an additional tax in order to fund improvements to the district's public realm and trading environment. It is an effective tool for financing improvements that directly enhance property values by allowing property owners to determine how funds are spent in their area. BID funds can augment existing services such as public safety and they can also be used to leverage additional public and private funds.



As illustrated in these maps, a large portion of the study area is located within the floodway, limiting the amount of development that could otherwise occur. Designating these areas as conservation areas will not only ensure protection of these sensitive lands but also encourage appropriate emphasis of development in more suitable locations within the study area. (Large Size 11x17 map included in the Appendix)



Average Daily Traffic (ADT) for Commercial Center Assuming Full Build-Out of Current Zoning and Existing Street Network

Properly planning and developing the commercial heart of the Crossroads study area will have significant impacts on the transportation aspects of this area. The type of land uses in the study area, whether continuing the current trends or introducing new types of uses, will have impacts both on the number of new trips generated and the means by which these trips are made.

As previously mentioned, the redevelopment potential of lands along Stone Drive between Idle Hour Road and John B. Dennis Highway is great. Other parts of the study area have been targeted as places that would be beneficial to remain areas of natural land conservation. Evaluating these proposed land use changes with respect to the resulting travel patterns shows the dynamics of the land use / transportation relationship.

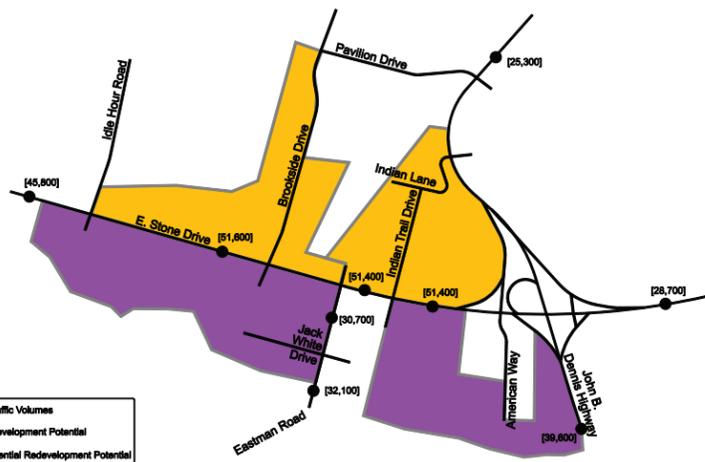
Three scenarios were developed to demonstrate how the land uses established within the Reedy Creek Crossroads study area will affect the traffic found there.

- Full build out under current zoning with the existing street network
- Full build out under proposed land use changes with the existing street network
- Full build out under proposed land use changes with the proposed street network

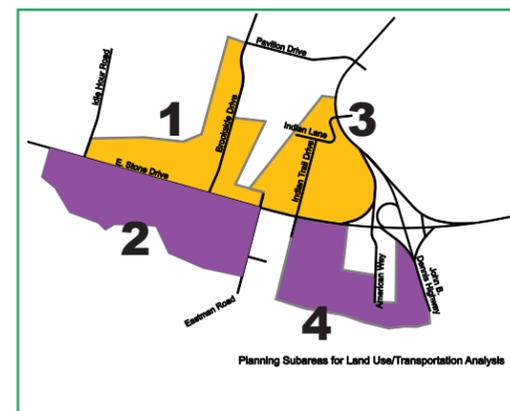
The figures to the left show how the mixture of land uses can produce more trips internal to the area (which often result in high levels of non-auto trips) and how a well-connected network of streets can mitigate the impact of additional development to Stone Drive and other existing streets.

Comparison of land use trip generation characteristics by planning subarea along Stone Drive's commercial corridor.

Planning Subarea	Scenario	Development Size and Daily Trips								Gross Daily Trips	Internal Trips	Net Daily Trips
		Residential		Commercial		Medical/Office		Industrial				
		Units	Trips	S.F.	Trips	S.F.	Trips	S.F.	Trips			
1	As Zoned	10	91	880,348	27,923	0	0	146,362	991	29,005	0%	29,005
2		0	0	1,695,355	42,752	0	0	0	0	42,752	0%	42,752
3		0	0	503,118	19,410	200,594	2,280	0	0	21,690	0%	21,690
4		0	0	491,792	19,125	0	0	974,742	7,179	26,304	0%	26,304
1	As Proposed	0	0	887,698	28,074	156,653	1,885	0	0	29,959	10%	26,963
2		200	1,157	1,020,219	30,732	170,036	2,008	0	0	33,896	25%	25,422
3		0	0	597,729	21,710	105,482	1,390	0	0	23,100	10%	20,790
4		200	1,157	807,193	26,392	146,762	1,793	0	0	29,341	25%	22,006

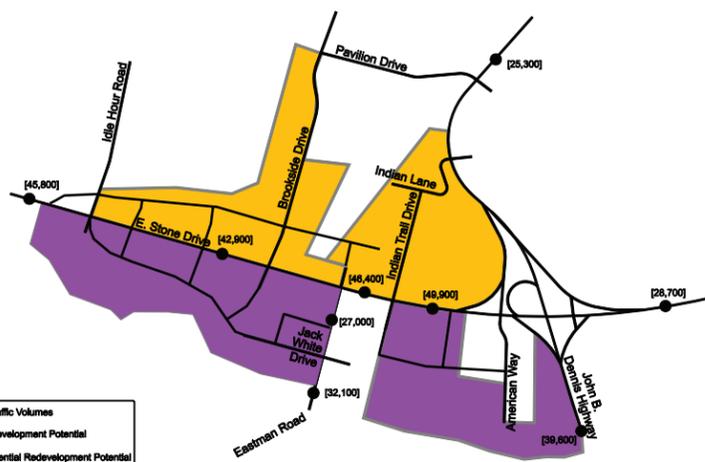
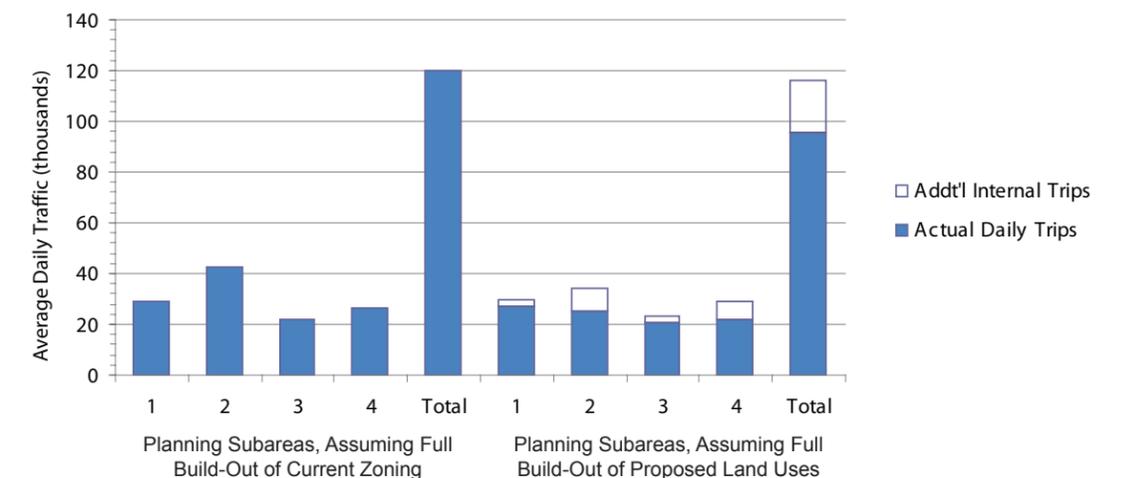


Average Daily Traffic (ADT) for Commercial Center Assuming Recommended Land Use Changes and Existing Street Network



Planning Subareas

This chart compares the number of trips in each planning subarea resulting from the land use assumptions made within that subarea. This shows that the recommended land use changes would be expected to result in a 20% reduction in the total number of actual, external trips made within the study area.



Average Daily Traffic (ADT) for Commercial Center Assuming Recommended Land Use Changes and Backage Road Network

The land use and transportation link can be seen in this comparison of ADTs given different land use and street network configurations. The backage road concept is discussed on page 17. (Large Size 11x17 map of Comparison ADT maps based on land use scenarios is included in the Appendix)

Perhaps the greatest challenge to a successful future Stone Drive corridor is finding the appropriate balance between mobility and access needs. Existing development and access points make total access control (e.g. interstate-like interchanges) unrealistic. At the same time, the liberal allowance of direct access to Stone Drive which currently characterizes much of the road must be avoided and reversed to as great a degree as possible. The key to an effective corridor plan comes in the provision of ample access to development that is structured and indirect to Stone Drive.

Restructuring Existing Access

Between Idle Hour Road and American Way, access along Stone Drive has been virtually limitless. Desirability for Stone Drive frontage and topographical constraints has resulted in a shallow development pattern along the arterial which required at least one driveway for every parcel. It is likely that these existing businesses have legally deeded access to Stone Drive and a plan to restructure access for existing businesses could only be accomplished with the voluntary participation of each of the affected business owners.

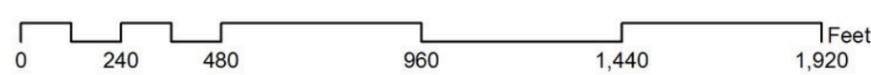
Typically, cross-access and shared access retrofits would be encouraged as a way to limit access points along Stone Drive. However, in light of a more comprehensive access strategy, it is recommended that business owners not be requested to make these modifications which would have relatively minor results and may inhibit the future access plan. If, however, complementary businesses are receptive to making access consolidations through shared or cross access, these consolidations should be encouraged as long as the ultimate plan for alternative access is not precluded.

Alternative Access

The ultimate goal for this segment of Stone Drive should be a partially access controlled facility with a raised center median and a limited number of access points. Access to existing businesses would be made predominately by a parallel backage road system located roughly 300 feet north and south of Stone Drive. The backage network would connect to Stone Drive at existing public street intersections as well as a few new connections. These new connections would be placed such that no more than four (and in most cases fewer than four) fronting parcels would be in between consecutive direct access points.

Implementing the Backage Road Concept

Upon adoption of the Reedy Creek Crossroads Plan, conceptual planning for Stone Drive between Idle Hour Road and American Way is recommended to commence. This would include a detailed study of each affected parcel and development of the backage road and connector alignments. As part of this planning, business owners would be made aware of the goal and allowed to participate. Existing businesses may or may not be required initially to modify their access to Stone Drive; however, as properties change owners or make modifications that require planning commission approval, access would be brought into conformity with the access plan. This means that driveways to Stone Drive would be removed or relocated and appropriate portions of the backage road constructed. If it is not practical to build an entire backage road segment to serve one redeveloping property, an agreement may be made that the business has temporary access to Stone Drive that would be removed once more of the backage road can be reasonably constructed.



- Legend**
- Backage Roads
 - Existing (green line)
 - Proposed (red line)
 - Plan_Median (green line)

Controlling New Access

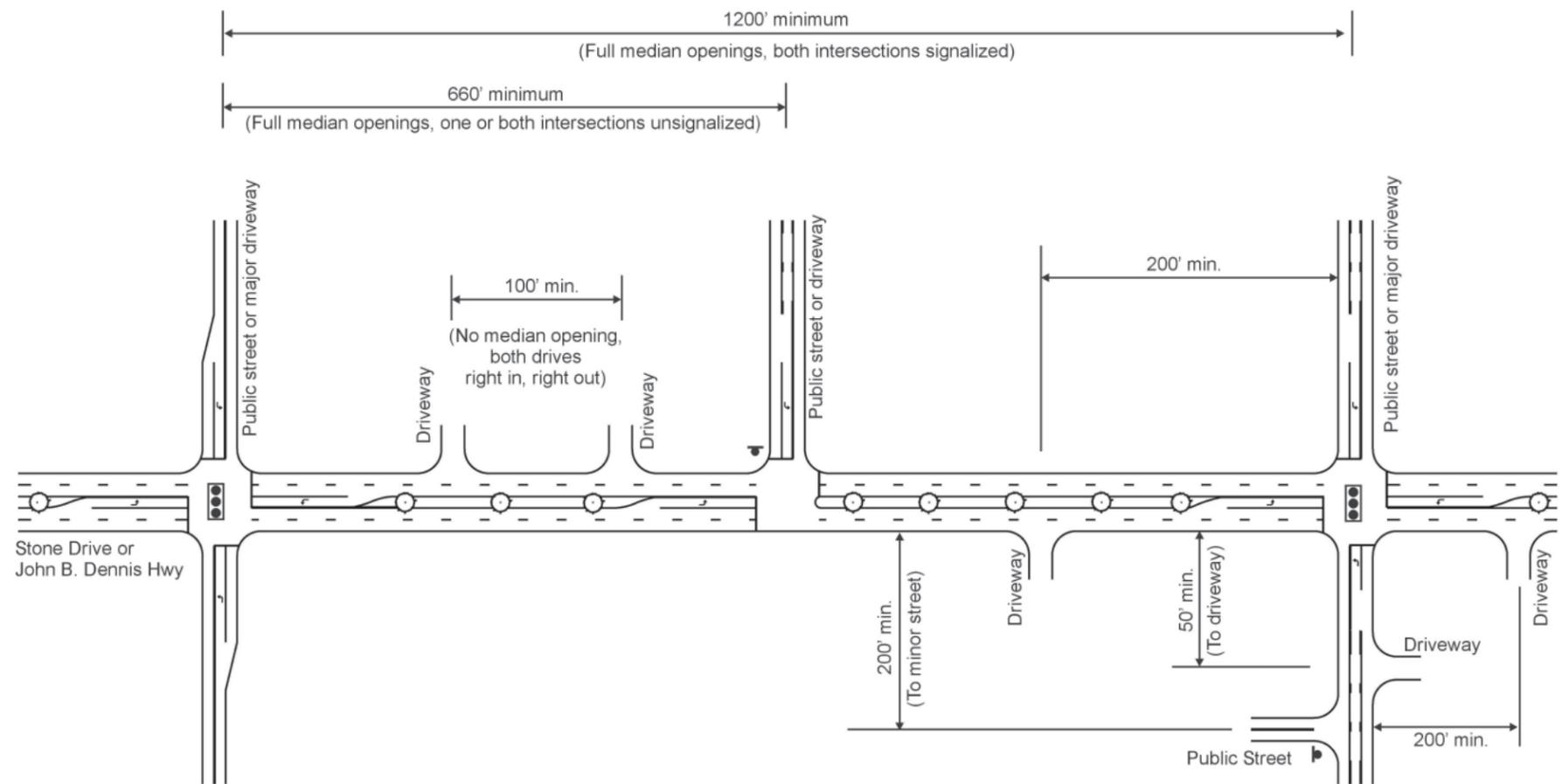
Between Beechnut Drive and New Beason Well Road/Cleek Road, traffic volumes are lower and existing access does not present as critical a problem as in western segments of Stone Drive. Much of this segment is already median divided and driveways are therefore better regulated. The challenge in this area is to maintain good access management by using access spacing guidelines.

Relevancy to John B. Dennis Highway

The access management guidelines set forth for eastern portions of Stone Drive should also be followed at a minimum, for John B. Dennis Highway, north of Stone Drive. With VDOT construction of the Moccasin Gap intersection, traffic volumes on Wadlow Gap Road and, consequently, on John B. Dennis Highway, will likely increase. Where it already exists, full access control for John B. Dennis Highway should be maintained. However, existing access needs make acquiring full access control along northern portions of John B. Dennis Highway impractical. But, a restricted access policy based on the guidelines provided will help promote adequate mobility through this corridor.



Currently undeveloped lands along Stone Drive and John B. Dennis Highway should be designated as access management areas.



Stone Drive and John B. Dennis Highway Access Management Area Guidelines

Resulting Stone Drive Cross-Sections

Idle Hour Road to American Way

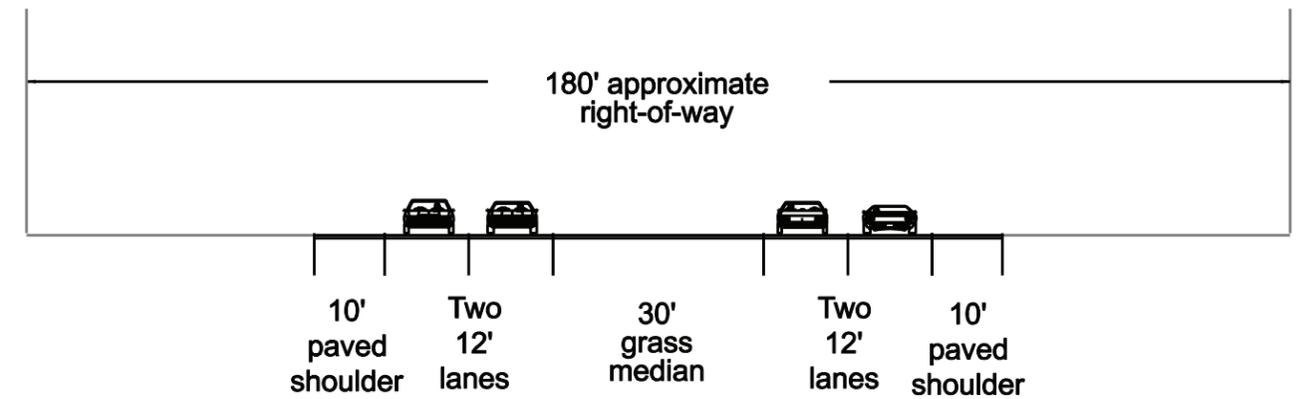
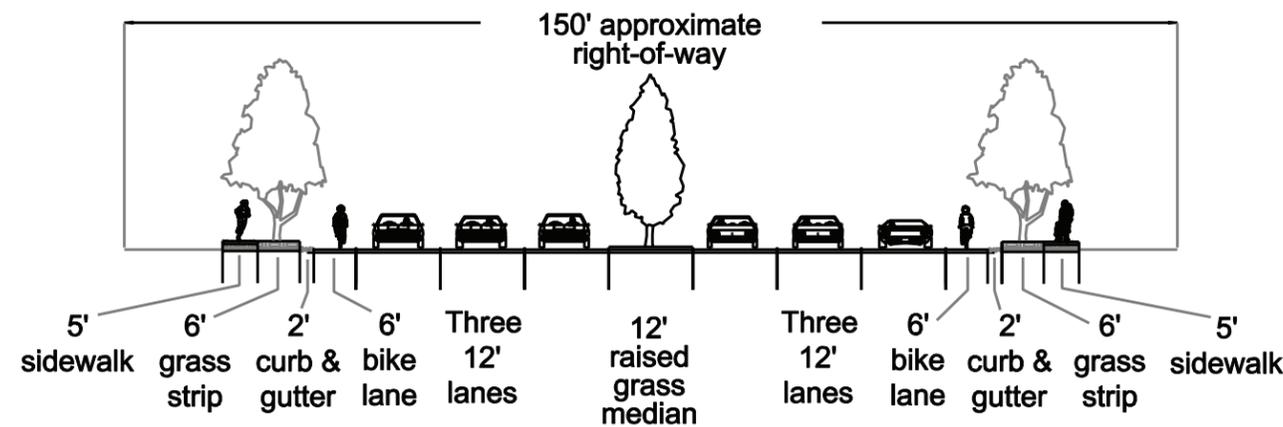
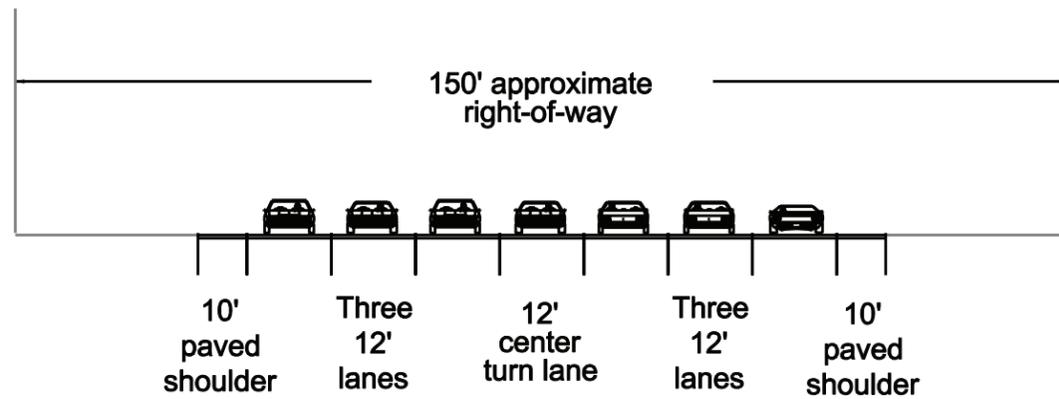
The Stone Drive corridor setting is currently transitioning from suburban to urban as new developments have made this the primary retail corridor in the city. This land use transition should be enhanced by the road network; Stone Drive and the streets adjacent to it should reflect the urban setting. Auto-oriented characteristics like the wide shoulders and lack of sidewalks should be modified to provide a more balanced roadway facility.

The central median of Stone Drive should be raised and, preferably, grass. Appropriate landscaping should be considered as well. This median will transition into turn lanes at existing cross streets and where new access points allow all directions of turning.

Backage roads should be constructed as two-lane roads with sidewalks. Narrower lanes (approximately 11 feet) on the backage roads are appropriate. Three lane cross-sections should be constructed where development on both sides of the backage road could occur.

East of Beechnut Drive

The eastern end of the corridor retains an auto-oriented land use pattern. As mentioned, the access in this area is not overly problematic but should continue to be managed well. Therefore, no cross-section changes are recommended in this area.



East of John B. Dennis Highway, the semi-rural setting makes the existing cross-section appropriate. No major modifications are proposed. However, the access guidelines presented for this corridor should guide driveway and traffic control decisions. The wide shoulder appropriately serves as a bike route in this undeveloped area east of John B. Dennis Highway.

Modifications to the existing cross-section of Stone Drive west of John B. Dennis Highway can have positive impacts on connectivity, modal choice, capacity, and aesthetics. The trade-off is a loss of direct access from Stone Drive.

Access Management Implementation Strategies

Implementation of the access strategies found in this plan will depend on the type of regulatory instrument (if any) used as part of this process. Engineering and policy research has shown that there is a proportional relationship between the legal basis upon which access management rests and the plan's long-term sustainability and effectiveness. In other words, a well-crafted, defensible access policy for this corridor which is adopted by Kingsport's Board of Mayor and Aldermen might be more difficult to develop, but will ultimately be most beneficial in bringing about the access changes that are recommended. Below are some different methods that should be considered for implementation of the proposed access strategies, listed from most comprehensive to most simple.

Purchase of Access Rights: The most definite way to transform access within the study area is to purchase access rights from adjacent property owners. In many cases, because access is limited to the principal arterial, this would mean purchase of the entire property. Besides being prohibitively expensive, this is contrary to the findings of this study which suggests that development within the Reedy Creek Crossroads Area is desirable. The goal is not to transform these corridors into full access-controlled freeways, but modify the access into a form more fitting for this setting.

Adoption of New Zoning District: Going far beyond the need for access reform in the study area, a new Reedy Creek Village (or similar) zoning district could be developed. This would allow a comprehensive overhaul of existing zoning in the area including land use, building composition and scale, setbacks, and all other zoning issues, in addition to access. Because the commercial center of the study area has different access requirements than outlying portions of the study area, it may be that several new zoning districts would be required or that a new zoning district would have to be coupled with one of the other strategies listed to reach the desired land use and access arrangements within the study area.

Adoption of City-Wide Access Policies: Creation of a city-wide policy is helpful, but special consideration of the commercial center of Stone Drive would be required. Most state and municipal access policies are developed to provide non-site-specific requirements to guide future development, but do little to address existing driveway access. However, by requiring that new development or redevelopment within the study area conform to a new city-wide access policy, desirable results can be achieved.

Adoption of Zoning Overlay: A step down from creation of a new zoning district is a zoning overlay. These tools have been used effectively in metropolitan areas to enhance the development requirements while maintaining the existing zoning aspects. These overlays can be specifically outlined so that a very definite area can be targeted. This type of specificity is needed to address the access issues within the commercial center of Stone Drive. The zoning overlay, however, should also be comprehensive enough to address other aspects of development like landscaping, building facades, setback and scale, etc.

Adoption of Corridor-Specific Access Plans: A Stone Drive Corridor Management Plan (or similar) is the most efficient way to establish a binding regulatory tool targeted at access reform for a specific segment of roadway. This plan brings into concert the authority of TDOT (who grants access permissions to the state route) and of the City of Kingsport (who controls land use decisions, signal operation, etc. along the route). The plan should identify in detail the future backage road construction and connections to Stone Drive and should provide guidelines for the design of these connections. In development of a true corridor management plan, it is advisable to include a public input process as well as stakeholder input from organizations and individuals like TDOT, the local Chamber of Commerce, commercial realtors and developers, and existing property owners and managers.

Reference to this Plan: The simplest way to begin achieving property access changes is by reviewing proposed developments within the study area critically in the context of this general strategic plan. The access recommendations found in this plan contain many of the elements of a corridor management plan discussed above. However, adoption of this document by the Planning Commission and/or the BMA as an official city plan also officially adopts other concepts presented in the plan besides access management. Without official adoption, the concepts of the plan are subject to legal scrutiny and/or loss of impact with turnover in planning commission, staff, or elected official leadership.

It is difficult to recommend the most appropriate access reform strategy without knowing the ultimate desire of City leaders concerning this area or other areas of the City. If a comprehensive Reedy Creek Area land plan strategy is desired (such as consistency in building appearance and scale, parking requirements and location, landscaping requirements, etc.), a zoning overlay is a good tool. If, however, only addressing access reform along the commercial center of Stone Drive is the desire, additional work to build the concepts found in this document into a corridor management plan is recommended. Then again, if more complete access management is needed city-wide to prevent future access problems, this might be best addressed in a city-wide access policy.

Using Kingsport's Existing Tools to Redefine Access in Stone Drive's Commercial Heart

As already mentioned, it is expected that modification of the access characteristics along the built-up portions of Stone Drive will be challenging and are made as a long-term proposition. However, this does not mean that activity on this issue should wait. Beginning with adoption of this plan, every redevelopment proposal within this area of Stone Drive is an opportunity to bring a nonconforming property into access conformity. Typical redevelopment conditions where nonconforming access features must be brought into conformance with the plan include the following¹:

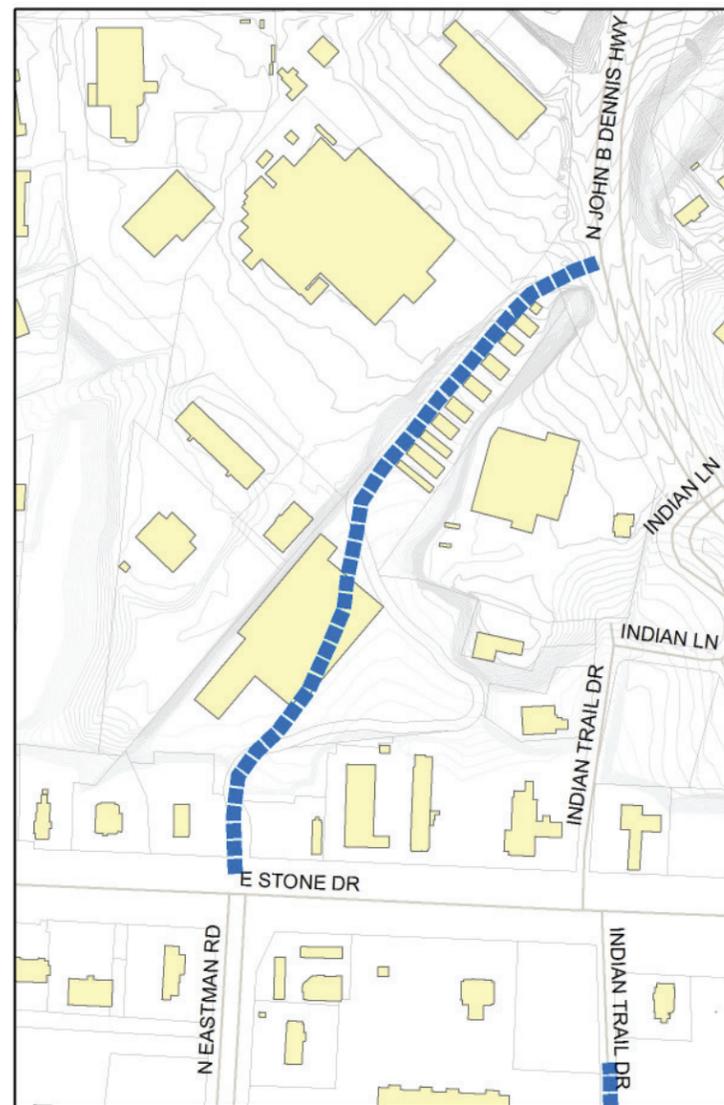
- Requests for new access permits
- Increase in land use intensity
- Significant building enlargements, improvements, or service offerings
- Increases in daily or peak hour trip generation
- New development

Kingsport's current (revised 2005) Subdivision Guidelines contain several mechanisms by which the existing access on Stone Drive can be reformed under such redevelopment conditions. Sections 3-1 and 3-2 of Article III discuss the option of a subdivision concept plan to be submitted in advance of the required preliminary plat. It may be beneficial to revise the Subdivision Guidelines to require submittal of a conceptual plan for project proposals within the Reedy Creek Crossroads study area. This would provide early awareness of the access plan to developers and property owners.

Section 4-1 of Article IV makes several requirements concerning streets as part of subdivisions. Subsection 1.1 requires conformity with the current Major Street and Road Plan. This was last updated in 2000 and has a horizon year of 2010. Kingsport's Major Street and Road Plan should be updated to make this requirement in the Subdivision Guidelines effective. Several items included in this Reedy Creek Crossroads plan should be included in the Major Street and Road Plan update including the proposed extension of Eastman Drive to John B. Dennis Highway and classifying Harris Avenue as a collector street and its extension to Stone Drive.

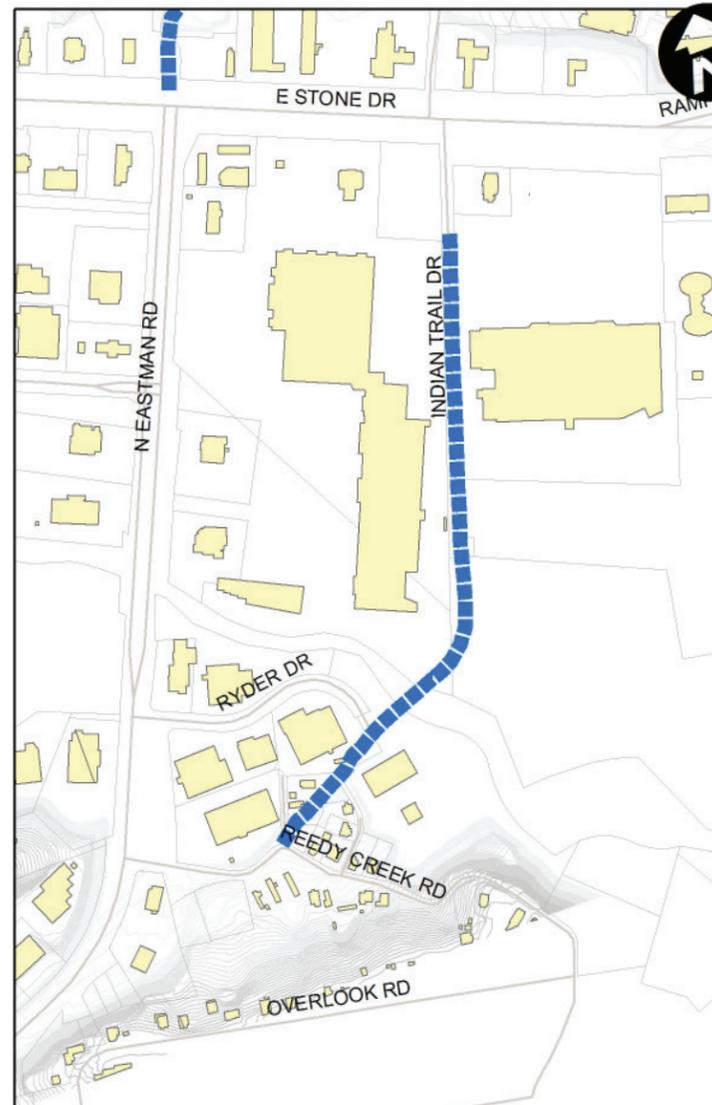
Lastly, Subsection 1.3 of Section 4-1 allows the Planning Commission to require construction of "marginal access streets" when a tract fronts an arterial street. The marginal access streets referred to are synonymous with the backage roads referred to in this document. Again, a minor revision to the Subdivision Guidelines could clarify the requirement for these access streets to be constructed or set aside as part of pertinent developments in this area of Stone Drive.

¹ Access Management Manual. Transportation Research Board. 2003. P.112

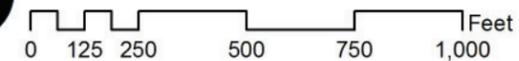


With redevelopment of the Kroger site, an extension of Eastman Road to John B. Dennis Highway is possible. Based on existing traffic patterns, a 2-3 lane cross-section for this extension would be adequate.

The Harris Avenue extension (two alternates shown) would provide a much needed north-south connection between Gibson Mill Road and Eastman Road. To minimize impacts to steep terrain, a narrow two lane cross-section should be used. Three lanes are appropriate north of Reedy Creek.



The Reedy Creek Road - Indian Trail connector has more usefulness as an access route than as a mobility route. This bridge would provide improved access to land currently "hidden" behind Stone Drive-fronting properties.



Legend

- ▬▬▬ Plan_Connectors
- Building
- Parcels

Alternatives to the Stone Drive and Eastman Road Intersection

This intersection currently experiences minimally acceptable operations during the peak travel periods. Even with the wide cross-sections that exist, an engineering study completed in 2004 projected long queues (650 feet) at this intersection as development continues. It has become clear to city officials that an alternative to this intersection is needed.

The benefits of the three alternatives presented were analyzed. Existing traffic counts show that most (56%) northbound traffic on Eastman Road turns left on Stone Drive to go westbound. Of the traffic that does go eastbound on Stone Drive, it is estimated that only approximately 15% ultimately intend to travel north on John B. Dennis Highway. Therefore, northbound travel all the way through the corridor (Eastman Road to John B. Dennis Highway) does not seem to be a priority movement. It is recommended that alternatives to the Stone/Eastman intersection focus first on the northbound Eastman Road to westbound Stone Drive movement, second on the northbound Eastman Road to eastbound Stone Drive movement, and third on the northbound Eastman Road to northbound John B. Dennis Highway movement.

Construction of any of these roadway connectors would be difficult and expensive, perhaps prohibitively so. The environmental impacts of negotiating the steep slopes and floodplains in the area are also significant. But, however difficult, construction appears possible, and the city may desire to reserve right-of-way for the future possible construction of these connectors.

Improvements to John B. Dennis Highway Intersections

The operating characteristics of John B. Dennis Highway within the study area transition from access controlled interstate-like highway to a partially controlled divided highway having at-grade intersections. Removing all existing at-grade intersections is not a practical solution because of access needs, but restructuring some of the accesses is needed. Two areas of concentration exist: the access points between Indian Lane and Pavilion Drive and the interchange of John B. Dennis Highway at Stone Drive.

John B. Dennis Highway – Indian Lane to Pavilion Drive

The minor street approaches of the unsignalized intersections on this segment of John B. Dennis Highway are difficult to turn from due to high speeds along the highway. Plans are already underway to signalize the intersection of John B. Dennis Highway and Pavilion Drive. With this, Indian Path Hospital should reconfigure its main access to be from Pavilion Drive instead of John B. Dennis Highway. The John B. Dennis median opening at the current main entrance should be closed, relegating the current main entrance to a secondary right-in, right-out only access. Similarly, the adjacent existing access to the Kroger shopping center on John B. Dennis would be restricted to right-in, right-out only access.

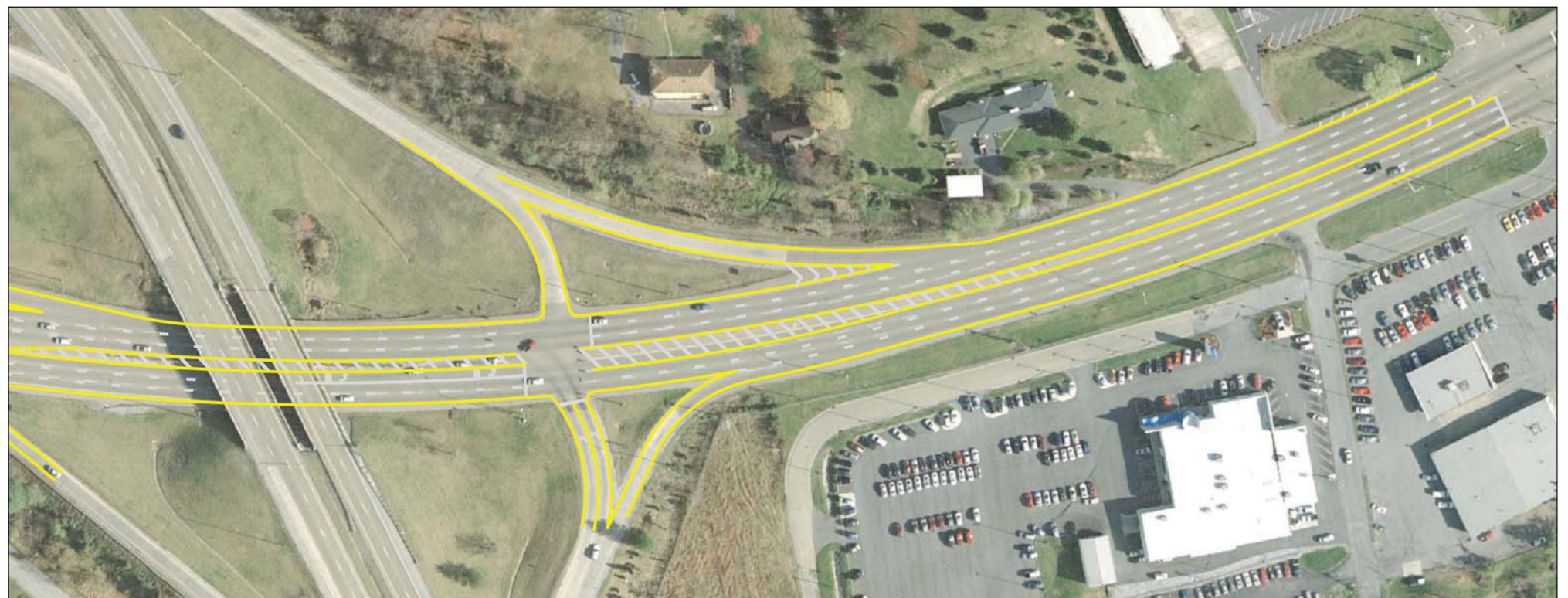
The ultimate plan for this segment of John B. Dennis would allow signalized access at the intersections of John B. Dennis Highway and Pavilion Drive and John B. Dennis Highway and the Eastman Road extension. Other access points would remain stop-controlled, restricted to right-in, right-out movements, or, preferably, closed altogether.

John B. Dennis Highway – Interchange with Stone Drive

Like portions of Stone Drive, this interchange was designed to accommodate large traffic volumes within a semi-rural setting. Large loop ramps and high design speed on and off ramps are indicative of a more rural setting. Several modifications should be made to this interchange including:

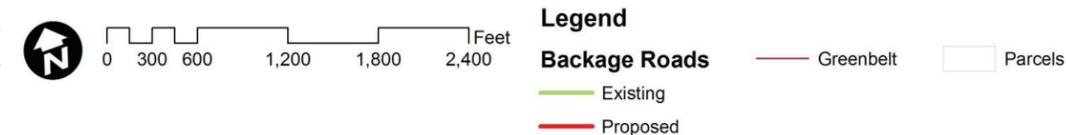
- Remove the southbound off ramp free flow right turn ramp. The southbound right turn onto Stone Drive should be brought to the signal with the other southbound off ramp traffic. A right turn may then be made on red after coming to a stop.
- Reconfigure the eastbound Stone Drive left turn lane to northbound John B. Dennis Highway to allow more left turn stacking distance. Ultimately, the John B. Dennis bridge over Stone Drive should be reconstructed with a single span to allow a full eastbound left turn lane. Although constructed in 1965, this bridge currently has a sufficiency rating of 81.9 by TDOT - meaning that near-term reconstruction is not likely.

Modifying the striping on the eastbound lanes of Stone Drive at the John B. Dennis Highway interchange can allow for a left turn queue length of over 300 feet, instead of the roughly 65 feet that exists.





An eastern area bike/ped connection could be developed to link the high school, Preston Forest neighborhood, and Kingsport Pavilion to the Kingsport Greenbelt. As shown in the inset, another connection between the Greenbelt and Stone Drive just east of John B. Dennis Highway could also be achieved.



Multiple opportunities exist to link the Greenbelt to the commercial heart of the study area with pedestrian connections. These connections should be emphasized as part of redevelopment in this area.



To achieve the eastern project area connection, a new path would have to be integrated into the future development of land across from Kingsport Pavilion.

The varied settings found within the Reedy Creek study area make for different types of bicycle and pedestrian facility recommendations. The following strategies should be undertaken, categorized by major road segment:

Stone Drive, West of John B. Dennis Highway

In the immediate future, wide outside shoulders should be periodically swept and maintained as bike routes. Bike Route signing should also be installed. Pedestrian signal equipment and crosswalk installation should be programmed for existing signal locations. As access points begin to be relocated directly from Stone Drive to the backage road network, more comprehensive work should be programmed for this segment. This reconstruction of Stone Drive would include construction of bike lanes and sidewalks.

Stone Drive, East of John B. Dennis Highway

Wide outside shoulders should be periodically swept and maintained as bike routes. Pedestrian signal equipment and crosswalk installation should be programmed for existing signal locations and required at future installations.



Channelized right turn "pork chop" islands like these are contrary to safe pedestrian travel. Little capacity is lost by requiring a right turn on red or overlap phase instead of a yield condition.

Proposed Backage Roads

These streets should be constructed with sidewalks meeting current City standards.

John B. Dennis Highway

No bicycle or pedestrian facilities are proposed. The MPO should request that TDOT revise the current bike routing along the access-controlled portion of John B. Dennis Highway. An alternative routing in this area would provide a safer and more usable bike route.

Private or Inter-Development Streets

Major access drives or roads interior to new developments should uphold the ideals for walkable, pedestrian-friendly access within this area. Sidewalks should be required and should connect to existing streets. Access to the Greenbelt should be encouraged, where appropriate.

Other Existing Local Streets

Predominately west of John B. Dennis Highway, retrofitting existing local streets with sidewalks is encouraged. As redevelopment occurs along these streets, sidewalk construction should be required as part of the development.



New sidewalk construction should be compliant with ADA guidelines. Sidewalk cross-slopes should be no greater than 2%.

Eastern Area Bicycle/Pedestrian Connections

In the eastern portion of the study area, bicycle and pedestrian facilities do not exist north of the Greenbelt. Using a combination of new path construction and on-street bike routing, a bike/ped connection between Sullivan North High School, the Preston Forest neighborhood, Kingsport Pavilion, and the Kingsport Greenbelt is possible. A partnership between these entities would be required. Also, land purchase, two areas of significant grades, a bridge crossing of Reedy Creek, and traffic signal upgrades would all be required to complete this connection. A second connection closer to John B. Dennis Highway could be achieved via Brandon Lane and an agreement with the property owner (currently First Assembly of God Church).

Implementation Strategies

The recommendations of this study address both the provision of transportation and the development of land use. Recommendations seek to balance mobility and access needs with a desire for improved circulation, greater emphasis on non-motorized accommodations, preservation of sensitive lands, and a stronger link between land use development activity and transportation system function.

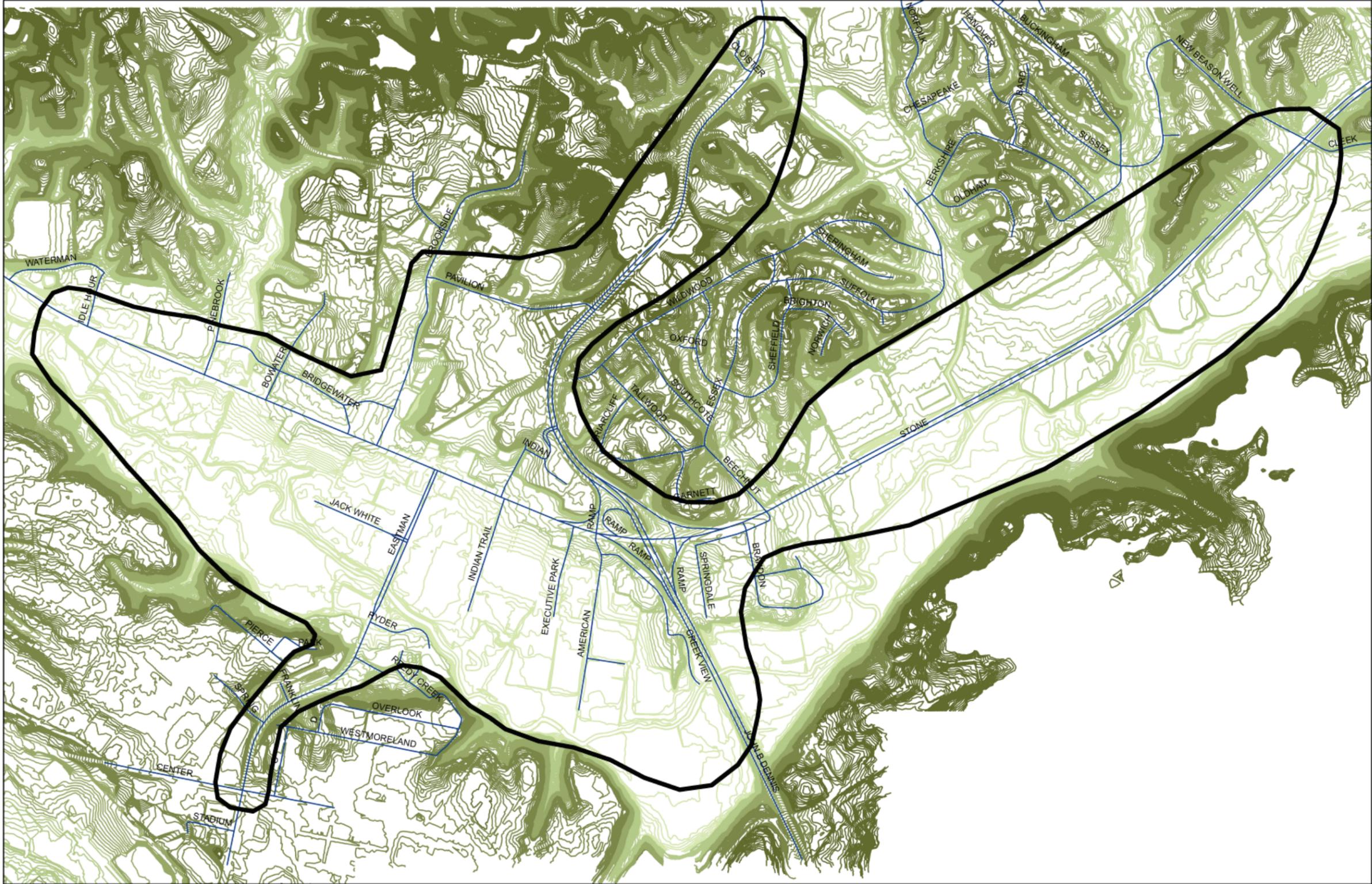
One challenge in implementing the recommendations of this plan is knowing the exact timing of development along the corridor. The following implementation plan has been developed to give the City flexibility to respond to varying growth and development schedules while deploying necessary infrastructure and policy changes in a logical form.

Implementation strategies are presented in the following table by priority (e.g. Immediate, Near Term, or Long Term) and are categorized by Project Recommendation or Policy Recommendation. For purposes of this plan, "Immediate" is 1 to 2 years, "Near Term" is 2 to 5 years, and "Long Term" is 5 or more years.

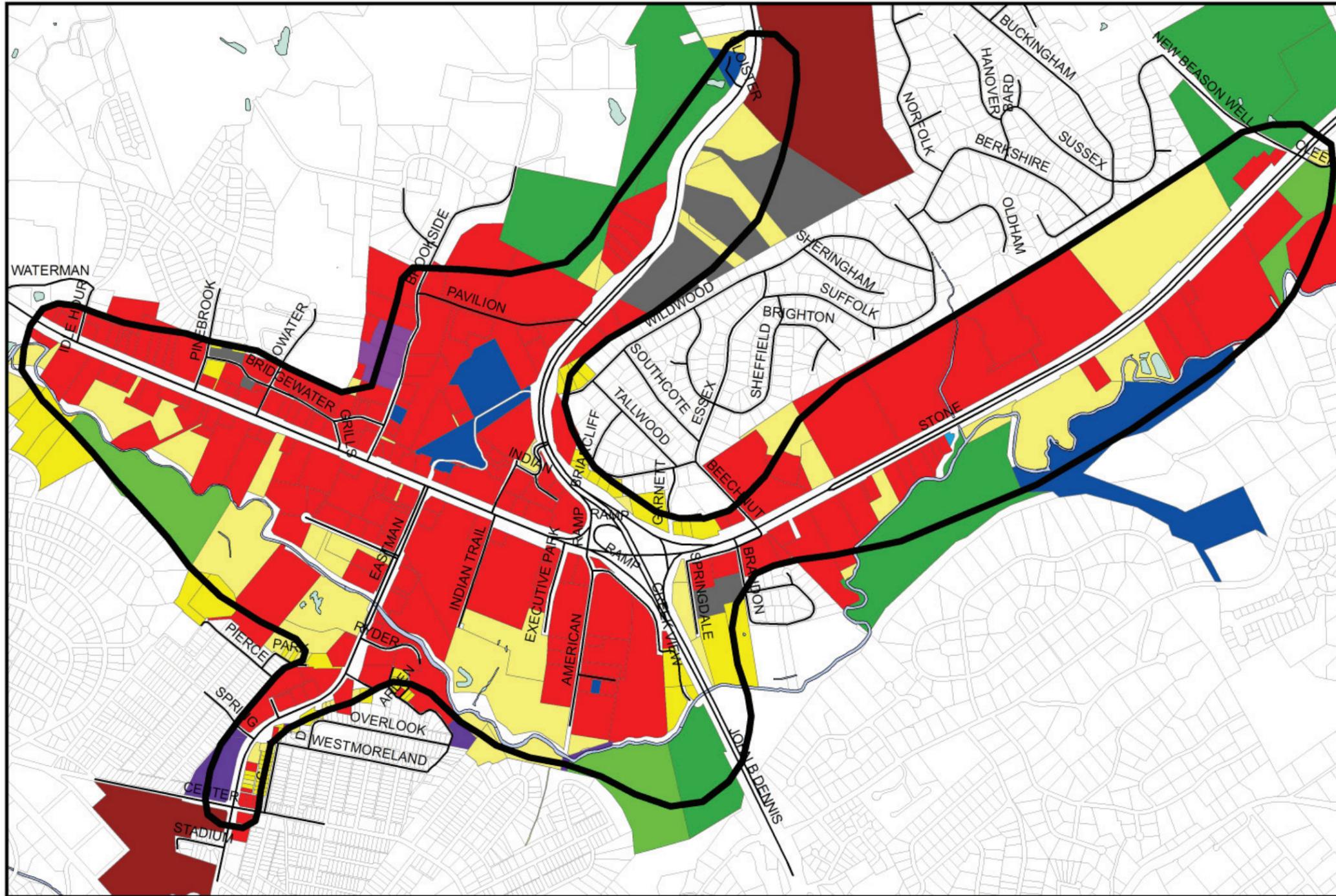
Priority	Type	Recommendation	Responsible Agency	Estimated Cost	Detailed
Immediate (1 – 2 Years)					
	Policy	Adopt Reedy Creek Crossroads Area Plan	City, MPO	-	
	Policy	Update <u>Major Street and Road Plan</u>	City, MPO	-	
	Project	Add Additional Bike Route Signs Along Stone Drive (<i>interim</i>)	TDOT	\$15,000	P. 22
	Policy	Implement Access Management Strategy (<i>options</i>) <ul style="list-style-type: none"> ▪ Purchase Access Rights ▪ Adopt New Zoning District ▪ Adopt City-Wide Access Policy ▪ Adopt Zoning Overlay ▪ Adopt Corridor-Specific Access Plans/Guidelines 	Planning Commission, City Council	-	P. 17,18
	Policy	Implement Study Area Land Use and Development Changes <ul style="list-style-type: none"> ▪ Policy Changes ▪ Market Analysis 	Planning Commission, City Council	-	P. 14,15
	Project	Construct Backage Roads - As Development Occurs Obtain Right-of-Way Dedication, Funding, and/or Construction of Backage Roads	Developer, City	\$10,500,000*	P. 17
	Project	John B. Dennis Hwy Interchange Improvements with Stone Drive (ramp reconstruction, reconfiguration of lanes, & restriping)	MPO, TDOT	\$365,000	P. 21
	Project	John B. Dennis Hwy - Indian Lane to Pavilion Drive Intersection Improvements (access controls and turning restrictions)	MPO, TDOT	\$75,000	P. 21
Near Term (2 – 5 Years)					
	Project	Construct Eastern Area Bicycle/Pedestrian Connections: 1) from Existing Greenbelt to Sullivan North High School, 2) from Existing Greenbelt via Brandon Lane to Stone Drive	City, MPO, TDOT	\$1,100,000	P. 22
	Project	Construct Sidewalks along Stone Drive from Idle Hour Road to American Way	City, MPO, TDOT	\$450,000	P. 19,22
	Project	Construct Pedestrian Signals, Crosswalks, and ADA Ramps at Signalized Intersections	City, MPO, TDOT	\$190,000	P. 22
	Project	Construct Bike Lanes along Stone Drive from Idle Hour Road to John B. Dennis Hwy (<i>ultimate</i>)	MPO, TDOT	\$45,000	P. 19,22
	Project	Construct Median along Stone Drive from Idle Hour Road to American Way	City, MPO, TDOT	\$950,000	P. 17,19
	Project	Construct Backage Roads - As Development Occurs Obtain Right-of-Way Dedication, Funding, and/or Construction of Backage Roads	Developer, City	*	P. 17
Long Term (5+ Years)					
	Project	Construct New Connector Roads <ul style="list-style-type: none"> ▪ Extension of Eastman Road to John B. Dennis Hwy (\$1,560,000**) ▪ Reedy Creek Road – Indian Trail Connector (\$4,940,000) ▪ Harris Avenue Extension, 2 connections – Desoto St to Stone Dr (\$8,420,000 for both) 	City, MPO	Various	P. 20
	Project	Construct Backage Roads (Construct Remaining Roadways)	City, Developer	*	P. 17
	Project	Construct Sidewalks & Bike Lanes on Existing Backage Roads	City, Developer, MPO	\$1,730,000	P. 17
	Project	Reconstruct John B. Dennis Hwy Bridge over Stone Drive – single span to allow full left turn lane under bridge (<i>ultimate</i>)	TDOT	-	P. 21

*Cost given for backage roads (\$10,500,000) is total for new construction, assumes no right-of-way dedication.

**Assumed to be in coordination with redevelopment of supermarket site – acquisition of supermarket shopping center not included in cost.



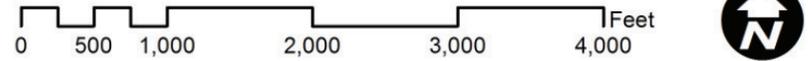
Reedy Creek Crossroads Study Area Map



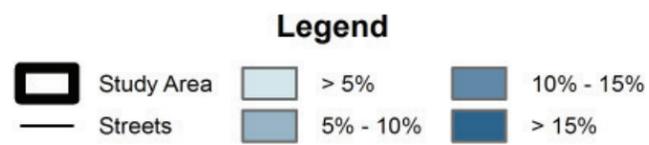
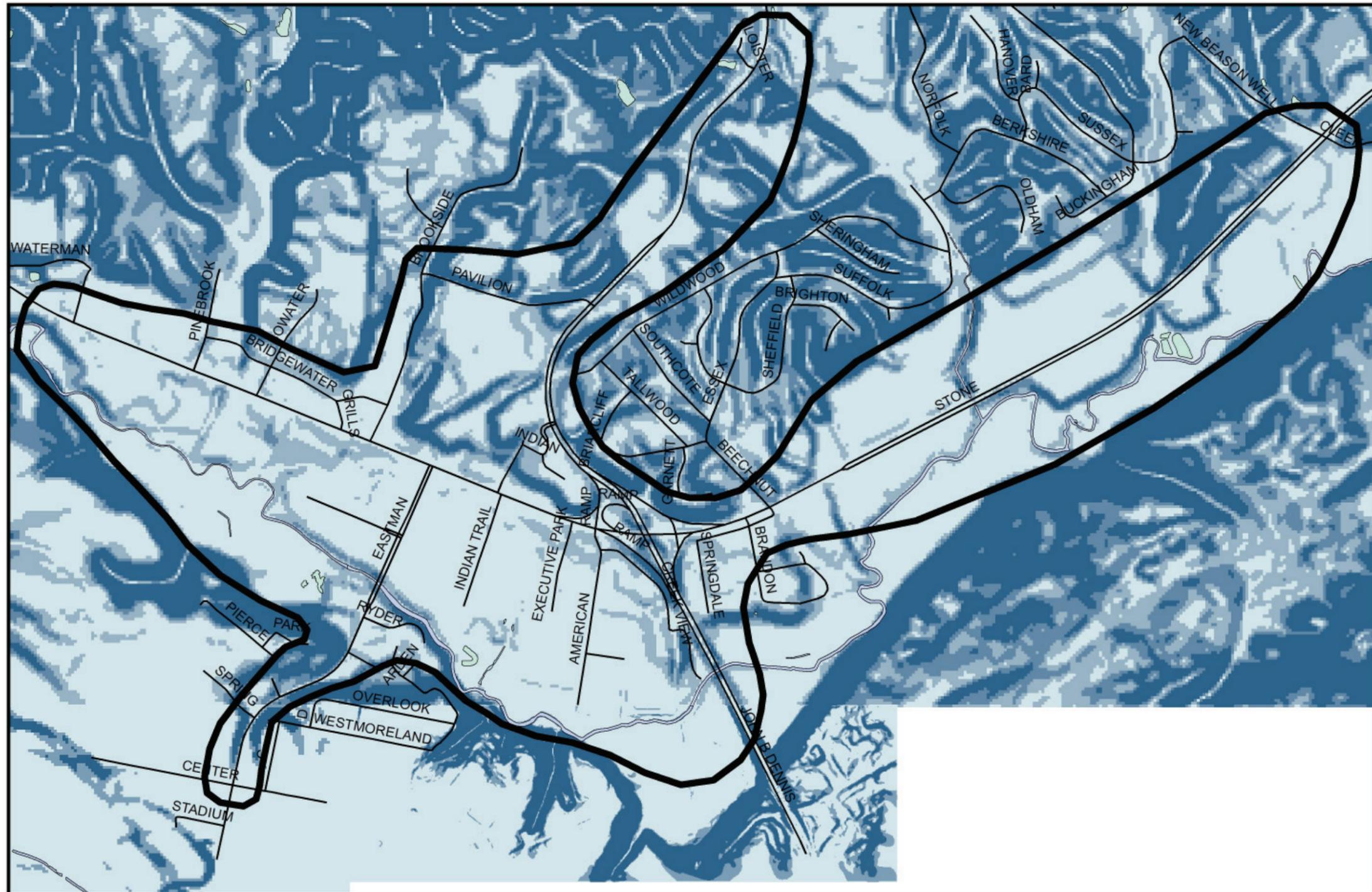
Legend

	Study Area		Undeveloped		Medical/Charitable		Agricultural		Public School
	Streets		Residential		Industrial		Farm		City Property
			Commercial		Religious		Public Utilities		

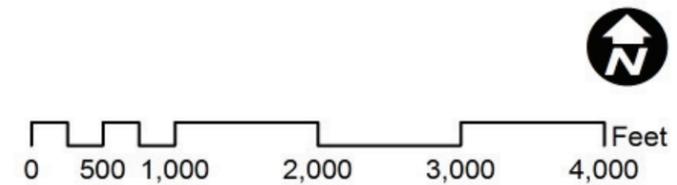
Existing Land Use Map

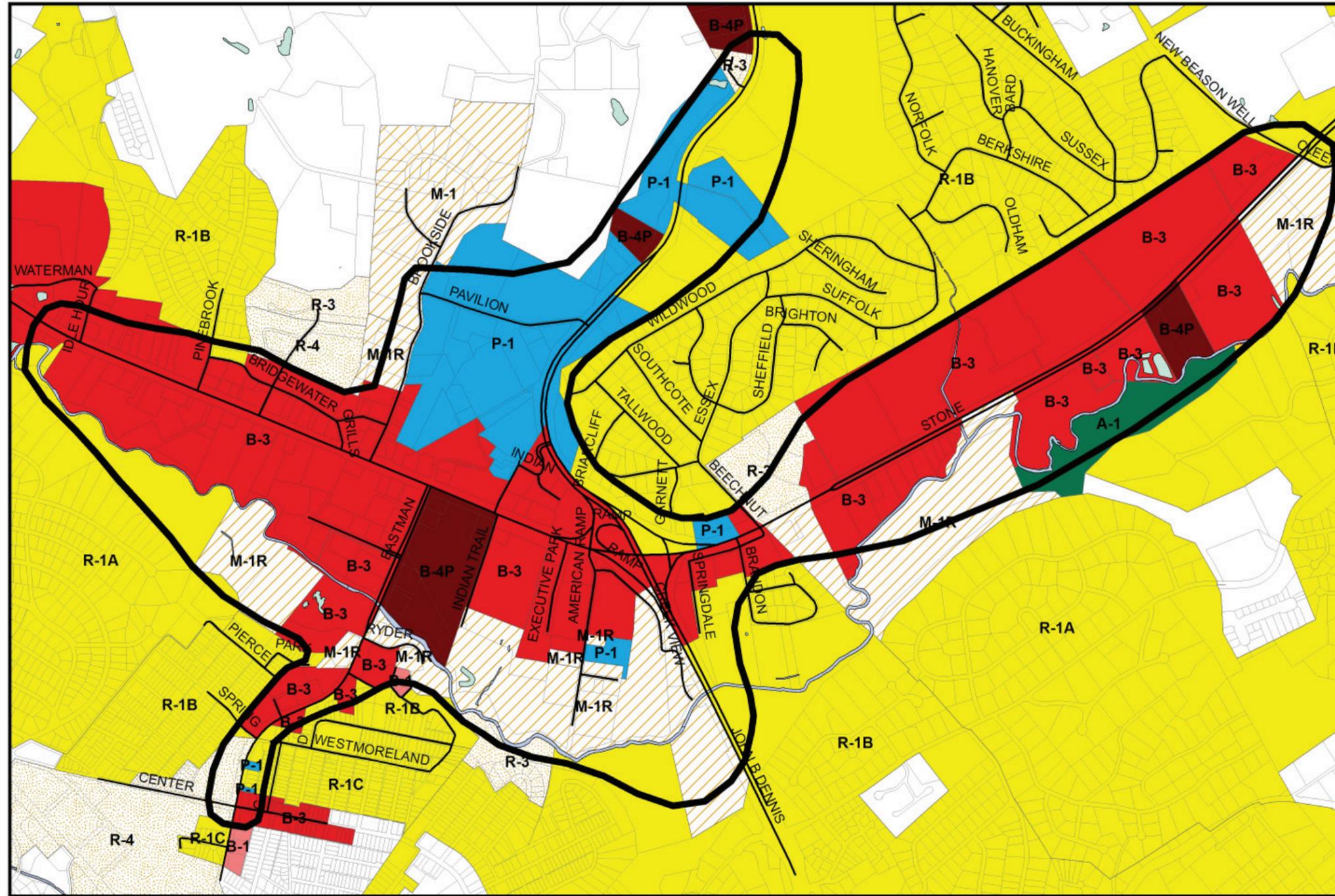


Flood Area Map



Steep Slopes Map

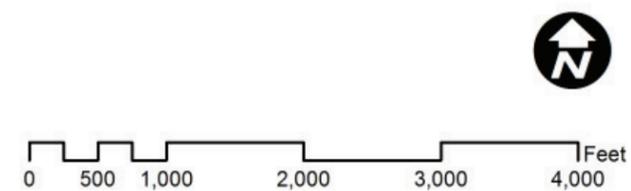


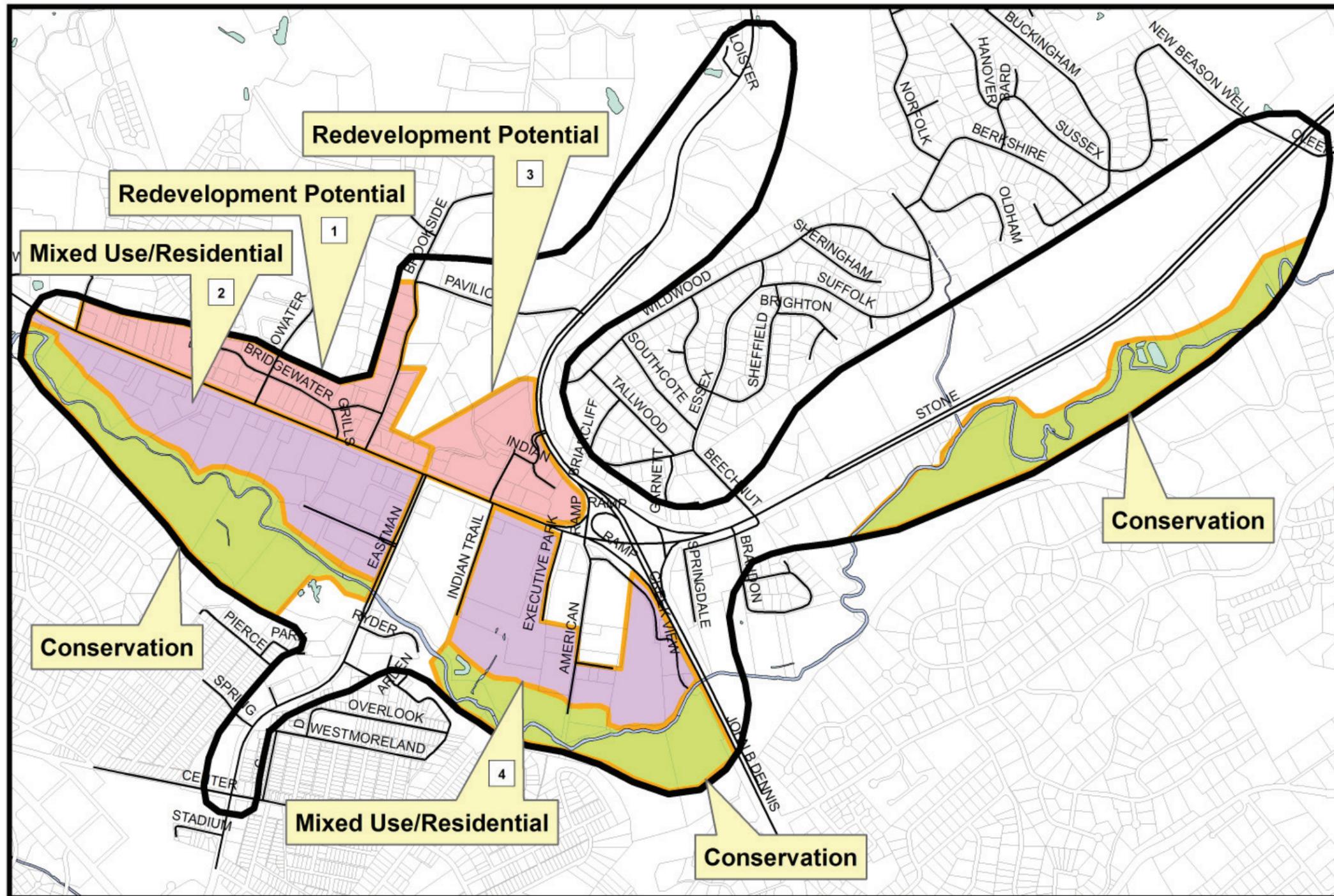


Current Zoning Map

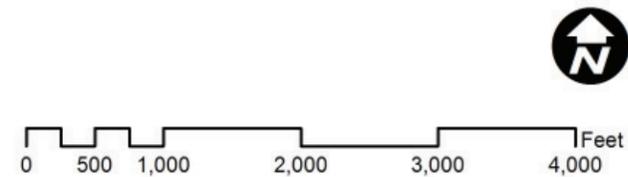


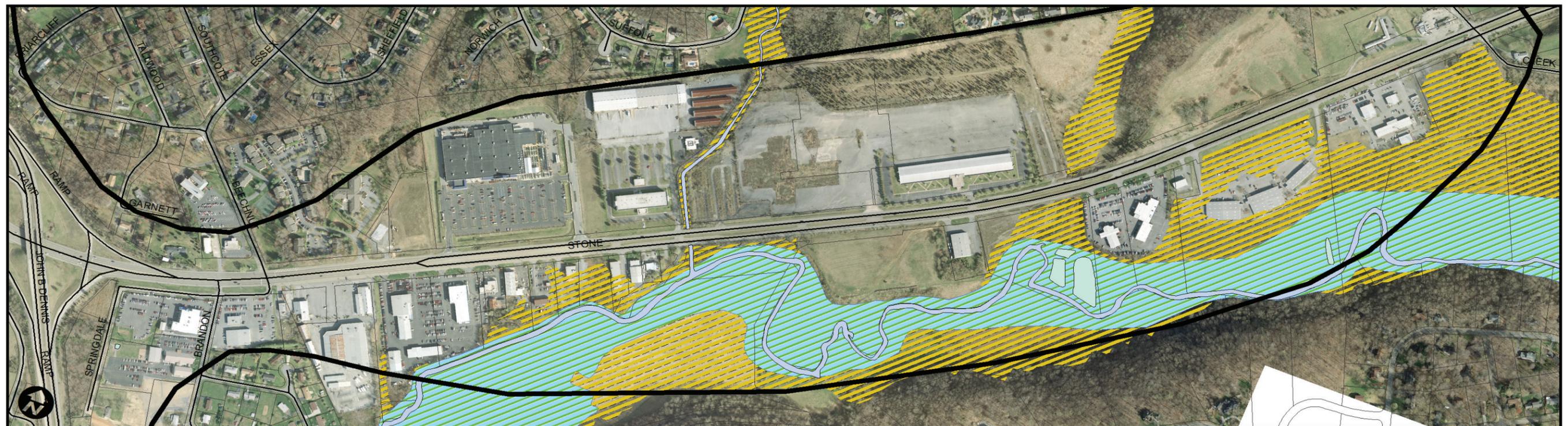
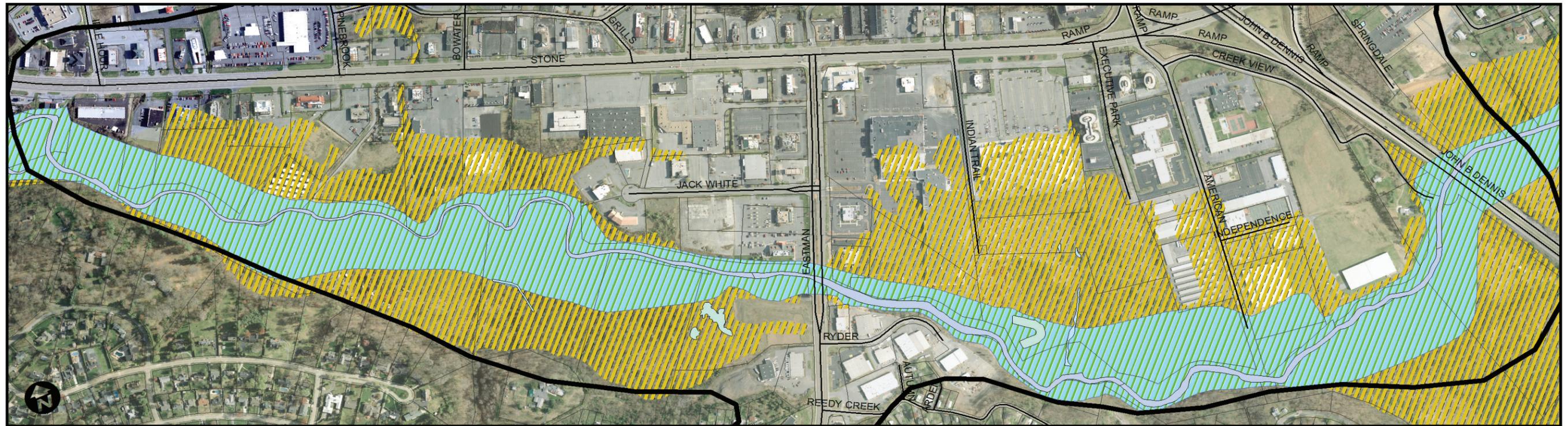
Under-Utilized Lands Map





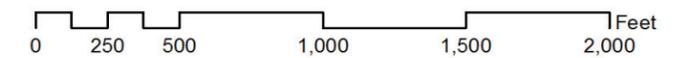
Potential Land Use Changes Map

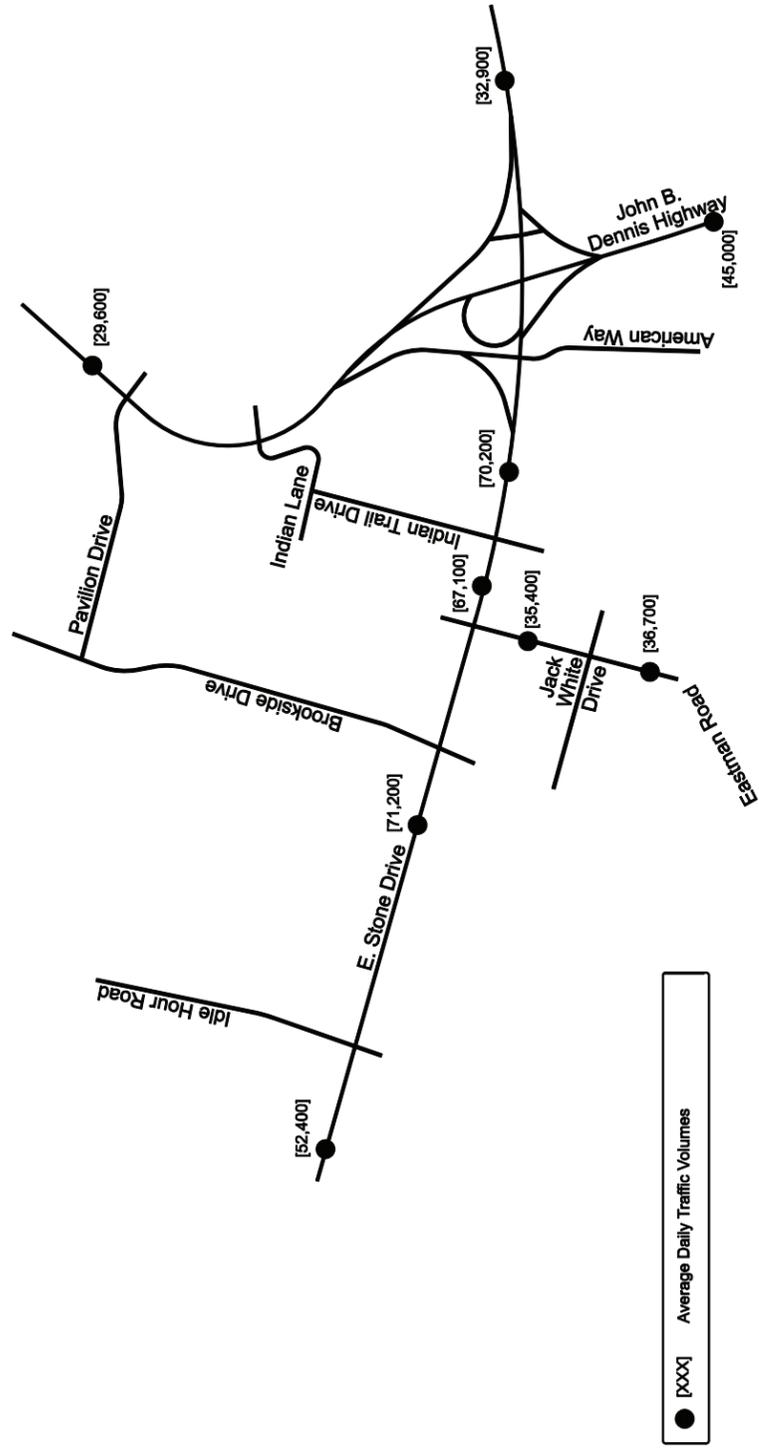




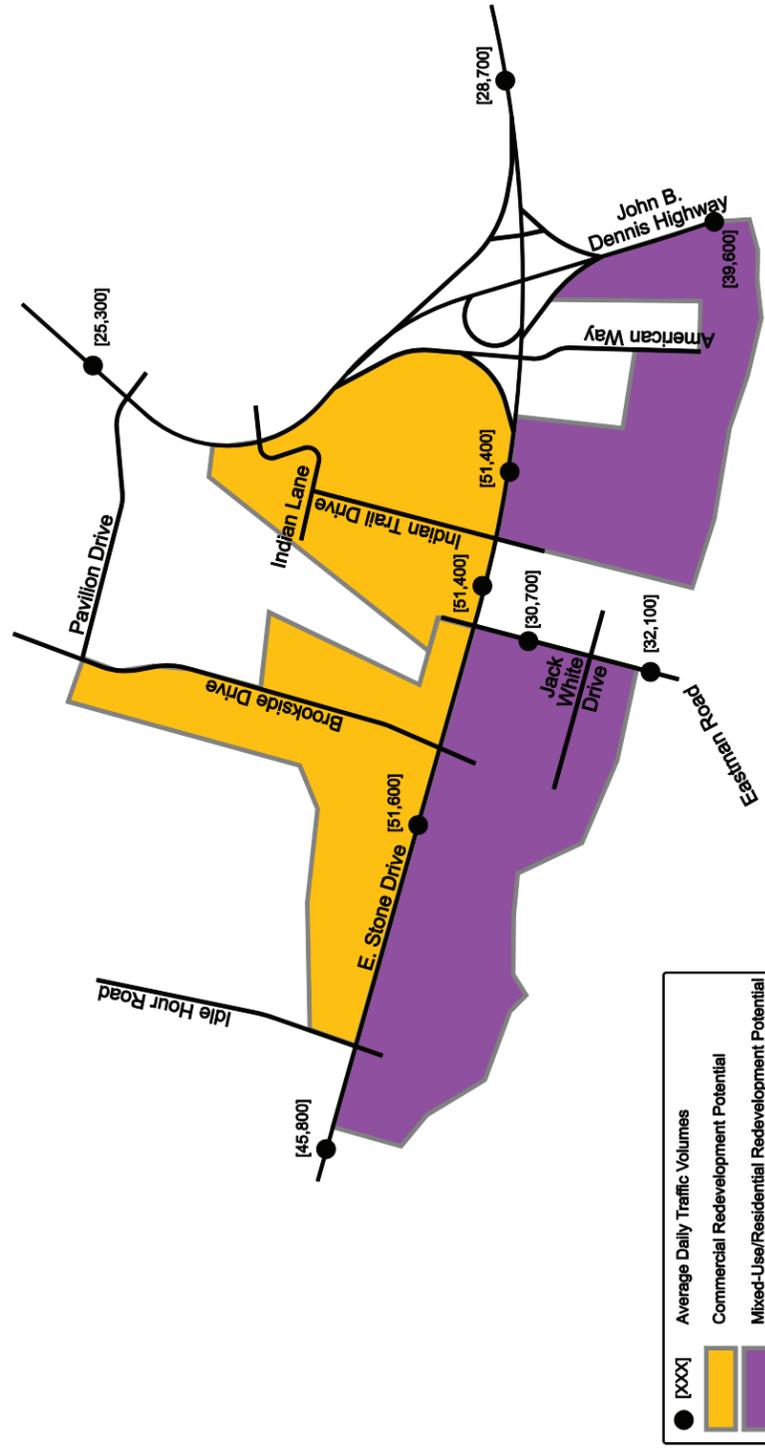
- Legend**
- Study Area
 - Streets
 - Parcel
 - Floodway
 - Flood Fringe

Flood Area (With Parcels) Map

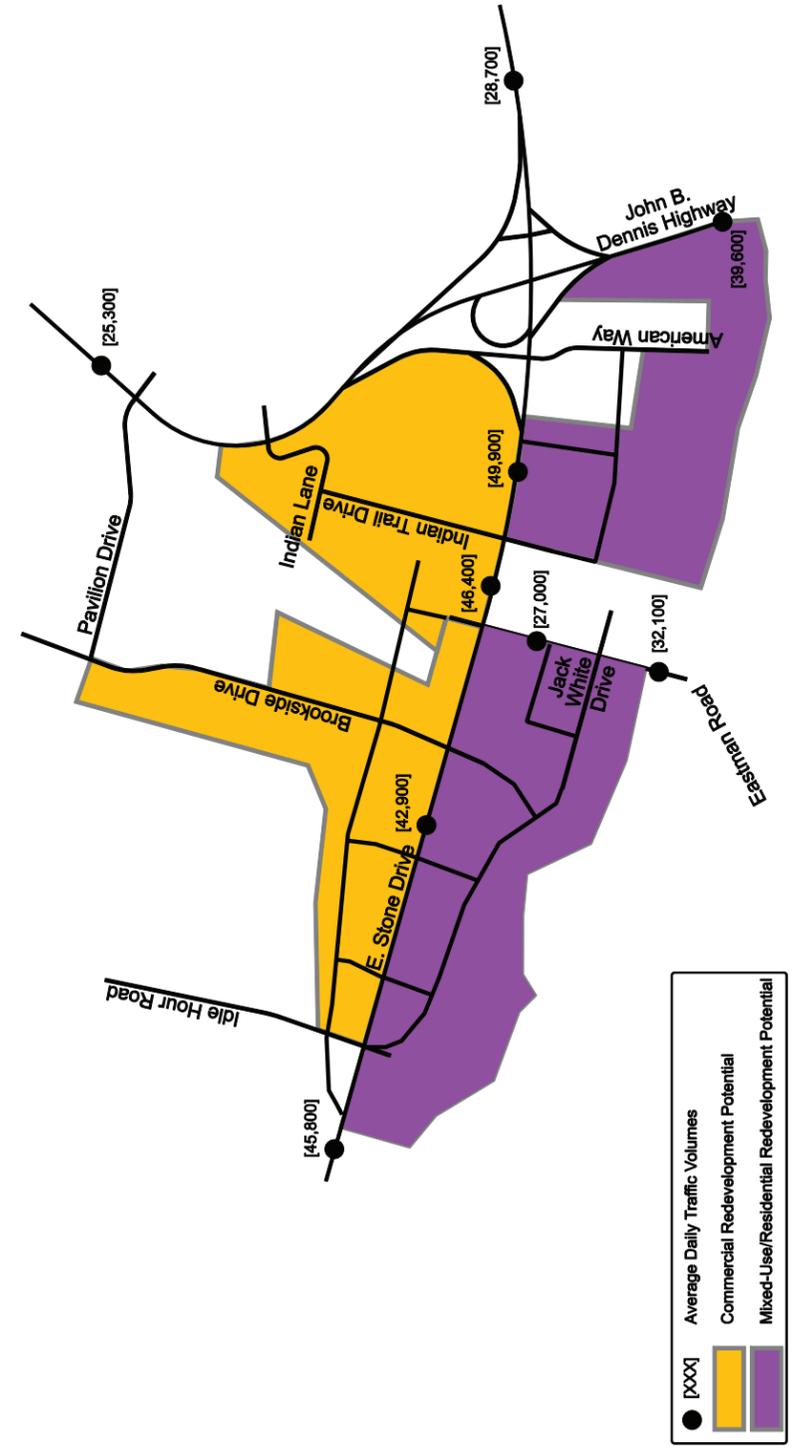




Average Daily Traffic (ADT) for Commercial Center Assuming Full Built-Out of Current Zoning and Existing Street Network



Average Daily Traffic (ADT) for Commercial Center Assuming Recommended Land Use Changes and Existing Street Network



Average Daily Traffic (ADT) for Commercial Center Assuming Recommended Land Use Changes and Backage Road Network

Comparison ADT Maps Based on Land Use Scenarios