



5.0 Recommendations

The recommendations in the Apex Transportation Plan are based on an understanding of the existing culture and community in Apex and recognition of the issues facing the town in the future. Using the objectives identified during the plan visioning process, this plan establishes actions that can be undertaken to help achieve the objectives.

Following the general policy statements and the policy framework are priority lists for projects in the Apex Transportation Plan. The project lists identify specific pedestrian and bicycle projects to help realize the Plan vision. The lists should be updated annually as projects are completed and new priorities are identified. Improvements to specific roadways are shown in **Appendix D**.

The overall recommendations are shown on the 3 Apex Transportation Plan maps: the Pedestrian, Bicycle, and Equestrian Plan, the Thoroughfare and Collector Street Plan, and the Transit Plan. These maps act as the de facto Apex Transportation Plan as they represent the overall transportation needs for the town. They are the most flexible component of the Plan and should be revised as needed to keep the Plan current.

5.1 General Policy Statements

Increase transportation choices.

Cars will continue to be an important part of Apex's transportation system. While recognizing that some trips will be made by car, lessening the dependence on the car for all trips is our goal. The town is planning for a more balanced transportation system by giving people viable alternatives to driving, including transit, bicycling, and walking. Providing choices in travel mode is essential for creating a sustainable and efficient transportation system.



Combining modes of travel can increase the choices in transportation modes.

Source: www.triangletransit.org

Make transit a real choice.

Educate citizens about transit and its benefits as a reliable, safe, and convenient modal choice. Work with transit agencies (namely Triangle Transit and C-Tran) to continue existing routes and to create new service routes that connect to each other and to other modes such as bicycling and walking to increase usefulness to the whole transportation system.

Encourage walking and biking as an easy, healthy way to get around town.

Construct transportation improvements that make bicycling and walking safe, attractive, easy, and convenient forms of transportation and recreation for people of all ages and abilities.

Maintain our infrastructure.

Maintain our roadways, sidewalks, and off-road paths by keeping them operating safely, smoothly, and in good repair. Engage in access management strategies along major thoroughfares to increase mobility without adding additional vehicle lanes.

5.2 Recommended Map Guidelines

5.2.1 Bicycle, Pedestrian, and Equestrian Plan

Recommendations to the Bicycle, Pedestrian, and Equestrian Plan should consider priority nearby locations such as:

- Schools
- Parks
- Neighboring communities
- High density commercial districts
- High density residential developments
- Existing easements (such as sewer easements)
- Low income communities

5.2.2 Thoroughfare and Collector Street Plan

Recommendations for the Thoroughfare and Collector Street Plan should include the following considerations:

- Routes parallel to roadways with high ADT
- Routes that are constructible
- Routes aligned away from floodplains, stream buffers, and steep slopes
- Routes that provide access to major new developments
- Routes that provide direct connections to highways or major thoroughfares

5.2.3 Transit Plan

Because the Town of Apex currently has no public transit system apart from regional systems such as Wake County TRACS and Triangle Transit, changes to the Transit Plan should be based on recommendations from these regional partners. Other recommended routes should be designed to serve mixed use areas and high density developments throughout the town.

5.3 Policy Framework

Objective 1: *Create a system of interconnected streets to improve mobility and to distribute traffic efficiently and appropriately by purpose and function.*

Action 1.1: Adjust the Thoroughfare and Collector Street Plan map and the Bicycle, Pedestrian, and Equestrian Plan map as development occurs to determine additional future roadway or greenway connections.

Action: 1.2 Limit cul-de-sac streets in new development, and require stub streets for new development.

Action: 1.3 Consider a modified grid overlay for the Town to guide the design and location of future streets.

Objective 2: *Encourage streetscape and “built-in” traffic calming in roadway designs.*

Action 2.1: Identify new street typical sections to supplement existing designs that integrate traffic calming (such as chicanes and mini-circles) into roadway designs.

Action 2.2: Create a Street Design Manual with roadway cross-section alternatives and intersection treatments to create more flexibility in choosing the appropriate street to serve an area.

Objective 3: *Support mixed use development to encourage walking and bicycling by promoting context-sensitive roadway design.*

Action 3.1: Continue to review the 2025 Land Use Plan for the Town of Apex to ensure that it supports the best mix of land uses as development occurs.

Action 3.2: Identify projects that would be suitable for mixed-use development.

Objective 4: *Encourage 2-lane and 3-lane roads with street trees and plantings between roadway and development.*

Action 4.1: Encourage landscaping immediately outside of the right-of-way in new development along roadways and greenways to enhance the transportation environment.

Action 4.2: Work with Public Works department to create a street typical section that provides spaces for street trees while leaving adequate room for utilities.

Objective 5: *Promote a pedestrian-friendly environment by filling in gaps and improving interconnectivity in the sidewalk system.*

Action 5.1: Identify high-priority pedestrian projects that can help complete the sidewalk network.

Action 5.2: Coordinate with the Parks, Recreation, and Cultural Resources Department to create a greenway network that allows people to walk both for recreation and for transportation.

Objective 6: *Implement roadway system improvements to accommodate growth and minimize roadway congestion.*

Action 6.1: Identify network-based solutions instead of facility-based solutions to accommodate growth to improve the overall network instead of relying on one facility to meet demand.

Action 6.2: Identify intersection improvements for intersections that operate at LOS E or worse.

Action 6.3: Implement complete street solutions that increase mobility for all travel modes along the most congested corridors.

Objective 7: *Develop a plan compatible with land use.*

Action 7.1: Ensure that the Apex Transportation Plan remains current and compatible with the Unified Development Ordinance by updating the plan as transportation-related changes are made to the UDO.

Objective 8: *Support more bike lanes and trails to parks and community activity centers.*

Action 8.1: Prioritize projects that support nonmotorized access to activity centers.

Action 8.2: Coordinate with the Parks, Recreation, and Cultural Resources Department to identify future activity centers.

Objective 9: *Encourage a rail system spurring Triangle Transit's plans for passenger rail service.*

Action 9.1: Work with Triangle Transit to find ways to accommodate the future rail system and preserve rights-of-way.

Action 9.2: Support transit-oriented development that provides the density necessary to sustain a transit system.

Objective 10: Support the use of roundabouts as gateway and traffic calming devices in local street design standards.

Apex Transportation Plan
Action 10.1: Identify additional locations where roundabouts would be appropriate and add them to the Thoroughfare and Collector Street Plan map.

Action 10.2: Encourage roundabouts in new development so that people can gain experience using roundabouts.

Action 10.3: Create an intersection typical section for roundabouts.

Objective 11: Minimize property impacts to existing homes and businesses by promoting context-sensitive roadway design.

Action 11.1: Consider the overall transportation objective when siting new roads and paths.

Action 11.2: Work with property owners to determine the best way to minimize the impact of new facilities on existing properties and buildings.

5.4 Infrastructure Priorities

5.4.1 Pedestrian and Bicycle Improvements

Pedestrian and bicycle projects are important for expanding the transportation network for all travel modes, allowing users travel choice when moving between destinations. Because funding for transportation projects, especially projects that serve nonmotorized travel modes, is limited, prioritization of the most important projects is essential to ensure the projects that will have the greatest benefit are constructed first. The following factors should be considered when prioritizing projects:

- Proximity to pedestrian/bicycle generator
 - School
 - High Density Residential
 - Office
 - Park
- Connection to regional trails/routes
- Location along thoroughfare or collector street
- Prime connection within the transportation network
- Proximity to minority or low-income area
- Support for transportation as primary function as opposed to recreation

The priority pedestrian and bicycle projects are shown in **Table 5.1**.

Table 5.1 -- Priority Pedestrian and Bicycle Projects

Rank	Street	Project Category	Project Description	Length (feet)	Estimated Cost
1	Old Raleigh	Sidewalk	Fill gaps along Old Raleigh Road and provide a continuous route from the Town Campus to the Eva Perry Library	3,400	\$312,000
2	Center	Sidewalk	Fill sidewalk gaps on Center Street from Seagroves Farm Subdivision into downtown Apex	2,600	\$209,000
3	Thompson	Multi-use path	Thompson Street pedestrian connection to Town Hall	300	\$24,000
4	N. Salem	Sidewalk	Fill sidewalk gaps along N. Salem Street from Center Street to Thompson Street	330	\$27,000
5	Tingen	Sidewalk	Construct sidewalk along Tingen Road from Apex Elementary School to West Haven	420	\$34,000
6	Apex Barbecue	Sidewalk	Construct sidewalk along Apex Barbecue Road from Town Side Drive to Evans Road	7,250	\$580,000
7	James	Sidewalk	Connect sidewalk on eastern end of James Street to NC 55	730	\$59,000
8	Tingen	Sidewalk	Fill sidewalk gaps along Tingen Road from Peace Haven to James Street (separated from small section next	2,500	\$202,000
9	White Dogwood	Sidewalk	Fill in sidewalk gap along White Dogwood Road from east of Big Leaf Loop to Keppoch Court	180	\$15,000
10	Ten Ten	Sidewalk	Fill Ten Ten Road sidewalk gap between Avalon Peaks Apartments and South Chase subdivision	670	\$54,000
11	Kelly	Sidewalk	Fill in sidewalk gap along Kelly Road toward Abbing-ton subdivision	1,200	\$110,000
12	Watersglen	Sidewalk	Fill in sidewalk gap along Watersglen Drive from Fordcrest Drive to Waterford East	470	\$38,000
13	Hillcrest	Sidewalk	Construct sidewalk along Hillcrest Road from Hunter Street to Apex Peakway	1,890	\$183,000
14	NC 55	Sidewalk	Fill in sidewalk gap along E. Williams Street/NC 55 from Straywhite Avenue north (part on old railroad ROW) to E. Williams Street	2,400	\$193,000
15	Laura Duncan	Sidewalk	Complete Apex High School sidewalk connections on the east side of Laura Duncan Road (north and south of Knollwood Drive)	1,200	\$97,000

5.4.2 Roadway Improvements

In order to meet the future travel demands of Apex, significant changes to the current transportation network will be required. The comprehensive collection of roadway improvements planned for Apex are shown on the Thoroughfare and Collector Street Plan and Bicycle, Pedestrian, and Equestrian Plan maps (see **Appendices A, and B**). Recommendations for specific roadways can be found in **Appendix D**. Because funding is not available for all of these projects and many can be completed as development occurs, a priority list of improvements is necessary to allow the most crucial projects to be completed in a timely manner.

Priority factors for town-funded roadway improvements include:

- Unsafe locations (crash data)
- High congestion areas (ratio of volume to capacity)
- Proposed facilities through areas unlikely to be redeveloped

The current roadway and intersection project priorities are shown in **Table 5.2**.

Roadway Name	Improvement Type	Priority	Estimated Cost
Apex Peakway	New construction/widening	High	\$16,500,000
Lufkin Rd	Intersection realignment	High	\$1,100,000
Pate St (from Hunter St. to Cash St)	Widening	High/Medium	\$250,000
Tunstall St (from NC 55 to Ten Ten Rd)	Widening	High/Medium	\$400,000
Hughes St & NC 55	Intersection improvement	High/Medium	\$350,000
NC 55 (Olive Chapel Rd to Salem St)	Widening	High/Medium	\$1,000,000
Ten Ten Rd (from US 1 to Apex Pewy)	Widening	Medium	\$1,000,000
US 64 & Laura Duncan Rd	Superstreet ¹	Low	\$1,000,000
US 64 & Lake Pine Dr	Superstreet	Low	\$1,000,000
Tingen Rd (with Lynch St)	Intersection realignment	Low	\$250,000
Holland Rd (with Friendship Rd)	Intersection realignment	Low	\$250,000
Horton Rd (with Shearon Harris Rd)	Intersection realignment	Low	\$250,000
Hinsley Rd (with Bosco Rd)	Intersection realignment	Low	\$250,000
Old Holly Springs Apex Rd (with future Jessie Dr)	Intersection realignment	Low	\$250,000
Old Holly Springs Apex Rd (with Old Smithfield Rd)	Intersection realignment	Low	\$250,000

¹ - On a superstreet, select left turns are removed from intersections to improve traffic operations.

General road improvements that affect specific roadway types include:

- Thoroughfares
 - All proposed and improved thoroughfares will include sidewalks or multi-use paths on both sides of the road.
 - All proposed and improved thoroughfares will include wide outside lanes for bicycles.
- Collectors
 - All proposed and improved collectors will include sidewalks or multi-use paths on both sides of the road.
 - All proposed collector streets will include sidewalks on both sides and wide outside lanes for bicycles.
 - Major collectors prohibit direct access by residential driveways.
- Grade-separated facilities
 - All proposed and improved bridges and tunnels will include appropriate facilities for pedestrians and bicycles.
- Intersections
 - All proposed traffic signals will include pedestrian push buttons and pedestrian signal heads for intersection legs with crosswalks.
 - All improved traffic signals with adjacent sidewalks will include pedestrian push buttons and pedestrian signal heads along the routes served by the sidewalks.

5.4.3 Transit Improvements

As the Triangle area continues to grow, transit will begin to play an increasingly important role in ensuring regional mobility. New or improved roadways that provide only for automobile travel will not be able to create adequate mobility for the citizens of Apex and the surrounding communities. Likewise low development densities that do not support transit act as a barrier to increased mobility. Generally a minimum residential density of 4-5 dwelling units per acre are required for local bus service to be effective (see **Table 5.3**). For a map of existing residential densities see **Figure 5.1**.

Table 5.3 - Minimum Density for Transit Service

Type of Service	Frequency (buses/trains per hour)	Minimum Density (dwelling units per acre)
Minimal local bus	1	4-5
Intermediate local bus	2	7
Frequent local bus	6	15
Light rail	6	9-12
Commuter rail	1	1-2*

* Commuter rail is suitable for low residential densities as long as the destination has a concentration of non-residential development exceeding 100 million square feet.

Source: "A Toolbox for Alleviating Traffic Congestion"

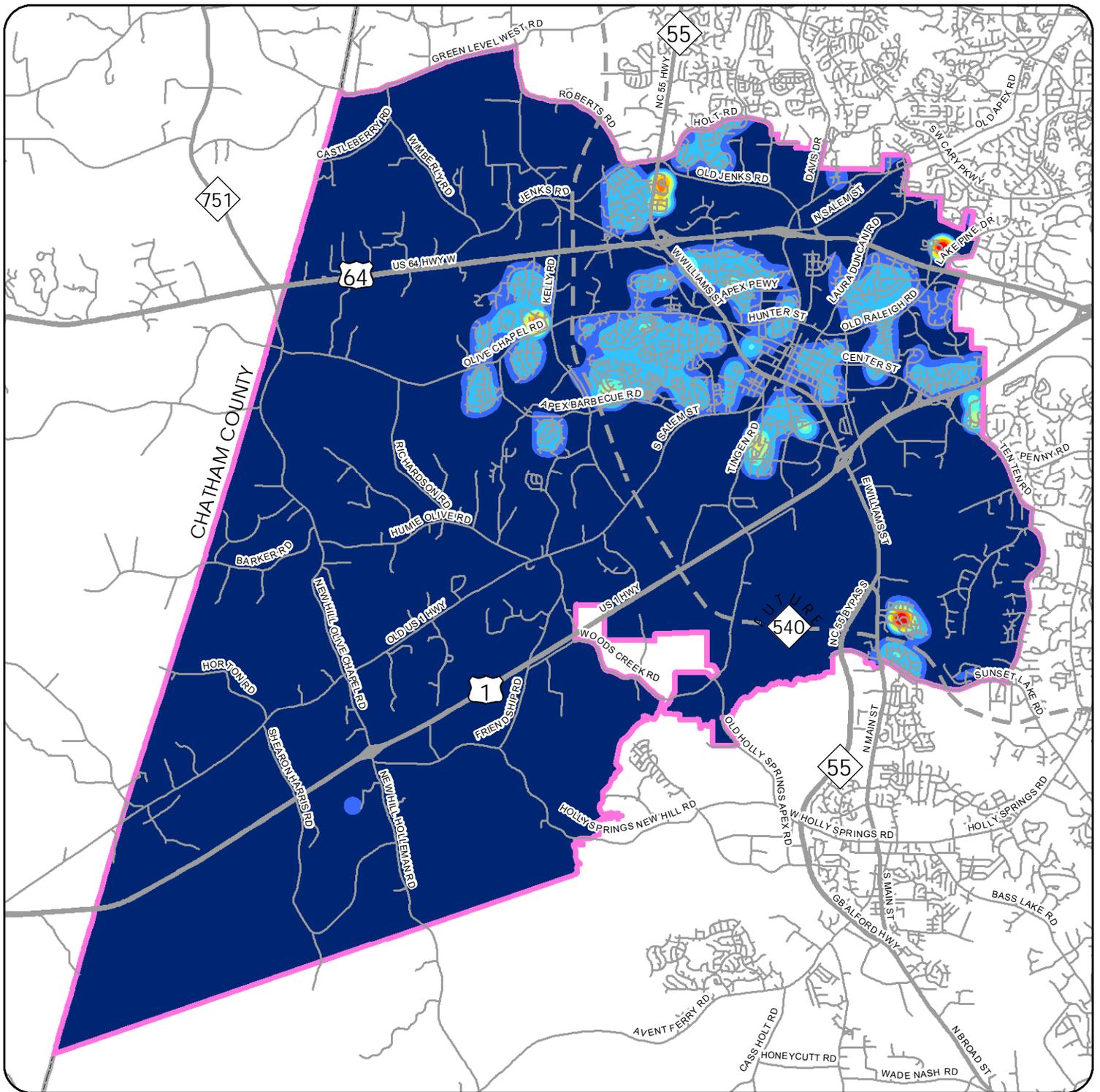
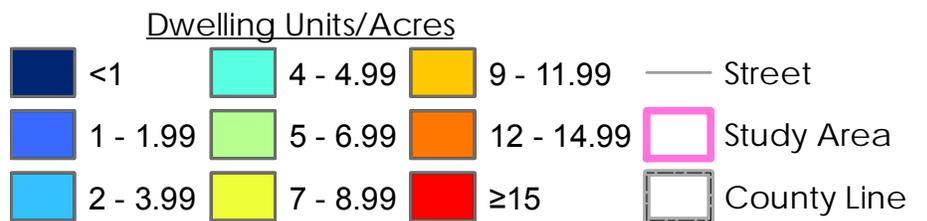
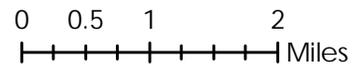


Figure 5.1
Existing Residential
Density



Apex Transportation Plan

This page intentionally left blank.

Local Transit

To date, support for local transit service is limited predominantly to those who are unable to drive. As support increases, the following steps should be conducted to determine the feasibility of providing this service:

- Conduct transit service workshops
 - Hold workshops in different areas of town
 - Target populations that are unable to drive
 - Identify key transit destinations
 - Prioritize routes and times
 - Determine an acceptable fee schedule for the service
- Formulate route alternatives
 - Use the information to determine the most efficient route to address the needs identified in the workshop
 - Identify appropriate times, headways, and fees for the service
- Conduct secondary transit workshop
 - Present the proposed route(s) and receive comments
- Determine price for service
 - Contact existing transit providers such as C-Tran and Capital Area Transit (CAT) to determine costs to provide service
- Identify funding sources
 - Coordinate with Capital Area MPO and Triangle Transit to find grants to supplement local funds
- Determine feasibility of providing service

After completing this process, the Town can decide whether to implement service. Each of the steps will help to ensure that if transit service is initiated in Apex, it is efficient and worthwhile to patrons who wish to use it.

Regional Transit

In order to plan for future transit options in the Triangle, area leaders formed the Special Transit Advisory Commission (STAC) to study options available to the region. From May 2007 through April 2008, this 38-member citizen group met to determine the future transit needs for the region and to make recommendations to the Triangle metropolitan planning organizations for future transit services.

In order to ensure that Apex can be integrated into any future transit plans, town officials should work with regional transit officials at Triangle Transit to determine ways that Apex can be included in any plans. Specific ways in which the town can prepare for future regional transit include:

- Preparing strategic corridors for transit service
 - Provide room for transit stops along the corridors
 - Restrict access to allow for increased transit efficiency
- Encouraging transit oriented development, especially within identified transit centers
- Locate appropriate areas for transit service within the future activity centers identified in the Comprehensive Plan and the 2025 Land Use Plan.

For strategic corridors and the locations of potential transit centers, see the Transit Plan in **Appendix C**.