



## 2.0 Existing Conditions

### 2.1 Area

The corporate limits of Apex encompass an area of roughly 9,800 acres, over 15 square miles. Apex corporate limits have grown from 10.6 square miles in 2000, averaging an expansion in area of almost 5 percent each year during this period.

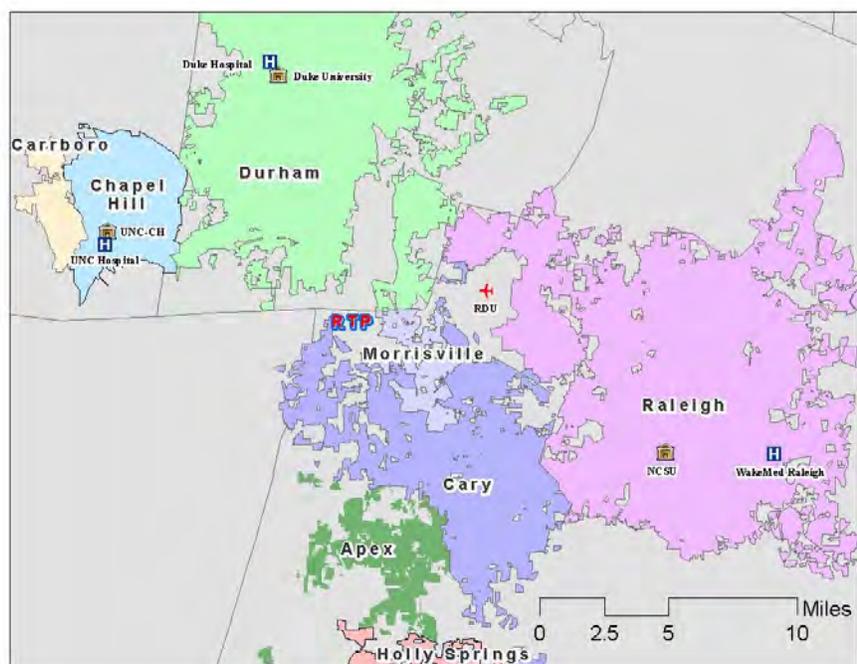
The Extraterritorial Jurisdiction (ETJ) represents the area that can be expected to be provided with services by the Town in the future. In 2007, the Town of Apex expanded its ETJ from an area of approximately 3,860 acres to 13,510 acres. The ETJ expansion has allowed the Town to help shape some of the development trends immediately outside of Town limits by ensuring that new construction projects adhere to the Apex Unified Development Ordinance and the Apex Transportation Plan.

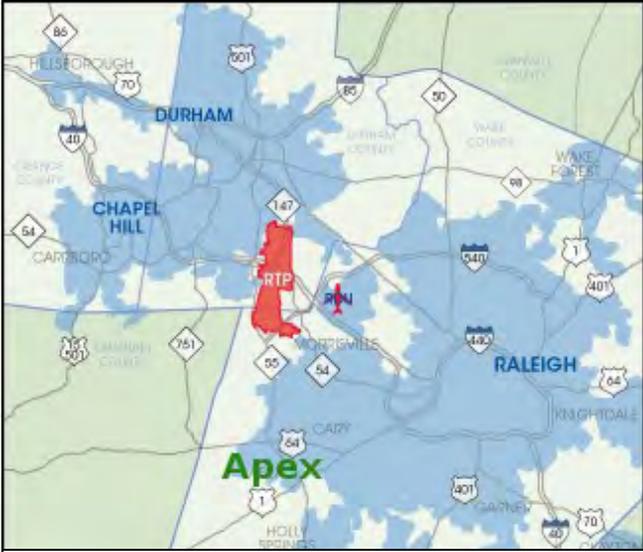
### 2.2 Major Activity Centers

The Town of Apex itself has no major regional activity centers; however, it is impacted by its proximity to several such areas in the Triangle (see **Figure 2.1** below).

**FIGURE 2.1** — Regional Context

*Apex is within 20 miles of many major communities and destinations.*





Apex is in close proximity to several major regional centers.

Source: <http://www.rtp.org/>

Major activity centers in the Triangle include:

- **Research Triangle Park** – a major employment center with more than 170 companies and over 42,000 full-time jobs, located approximately 15 miles from Apex
- **Raleigh** – the capital of North Carolina, home to 6 colleges and universities, with a population of 360,000, located approximately 15 miles from Apex
- **Durham** – a city of almost 250,000, home to 4 colleges and universities, located 20 miles from Apex

These activity centers directly impact regional commuting patterns. Within Apex, the large numbers of vehicles

traveling along the three major automobile corridors (US 64, US 1, and NC 55) during the morning and evening commute hours confirms the impact of these activity centers on the region as a whole.

### 2.3 Population

Apex is a quickly growing community of approximately 38,000 people, an 85 percent increase over the 2000 Census population (20,212 people). Current predictions estimate that the town population will reach 43,000 by 2015.

**Figures 2.2 through 2.4** show this historical growth rates and population estimates for the Town of Apex.

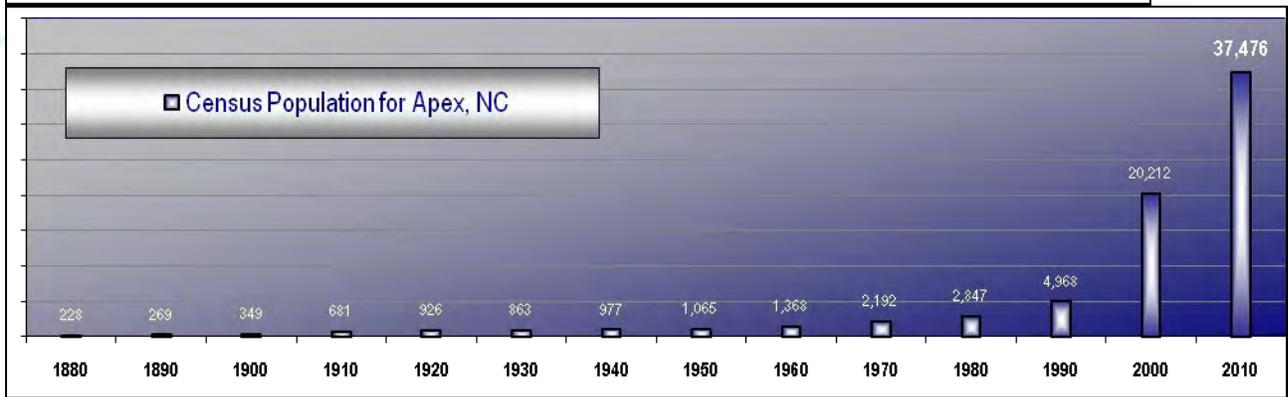


This road map of Apex was taken from an aerial photo in 1928.

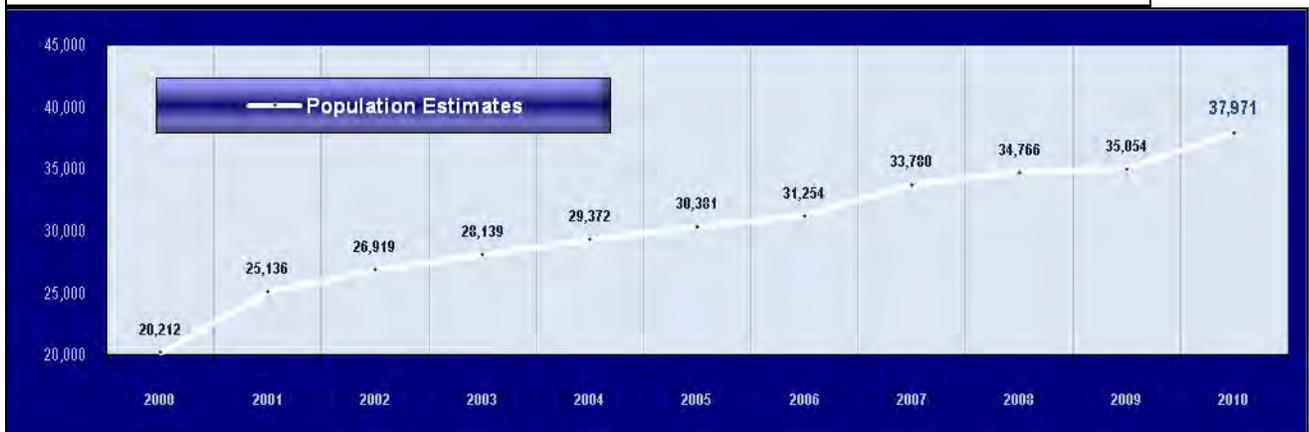
### 2.4 Employment

Employment in and around Apex has remained robust throughout the past decade despite downturns in other regional economies. The greater-Raleigh area (including Apex) has over 500,000 non-farm jobs with 250,000 non-farm jobs in neighboring employment centers. The number of jobs in these areas has increased over 25% past decade.

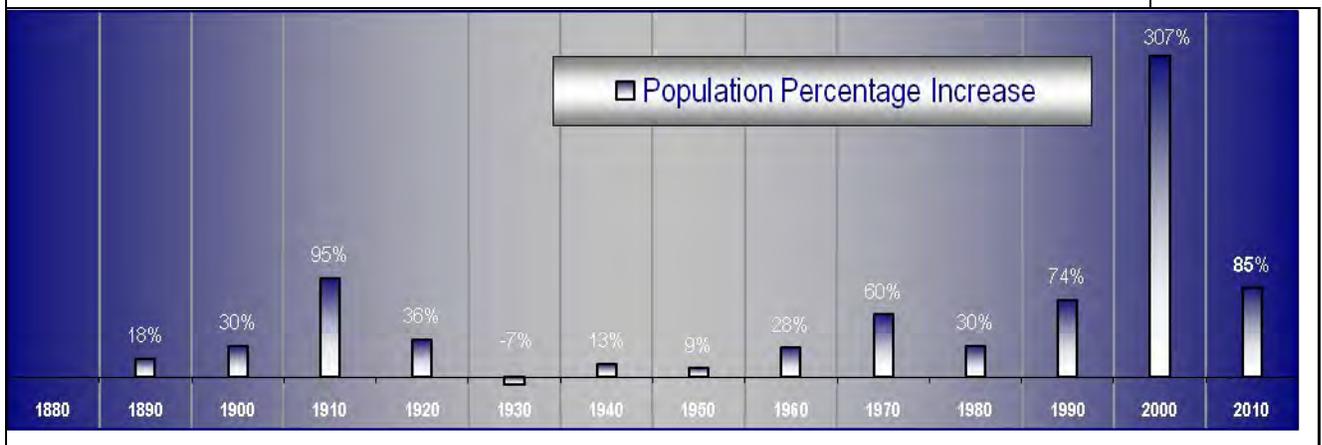
**Figure 2.2 -- Census Population, 1880 - 2000**



**Figure 2.3 -- Apex 10-year Population Estimates**



**Figure 2.4 -- Apex Population Growth Rates by Census Year, 1880 - 2000**



Unemployment for Raleigh has remained well below the national average for the last 10 years. The unemployment rate for the Raleigh area has been on average 25% lower than the national average since 1998.

Apex itself is predominantly residential with less than 10,000 jobs located within the corporate limits. The largest employers within the town are listed below:



Hare Pipeline Construction is a major employer in Apex.

**Apex Top 10 Employers**

- Wake County Public Schools
- EMC Corporation
- Apex Tool Group
- SuperTarget
- Impact Athletics
- Hare Pipeline Construction, Inc.
- Home Depot
- Lowe's Home Improvement
- Bland Landscaping
- Walmart

*Source: Apex Chamber of Commerce*

## 2.5 Existing Transportation Conditions

### 2.5.1 The Town by Foot

Apex generally has an interconnected network of sidewalks that are in good condition and provide an alternative to driving. However, in some areas sidewalks are sporadic or nonexistent. The Town has funded several sidewalk construction projects and has requirements for developers to construct sidewalks on both sides of thoroughfares and collector streets as well as on one side of all residential streets. At present there are nearly 500,000 linear feet of sidewalk in Apex.

In addition to sidewalks, Apex also has several greenways that provide walking opportunities, and the Town has already taken steps toward establishing an interconnected greenway system in the Town of Apex Parks, Recreation, Greenways, and Open Space Master Plan, illustrated in **Figure 2.5**. A section of the American Tobacco Trail, a 30-mile rails-to-trails project in the Triangle, passes through the study area west of the Town of Apex. There are 4 trailheads along the American Tobacco trail that wind through western Apex. The existing sidewalks and greenways in the Town of Apex are illustrated in **Figure 2.6**.

There are few existing grade-separated facilities within Apex corporate limits that specifically serve pedestrians. The multi-use path along the Creekside Landing Drive bridge over US 64 is the only grade-separated facility that accommodates pedestrians and bicycles in the corporate limits. The tunnel allowing the American Tobacco Trail to pass under US 64 is the only grade-separated pedestrian and bicycle crossing in the ETJ.

### 2.5.2 The Town on Bike

Local bicycle facilities in Apex are currently limited in scale. To date there are less than 1.5 miles of bicycle lanes and wide outside lanes combined in the town. The Apex Parkway between Center Street and New Dover Road has striped bike lanes in both directions, while Hunter Street between NC 55 and Salem Street has wide lanes that accommodate bicyclists. The existing bicycle facilities are shown in **Figure 2.7**.



The American Tobacco Trail is a major regional pedestrian facility.

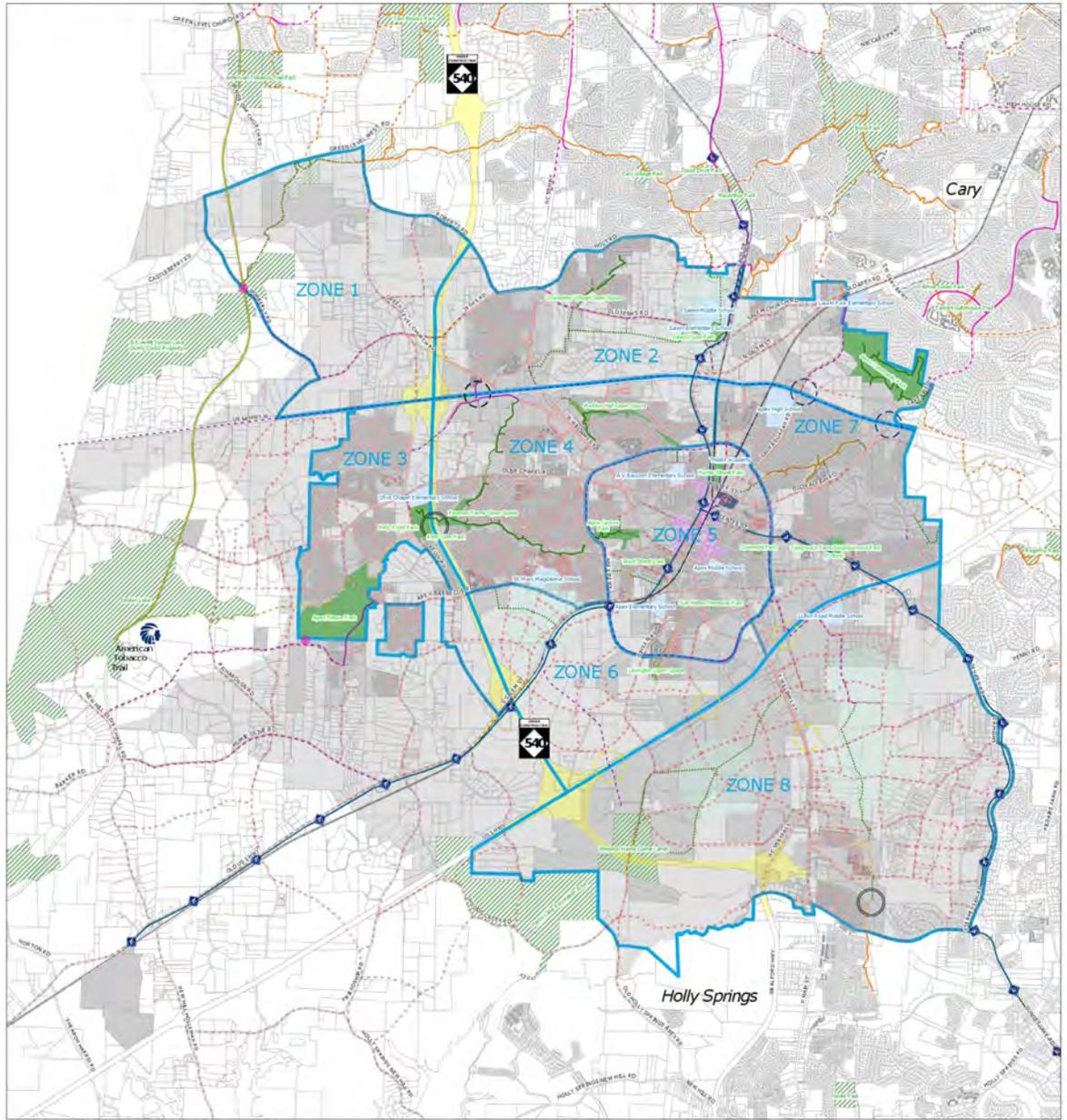


A bicyclist rides along Hunter Street near the Apex Town Hall.

# Apex Transportation Plan

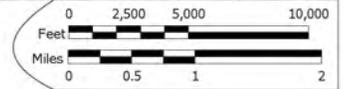
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# Parks, Recreation, Greenways, and Open Space Master Plan

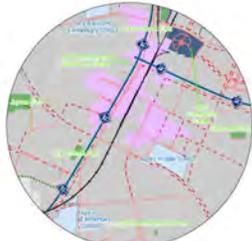


The Town of Apex Geographic Information Services (GIS) shall not be held liable for any errors concerning content or positional accuracy of the mapped information. The user must consult the primary source from which the Town of Apex GIS compiled this product.

Latest Revision: December 16, 2008



	Existing Park Zone		Proposed Trailhead
	Town Campus		Existing Greenway
	Existing School		Existing Greenway (Private)
	Park, Town of Apex		Proposed Greenway with Existing Elements
	Park, Outside Apex		Proposed Greenway
	Land Acquisition Area		Proposed Multi-Use Path
	NC 540 Future Pedestrian Crossing		Existing Multi-Use Path with Equestrian Facilities
	As Developed Crossing		Proposed Multi-Use Path with Equestrian Facilities
	At Grade Crossing		Existing Bicycle Route
	Elevated Crossing		Existing Sidewalk
	Historic District		Proposed Sidewalk
	Corporate Limits		Connecting Trails Outside Apex:
	Intermunicipal Jurisdiction		Existing Greenway
<p>*Multi-use paths do not count toward Parks and Recreation credit, nor are they the responsibility of the Parks and Recreation Department.</p>			Proposed Greenway
			Existing Multi-Use Path
			Proposed Multi-Use Path



**Figure 2.5**

# Apex Transportation Plan

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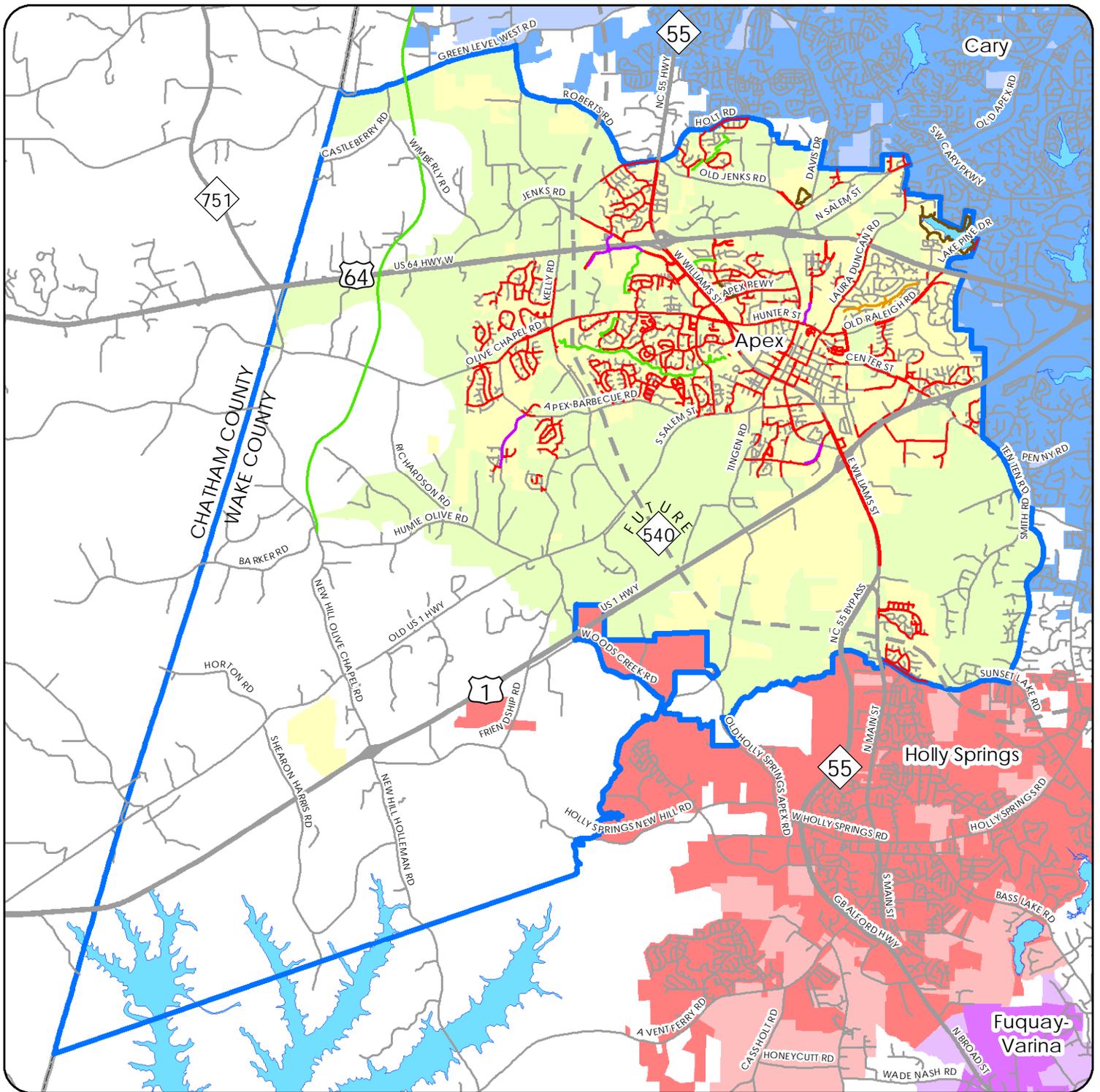


Figure 2.6  
Existing Pedestrian  
Facilities



0 0.5 1 2  
Miles

- Greenway
- Private Greenway
- Trail
- Multi-Use Path
- Sidewalk
- Street
- Study Area
- County Line
- █ Lake
- Corporate Limits
- Extraterritorial Jurisdiction

# Apex Transportation Plan

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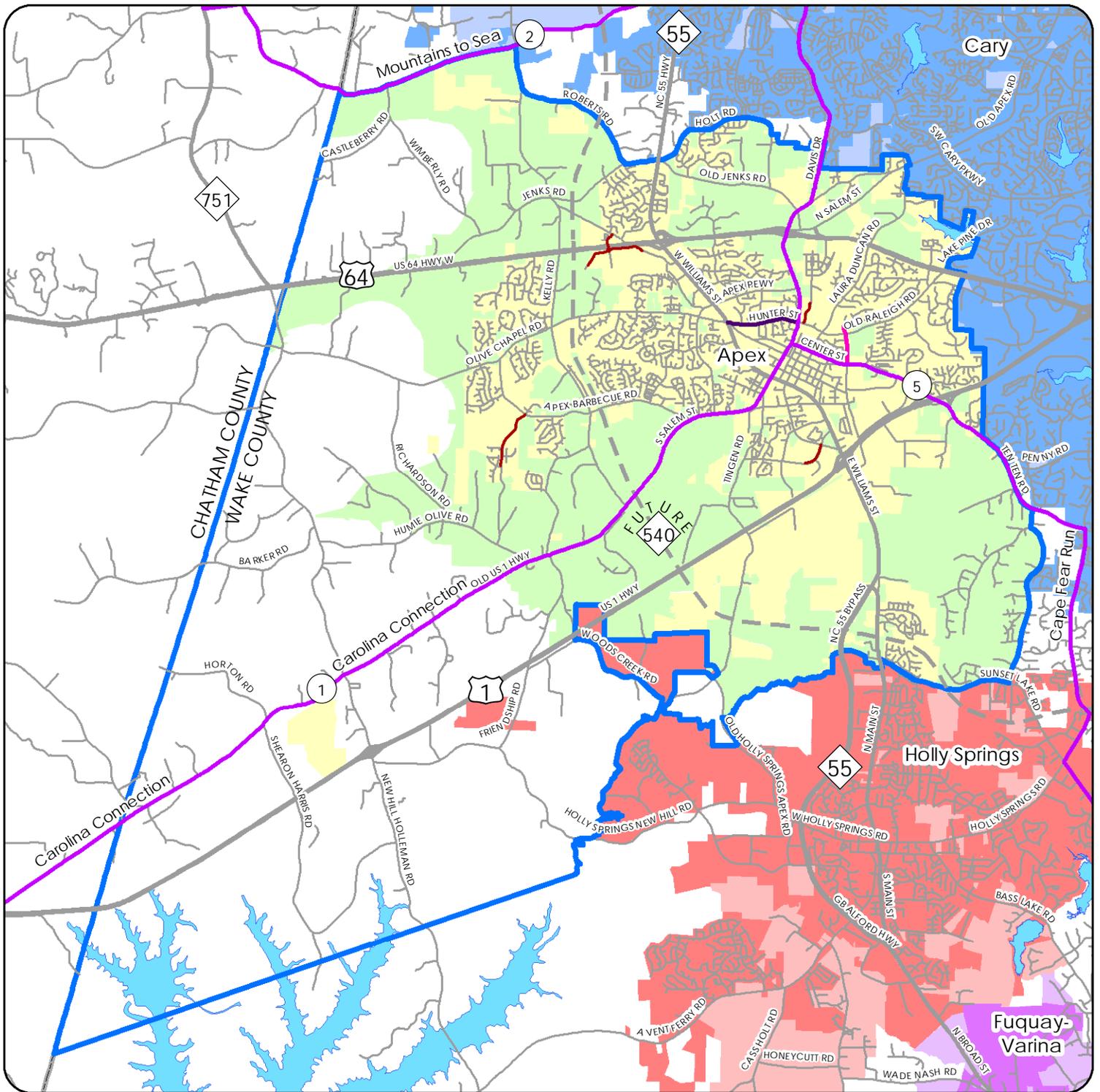


Figure 2.7  
Existing Bicycle  
Facilities



0 0.5 1 2  
Miles

- Bicycle Highway
- Bicycle Lanes
- Wide Outside Lanes
- Multi-Use Path
- Street
- Study Area
- County Line
- Lake
- Corporate Limits
- Extraterritorial Jurisdiction

# Apex Transportation Plan

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Because bicycles are considered vehicles, designated bicycle facilities are not necessary on every street. Some beginner cyclists prefer off-road facilities such as greenways and multi-use paths while some advanced cyclists prefer not to be constrained to a bicycle lane.

### **Regional Bicycle Routes**

The North Carolina Department of Transportation (NCDOT) has designated a system of bicycling highways that serve as long distance travel and recreation routes for cyclists traveling throughout the state. While some of the designated bicycling highways are simply spurs that run through several counties before terminating at another bicycling highway, others are continuous north/south and east/west routes. Three of the State's designated bicycling highways pass through or begin in Apex:

- Carolina Connection
- Mountains to Sea Route
- Cape Fear Run

#### *--Carolina Connection (US Bike Route 1)*

The Carolina Connection is a north/south route that runs over 200 miles from Virginia to South Carolina through the eastern Piedmont and southwestern Sandhills regions of the state. This route is an important part of the national system of bicycling highways and is designated as US Bike Route 1, which runs continuously from Maine to Florida along the eastern seaboard. The route runs through the center of Apex along Davis Drive, Salem Street, and Old US 1 Highway.

#### *--Mountains to Sea (NC Bike Route 2)*

The Mountains to Sea is a route that runs from Murphy in the North Carolina mountains to Manteo on the Carolina coast. The route is over 700 miles long and passes through the mountains, the piedmont, and the coastal plain on its journey from west to east. It runs along Green Level West Road on the northern border of the study area.

#### *--Cape Fear Run (NC Bike Route 5)*

The Cape Fear Run is a 160-mile route that approximately parallels the Cape Fear River and Interstate 40 on its journey from Wake County to New Hanover County on the Carolina coast. It begins in Apex, at the intersection of Center Street and Salem Street, where it joins the Carolina Connection. It continues out of town to the east along Center Street and Ten Ten Road.



Signs for US Bike Route 1 and NC Bike Route 5 welcome bicyclists on Salem Street.

### 2.5.3 The Town by Car

#### **Regional Automobile Routes**

Apex is currently served by three major regional automobile transportation routes:

- NC 55
- US 1
- US 64

#### *NC 55 (Williams Street)*

NC 55 is a North Carolina west-east highway running from Durham in the center of the state to Oriental on the coast. Within Apex, NC 55 (or Williams Street) provides a major northwest to southeast corridor ranging from a 2-lane rural section immediately west of Salem Street to a 5-lane suburban roadway section with curb, gutter, and sidewalk on both the west and east sides of Apex through the intersections of US 64 and US 1.

Williams Street provides access to both US 64 and to US 1 at diamond interchanges and connects Apex with the Research Triangle Park, Morrisville, and Cary to the north and Holly Springs and Fuquay-Varina to the south. As a result of its location, NC 55 acts as a commuting corridor between communities north and south of Apex.

#### *US 1*

US 1 is a major south-north highway linking North Carolina to Florida and Maine. The highway is located to the east and south of Apex connecting Sanford and other communities to the southwest with Raleigh to the northeast. US 1 through Apex is a 4-lane divided, access-controlled highway.

#### *US 64*

US 64 is a major west-east highway that runs within North Carolina from Murphy to Manteo, sitting to the north of downtown Apex. The local section of the US 64 corridor is a 4-lane median divided highway with partial access control, connecting Chatham County to the west with the Capital area to the east.



The iconic CSX railroad bridge crosses over NC 55 in Apex.



Cars travel east along US 64 near Laura Duncan Road.

### Local Automobile Routes

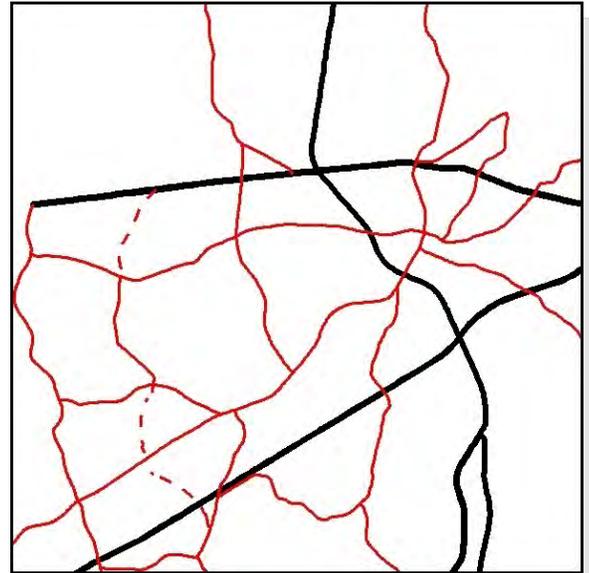
Apex's roadway network is based on a street hierarchy with four classes of streets:

- highway
- thoroughfare
- collector
- local street

In turn, each classification (with the exception of highways) is broken down into major and minor subsections (major collector and minor collector).

#### Major Thoroughfares

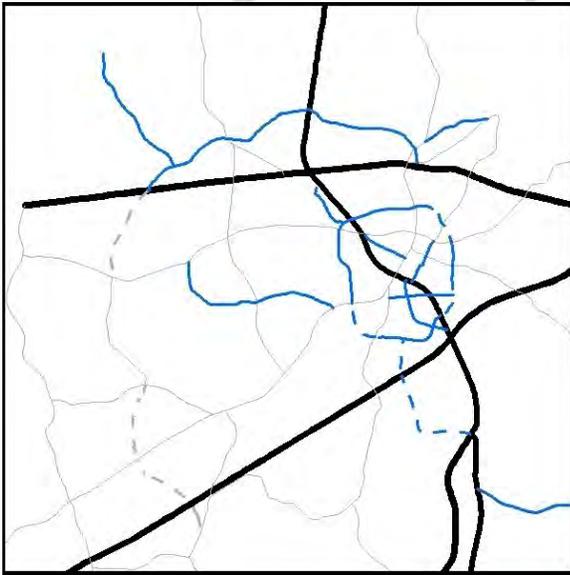
Major thoroughfares in Apex include the web of streets that serve medium- to long-distance travel and connect minor thoroughfares and collector streets to freeways and other higher-level roadway facilities, as shown in the figure to the right. Thoroughfares provide the highest degree of automobile mobility with less accessibility for pedestrians and bicyclists. For the most part, roadway improvements and maintenance on major thoroughfares are funded by the State. Roads that are currently designated as major thoroughfares in Apex include:



Major thoroughfares provide connections between high order roadways.

- Davis Drive
- Green Level Church Road
- Humie Olive Road/ Richardson Road/ Friendship Road
- Hunter Street/Old Raleigh Road/Lake Pine Drive
- Kelly Road
- Laura Duncan Road
- NC 55/Williams Street
- New Hill Olive Chapel Road/New Hill Holleman Road
- North Salem Street
- Old Holly Springs Apex Road/ Tingen Road
- Old US 1 Highway/ South Salem Street
- Olive Chapel Road
- Richardson Road
- Sunset Lake Road
- Ten Ten Road/ Center Street

As one might expect, some of these roads are often travel routes to neighboring communities, such as Davis Drive to Cary.



Minor thoroughfares provide connections between other thoroughfares.

### Minor Thoroughfares

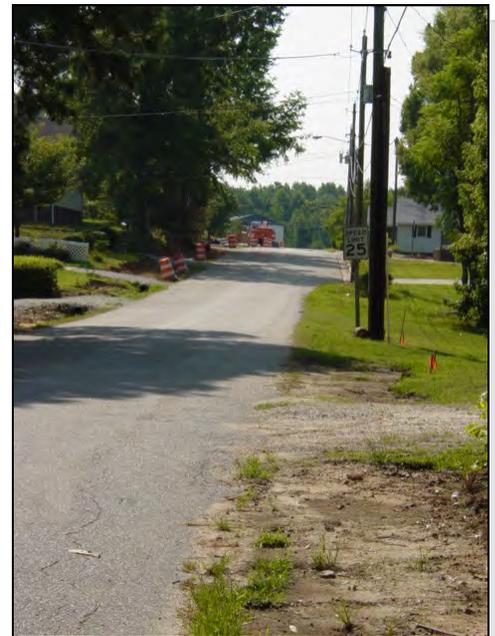
For the most part minor thoroughfares are maintained by the State, but the cost of improvement is typically the responsibility of local governments. These roads primarily serve a local travel purpose and often connect to other minor thoroughfares and to major thoroughfares, as shown on the left. In Apex, minor thoroughfares are mostly two-lane undivided roads with little or no paved shoulders and the occasional left-turn lane at major intersections and driveways. Posted speed limits on minor thoroughfares range from 25 mph to 45 mph. Other characteristics may include sidewalks, signalized intersections, and on-street parking (in residential areas and on downtown streets). Minor thoroughfares in Apex include:

- Apex Barbecue Road
- Apex Peakway
- Holly Springs New Hill Road
- James Street
- Jenks Road/Old Jenks Road
- Mason Street
- Old Raleigh Road
- Old Smithfield Road
- Salem Church Road
- Smith Road
- South Hughes Street
- Stephenson Road
- West Chatham Street
- Wimberly Road
- Woods Creek Road
- Zeno Road

### Collector Streets

The main purpose of the collector street system is to “collect” traffic from neighborhoods and distribute it throughout the Town either through the system of collector streets or to major or minor thoroughfares. In general, collector streets have two lanes and frequently have exclusive left-turn lanes at busy intersections. In general, collector streets are not part of the State-maintained system of roads. Collector streets in Apex have a wide range of physical characteristics, some of which are attributable to the neighborhoods in which they exist.

There are two designations for collector streets in Apex: Major Collector and Minor Collector. Ma-



Construction along Lynch Street helps improve it to collector street standards.

Major collectors are wide local streets with 30 feet of paved lanes and speeds ranging from 25 to 35 mph. Minor collectors are local streets with only 22 feet of paved lanes. Both classifications of collector streets function to promote free traffic flow, therefore curbside parking is discouraged. Sidewalks are constructed on both sides of all collector streets. Major collectors prohibit direct access by residential driveways. Existing collector streets in Apex include the following (major collectors shown in bold):

- Barker Road
- Blackburn Road
- Bobbitt Road
- Burma Drive (extension)
- Cabin Cove Road
- **Chanticleir Drive**
- Chapel Ridge Road
- Classic Road
- Creekside Landing Drive
- Derry Down Lane
- Dinsorette Lane
- **Energy Drive**
- Evans Road
- Farm Pond Road
- Haddon Hall Drive
- Hickory Mountain Road
- Holt Road
- Howell Road
- Investment Boulevard
- Lufkin Road
- Lynch Street
- Marco Drive
- **Milano Avenue**
- **Mt. Zion Church Road**
- N. Tunstall Avenue
- Old London Way
- Old Mill Village Drive
- **Perry Road**
- Pine Plaza Drive
- Pleasant Plains Road
- Production Drive
- Reliance Avenue
- **Reunion Creek Parkway**
- Rothwood Way
- Schieffelin Road
- Straywhite Avenue
- Technology Drive
- **Thriftwood Drive**
- Windy Road
- Woodfield Dead End Road

#### Local Streets

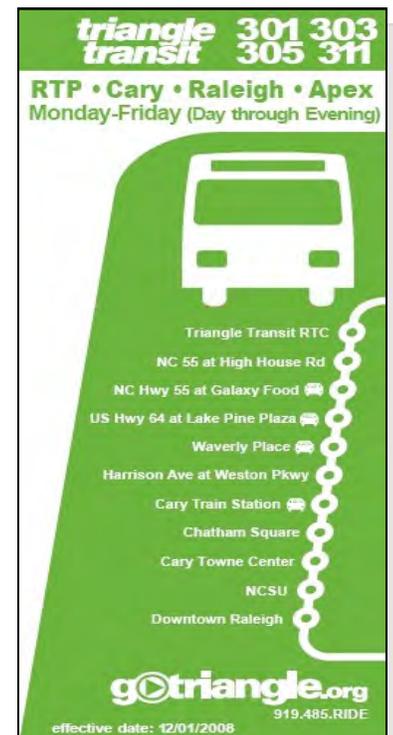
All streets not designated as highways, thoroughfares, or collectors, are considered local streets. These streets are designed to carry low volumes of traffic at low speeds and serve primarily residential uses. Examples of local streets include Saunders Street downtown and Abby Knoll Drive in the Haddon Hall neighborhood.

#### 2.5.4 The Town by Transit

At present, Apex is served by two transit providers: Triangle Transit and Wake Coordinated Transportation Service (WCTS), with Cary's transit service (C-Tran) located nearby as well.

#### --Triangle Transit

Triangle Transit is a regional transit service provider for Orange, Durham, and Wake counties. Two of Triangle Transit's bus routes operate in Apex. Route 311 stops at Galaxy Food on NC 55 and at Lake Pine Plaza and provides service to Research Triangle Park. Route 305 stops at Lake Pine Plaza and provides service to Cary, downtown Raleigh, and Research Triangle Park. Both routes operate approximately every 30 minutes during the morning and evening



Triangle Transit routes serve 2 locations in Apex: Galaxy Food and Lake Pine Plaza.

peak hours. Triangle Transit also has an organized vanpool service operating during regular work hours on weekdays, and provides a carpool matching service. For a map of the routes, visit [www.triangletransit.org](http://www.triangletransit.org).

--Wake Coordinated Transportation Service (WCTS)

Wake Coordinated Transportation Service (WCTS) operates the Transportation and Rural Access or TRACS program. TRACS is general public transportation providing service to the residents of the non-urbanized areas of Wake County with on-demand transit service. People wishing to use TRACS must schedule the service by calling the WCTS hotline at 919-212-7005.

--Cary Transit (C-Tran)

The Town of Cary operates its own bus service called Cary Transit (C-Tran). C-Tran operates both fixed-route and on-demand service to Cary residents. Currently, C-Tran does not provide bus service to Apex; however, C-Tran has proposed a fixed route to serve Beaver Creek Commons in Apex. For more information on C-Tran's service, visit [www.townofcary.org](http://www.townofcary.org).



## 2.6 Current Patterns and Conflicts

### 2.6.1 ADT

Average Daily Traffic (ADT) is an estimate of the total number of motor vehicles on a segment of a roadway during a 24-hour period. As roads are designed to carry a maximum number of vehicles and the vehicle level of service for a road is determined in large part by the number of vehicles traveling on it, ADT is a useful tool for measuring areas in the transportation network that are overloaded or operating close to capacity. Because it is an estimate and because it only refers to automobile traffic, ADT should not be the only factor considered when determining locations for needed improvements. Other considerations such as pedestrian, bicycle, and transit access should be considered along with ADT when determining where investments should be made to the transportation network.

**Figure 2.8** shows ADT values for major road segments within Apex.



ADT counts along NC 55 show high volumes of cars.

Source: [www.ncdot.org/traffictavel/](http://www.ncdot.org/traffictavel/)

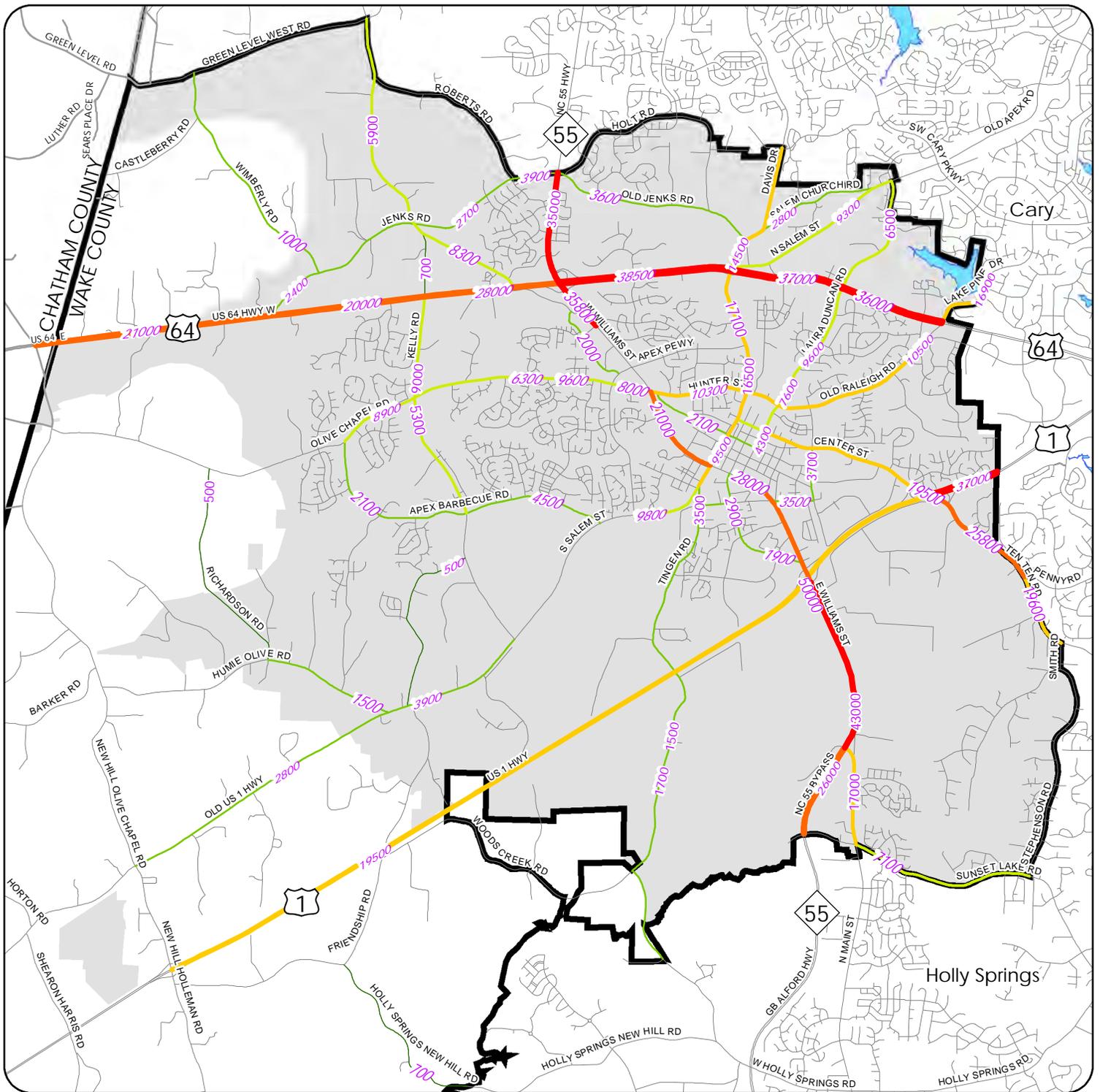
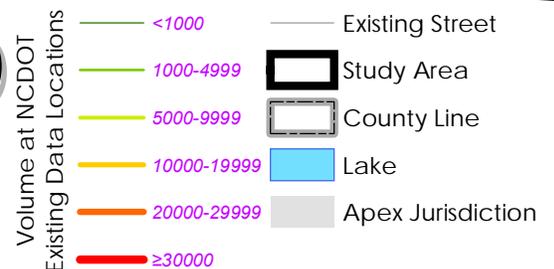
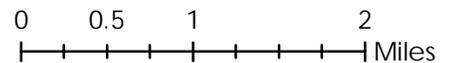


Figure 2.8

# 2010 Average Daily Traffic Volume (Estimated)



# Apex Transportation Plan

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### 2.6.2 Intersection Crash Data

**Table 2.1** below provides a synopsis of the high accident locations in Apex. The crash data were provided by NCDOT and cover the 7-year period from January 1, 2004, through December 31, 2010. As can be expected the highest number of crashes occur at the intersections with the highest traffic volumes in Apex.

<b>Table 2.1 -- Apex Intersection Crash Data, 2004-2010</b>	
<b>Intersection</b>	<b>Number of Crashes</b>
US 64/NC 55	162
US 1/NC 55	145
US 64/Laura Duncan Road	92
US 64/Lake Pine Drive	74
US 64/Shepherds Vineyard Drive	51
NC 55/Salem Street	50
US 64/Green Level Church Road	49
NC 55/Technology Drive	47
NC 55/Apex Peakway	98*
NC 55/Hughes Street	66**

\* Data do not differentiate between the 2 separate intersections of NC 55 and the Apex Peakway

\*\* Data do not differentiate between the 2 separate intersections of NC 55 and Hughes Street

### 2.6.3 Corridor Crash Data

Like intersection crash data, corridor crash data for Apex were provided by NCDOT and cover the 7-year period from January 1, 2004, through December 31, 2010. The corridors with the highest number of crashes are typically those with the highest volume of vehicles as seen in **Table 2.2**.

**Table 2.2 -- Apex Corridor Crash Data, 2004 - 2010**

<b>Corridor</b>	<b>Fatal Crashes</b>	<b>Injury Crashes</b>	<b>Property Damage Only Crashes</b>	<b>Total Crashes</b>
NC 55/Williams Street	4	553	1,328	1,885
US 64	3	144	328	475
SR 1011 (Salem St/Old US 1)	1	71	185	257
SR 1010 (Ten Ten Rd/Center St)	0	53	148	201
US 1	0	34	109	143
Laura Duncan Rd	0	31	97	128
SR 1160 (Olive Chapel Rd)	0	27	81	108
Lake Pine Dr	1	27	74	102
SR 1435 (Old Raleigh Rd)	0	30	47	77
SR 1161 (Beaver Creek Commons Dr/Zeno Rd)	0	10	74	84

<b>Level of Service</b>	<b>Average Control Delay per Vehicle (s/veh)</b>
A	≤ 10
B	> 10 — 20
C	> 20 — 35
D	> 35 — 55
E	> 55 — 80
F	> 80

#### 2.6.4 Intersection Level of Service

Level of Service (LOS) is a rating system that analyzes the operating conditions for motorists at intersections. LOS is rated on a scale from A to F, where LOS A represents good service with little or no delay and LOS F denotes a failing intersection. Apex intersections operating at LOS D or better are considered acceptable from a motorist's perspective. Because intersection traffic counts and analyses are generally conducted only when major development occurs in the immediate vicinity, the years of analysis of different intersections' LOS vary. The LOS ratings for several major intersections in Apex and their analysis years are provided in **Table 2.3**.

**Table 2.3 -- Apex Intersection Vehicle Level of Service**

<b>Intersection</b>	<b>AM Peak Hour Level of Service</b>	<b>PM Peak Hour Level of Service</b>	<b>Year of Analysis</b>
NC 55/Olive Chapel Rd	E	D	2004
NC 55/Salem St	C	E	2006
NC 55/Apex Peakway (North)	D	B	2006
NC 55/Apex Peakway (South)	B	B	2006
NC 55/Beaver Creek Crossing	n/a	D	2008
NC 55/Hughes St (South)	C	C	2006
Kelly Rd/Olive Chapel Rd	B	C	2009
Kelly Rd/US 64	C	D	2009
Center St/US 1	C	D	2005
Olive Chapel Rd/ Apex Peakway	C	D	2009

# Apex Transportation Plan

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