



Chapter 6

Implementation

Overview

To fulfill the vision of the *Wake Forest Transportation Plan Update (Plan Update)*, a well-crafted implementation plan is essential. Some of the implementation steps identified in this chapter seek to provide conditions under which the plan vision can be achieved through public investments and the development of appropriate programs, policies, projects, and other actions.

Controlling Factors

The implementation of the *Plan Update* will depend on action being taken to:

- Revise existing Town regulations.
- Undertake more detailed studies to resolve and explore the cost, constraints, and opportunities identified by this plan.
- Influence incorporation of projects in the next update of the CAMPO Long Range Transportation Plan (LRTP).
- Work with the Board of Commissioners to balance the benefits of transportation improvements with the cost, both actual and perceived in terms of community impact. Work with the Board to pursue adequate funding to implement projects and programs.
- Work with the development community to implement spot improvements.
- Work with the North Carolina Department of Transportation on projects along corridors of regional, statewide, and interstate significance and to pursue adequate funding.



The implementation steps identified in this chapter will be executed in phases and will be subject to a variety of factors that will determine their timing. These factors include:

- The degree of control or influence the Town has, relative to its desire to implement changes. Specifically, as shown in the Corridor Profiles (**Appendix A**), a majority of streets are owned by the State of North Carolina.
- The availability of the personnel and financial resources necessary to implement specific proposals.
- Whether an implementation step is an independent project or program, an incidental part of a larger project, or a component of the rational evaluation of a new development project.



- The interdependence of various implementation items, in particular the degree to which implementing one item is dependent on the successful completion of another item.
- The relative severity of the problem that a particular implementation item is designed to remedy.

Schedule

Because of the factors listed above, it is not possible to put forward a precise timetable. **Table 6.1** lists the principal implementation tasks for the *Plan Update*, indicating both the timing and the agency expected to implement each task. The timing designation falls into one of three categories:

- Near-Term. These tasks should be considered when the Town prepares the next General Capital Project Appropriations for Fiscal Year 2010-'11 and subsequent appropriations in 2012 through 2015. Near-term tasks are considered in a five-year plan.
- Mid-Term. Begin implementation between 2015 and 2020.
- Long-Term. Begin implementation between 2020 and 2035.

Studies Required

Roadway

- Conduct traffic speed studies (Wait Avenue and Durham Road).

Bicycle

- Study the use of “sharrows” and complete a demonstration project funded by CAMPO STPDA funds. Study the use of painted (with color) bicycle lanes.
- Study ways to supplement existing bike route signage to offer time and distance information.
- Study and test methods to improve bicycle detection at traffic signals.

Transit

- Study the effect of a mix of transit options including expanded circulator bus service, increased frequencies of express bus service, introduction of commuter rail or light-rail, and through movement of high-speed rail without a stop in Wake Forest.
- Conduct short-term Transit Plan including evaluation of cost and ridership potential with a reverse circulator route to complement existing service.



Sharrows Examples
Portland, Oregon (top)
NC State University (bottom)



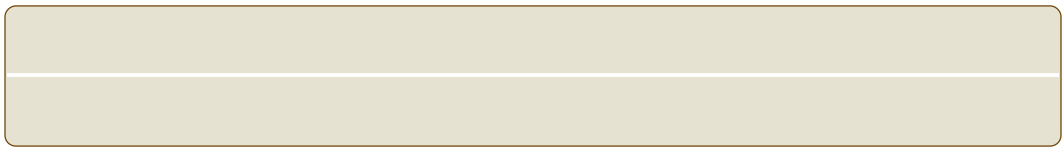
**Wake Forest Town Hall
Rendering**

Capital Expenditures

- Increase annual funding for the greenways, pedestrian and bicycle programs.
- Accelerate repaving and restriping of roads to create new bikeways.
- Provide funding to install bike parking at sites not subject to the Zoning and Subdivision ordinances.
- Install bike lockers at or near the new Wake Forest Town Hall.

Promotion, Assistance, and Operating Expenditures

- Increase the frequency of street sweeping to once a month for corridors with on-road bike facilities.
- Organize quarterly bike rides with Town staff to assess conditions.
- Add bicycle and pedestrian information to the Town's website.
- Integrate an interactive Bike & Hike Map on the Town's website to aid users with route selection.
- Expand the bicycle web page to include request forms for bike rack placement and bike route maintenance.
- Create a web-based "Ride Anytime" site to match groups of riders.
- Sponsor a bicycle mentor program.
- Launch free adult bicycle safety courses including web-based short courses.
- Run a public service message campaign on the Town's newsletter and in neighborhood newsletters
- Partner with the Chamber of Commerce and the Downtown Revitalization Corporation to develop a business outreach program to encourage bicycle commuting.
- Implement a local bike event in conjunction with the Triangle "Bike to Work Week" in the month of May.
- Install a kiosk and provide pamphlets at the Wake Forest Town Hall.
- Establish within the Police Department a bicycle education program.
- Make a fleet of bikes available at Town Hall for Town employees to use as a workplace demonstration.
- Continue active enforcing traffic safety laws for bicyclists and motorists.
- Consider a new Police program to distribute "coupons" to Wake Forest youth for demonstrating responsible bicycling in a "Catch 'em Biking Right" campaign.
- Create a design guide for pedestrian, greenway, bikeway, and bus stop improvements.



- Study the cost and feasibility and map the location of potential future inter-neighborhood paths that would allow non-motorized travel.
- Modify signal timing at US 1A/NC 98 Bypass and on Durham Road west of US 1.
- Prepare Action Plan and form staff inter-departmental team to regularly review crash statistics and develop appropriate response to trends.
- Study bus-rapid transit on the US 1 Corridor.
- Utilize trip generation rates appropriate to mixed-use developments (discounts relative to typical ITE rates).

Table of Recommendations

Table 6.1 organizes the recommendations developed in this plan by the goals and objectives set forth in **Chapter 5**. Not all goals and objectives are listed in the table, but most of them are covered because many recommendations apply to more than one category. For the sake of concise presentation, each recommendation has been assigned to its most closely related goal. Following is a list of the order of goals:

- Goal A:** Create a safe and efficient multimodal transportation system.
- Goal B:** Coordinate transportation and land use planning to ensure that growth pays its own way.
- Goal C:** Plan, design, and construct transportation facilities that contribute to Wake Forest’s small town character and attractive appearance.
- Goal D:** Provide safe and convenient facilities and services for people who choose not to use an automobile.
- Goal E:** Ensure serviceable operation of existing facilities and services.
- Goal F:** Proactively plan, in conjunction with other agencies, for well-planned transportation linkages to other parts of the Triangle region.
- Goal G:** Identify sufficient, timely, and equitable financing mechanisms for well-timed transportation services and improvements.

Table 6.1 Abbreviations:

- Agency: WF (Town of Wake Forest)
- NCDOT (North Carolina Department of Transportation)
- CAMPO (Capital Area Metropolitan Planning Organization)
- TT (Triangle Transit)
- USDOT (United States Department of Transportation)
- CoC (Chamber of Commerce)

Table 6.1 – Comprehensive List of Recommendations

No.	Recommendation	Agency	Timing	Comments
GOAL A: Create a safe and efficient multimodal transportation system.				
Pedestrian Element Recommendations				
P.1	Update town ordinances to clarify design guidance for sidewalk, greenways, and multi-use paths.	WF	Near-term (2010-2015)	Strengthen existing regulations to promote conditions for safe and efficient walking, cycling, and transit patronage.
P.2	Pursue connectivity for pedestrians and cyclists with pathways in places where street connections are not feasible or acceptable.	WF Developers	Ongoing	Pursue block lengths that are 600 to 800 feet (up to 2,600 feet if crossing a stream or creek).
P.3	Review land development and redevelopment applications to identify opportunities to connect bikeways, greenways, and sidewalks with adjacent neighborhoods, parks, schools, offices, shops, and public spaces.	WF	Ongoing	Adhere to the town ordinances, applicable design guidelines, and adopted transportation plan system maps.
P.4	Build pedestrian facilities according to the priorities established by the Town Board of Commissioners and in conjunction with street projects built by others.	WF Developers NCDOT	Ongoing	Routinely update the priority list with research and findings of feasibility studies and land development applications.
Bicycle Element Recommendations				
B.1	Request an increase in annual funding for on-road bikeways such as wide striped shoulders and striped bike lanes.	WF	Near-term (2010-2015)	Use Powell Bill funds supplemented with Town bond or general funds for re-striping projects.
B.2	Seek approval from NCDOT and Town Board of Commissioners to conduct demonstration projects using “sharrows”.	NCDOT WF	Near-term (2010-2015)	Suggested demonstration roads include sections of street with on-street parking.
B.3	Accelerate repaving and restriping of roads on the Bicycle Plan to accelerate the creation of new on-road bikeways.	NCDOT WF	Near-term (2010-2015)	For roads without bikeways, repaving and restriping it with bikeways (e.g., wide striped shoulders or bike lanes) is a cost-effective way to extend bikeways.
B.4	Supplement existing bike route signs with time and distance signs along on- and off-road bikeways and greenways.	WF	Near-term (2010-2015)	Destination-oriented signs enhance the ride and users’ knowledge of Wake Forest.
B.5	Provide bicycle facilities according to the priorities established by the Town Board of Commissioners and in conjunction with street projects by others.	WF Developers NCDOT	Ongoing	Routinely update the priority list with Powell Bill projects, research and findings of feasibility studies and land development applications.



Street Element Recommendations				
S.1	Balance the Town's mobility needs with other priorities such as the function of the street, corridor relationship to land use, urban design, and the promotion of alternate modes.	WF NCDOT	Ongoing	Communicate to citizens the desire to maintain small town character that favors interconnected two-lane streets over a network of high-speed, multi-lane major streets.
S.2	Support connectivity throughout the street network to create an efficient multimodal network of slow streets.	WF NCDOT	Ongoing	Connect streets to create a hybridized grid network with connections spaced no farther than 800 feet (up to 2,600 feet if stream or creek crossings are required).
S.3	Adopt a complete streets policy and use it to ensure all future transportation projects incorporate safe and efficient facilities and services for users of all ages and abilities.	WF NCDOT	Ongoing	Some projects already in the design and construction pipeline may not be complete streets due to the cost and schedule implications of changes.
S.4	Analyze the signal timing to ensure adequate time for protected left turns from all approaches at South Main Street and NC 98 Bypass.	NCDOT	Near-term (2010-2015)	This intersection is one of the Top 5 crash locations for frequency and severity (see Chapter 4).
S.5	Selectively re-program the direction of signals on Durham Road west of US 1. Furthermore, a reduction in traffic volumes on Durham Road following completion of the NC 98 Bypass may reduce the crash frequency at this location.	NCDOT	Near-term (2010-2015)	This intersection is one of the Top 5 crash locations for frequency and severity (see Chapter 4).
S.6	Monitor conditions to assess change in crash frequency/severity at South Main Street and Capital Boulevard (US 1) that may result from the recent modifications to the signals and westbound approach to Capital Boulevard. Also monitor the relatively high vehicle speed of southbound traffic approaching this intersection.	NCDOT	Near-term (2010-2015)	This intersection is the highest ranked intersection in terms of crash frequency and severity (see Chapter 4).
Transit Element Recommendations				
T.1	Create new route traveling the same streets as the existing Circulator route but in the opposite direction.	WF	Near-term (2010-2015)	This route will reduce delays for patrons on return trips by preventing them from traveling the complete length of the circulator.
T.2	Provide route maps with departure/arrival times.	WF TT	Near-term (2010-2015)	Providing accurate information increase ridership.
T.3	Install bus shelters and improve passenger safety at stops.	WF	Ongoing	Prioritize bus stop enhancements based on ridership studies and customer surveys.

GOAL B: Coordinate transportation and land use planning to ensure that growth pays its own way.

Street Element Recommendations

S.7	Revise the collector street portion of the thoroughfare plan with alignment and classification changes outlined in Chapter 5 to provide guidance to development community on proposed street network.	WF	Near-term (2010-2015)	Alignments can be shifted based on more detailed land suitability studies if the intent of the interconnections between streets is met.
S.8	Continue to require developers to fund roadway improvements that are rational and proportional to the impact created by development.	WF NCDOT	Ongoing	State laws regulate limits on shifting too much of the cost of new roadways to developers, but the Town should continue to shift as much as practical so that growth pays its own way.
S.9	Utilize the Corridor Profiles (Appendix A), which provide key information on traffic volumes and roadway characteristics. Where feasible, the illustrative cross sections include bicycle and pedestrian amenities.	WF NCDOT Developers	Ongoing	Appendix A and the street alignment map are key tools in the land development process in Wake Forest.
S.10	Install additional posted speed limit for westbound Wait Avenue just west of Jones Dairy Road.	NCDOT	Near-term (2010-2015)	Citizen request at September 2009 public meeting.
S.11	Consider revising the posted speed limit on Durham Road between US 1 and Wingate to 40 mph.	NCDOT	Near-term (2010-2015)	Citizen request at September 2009 public meeting.

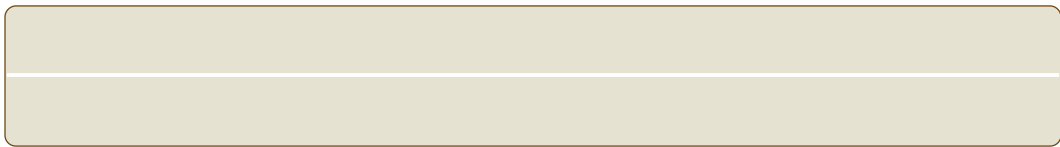
GOAL C: Plan, design, and construct transportation facilities that contribute to Wake Forest's small town character and attractive appearance.

Street Element Recommendations

S.12	Plan, design, build and maintain landscaped medians along designated thoroughfares (Appendix A) that will manage access, improve safety and add to visual attractiveness of the area.	WF NCDOT	Ongoing	The location of median openings typically is controversial. Proactive (early and continuous) engagement with adjacent property owners is helpful.
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Transit Element Recommendations

T.4	Work with CAMPO, the Triangle Transit and NCDOT Rail Division to plan high-quality, high-frequency passenger rail or bus-rapid transit in Wake Forest.	CAMPO TT NCDOT Rail WF	Long-term (2020 to 2035)	CAMPO, Capital Area Transit, and Wake County will launch a CAMPO-wide transit planning effort in 2010. The Town should engage in a vocal and effective way to promote expanded transit connections for citizens.
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GOAL D: Provide safe and convenient facilities and services for people who choose not to use an automobile.

Pedestrian Element Recommendations

P.5	Build sidewalks and crosswalks to connect near neighborhoods with downtown Wake Forest.	WF	Near-term (2010-2015) Mid-term (2015-2020)	Nearby neighborhoods that are connected by sidewalks and crosswalks will be an effective economic development tool to support downtown Wake Forest.
P.6	Use federal and state grants to implement infrastructure-related and non-infrastructure projects and programs associated with walking and bicycling to all 8 public schools in Wake Forest. <ul style="list-style-type: none"> ▪ Conduct in-school training for fourth-grade students about bike and pedestrian safety ▪ Train the Trainers with adult training in bike and pedestrian safety ▪ Create a User’s Manual to train adults how to teach bike and pedestrian safety to fourth-grade students. ▪ Produce and distribute a bicycle/pedestrian poster of Wake Forest to show destinations, routes and safety information. ▪ Conduct a “Walking School Bus” and “Bicycle Train” with fourth-grade students. ▪ Conduct a bike rodeo with fourth-grade students. 	USDOT NCDOT WF	Near-term (2010-2015) Mid-term (2015-2020)	The Town recently announced receipt of a federal grant to conduct training and awareness of Safe Routes to Schools with a focus on fourth-grade students. Research shows fourth-grade aged students are at a prime age to apply school-based lessons in bicycle and pedestrian safety in their own travels. These lessons are widely supported by parents and the general public.
P.7	Update Subdivision Ordinance to allow reduction in trip generation for trips diverted to alternate modes of transportation, provide incentives, reduce parking requirements, strengthen connectivity, establish sidewalk maintenance policy, and implement traffic calming program	WF	Mid-term (2015-2020)	As more pedestrian and bicycle facilities and transit service are available to areas of Wake Forest that will be developed, the town should allow developers to adjust their estimates of site-based vehicle traffic based on an allowance for some to choose other modes.
P.8	Continue to fund sidewalk construction using Town funds.	WF	Ongoing	The Town budgeted \$70,000 for sidewalk construction in fiscal year 2009-2010.
P.9	Build greenways consistent with priorities established by the Town Board of Commissioners.	WF	Ongoing	Routinely update the priority list with research and findings of feasibility studies, land availability and development applications.

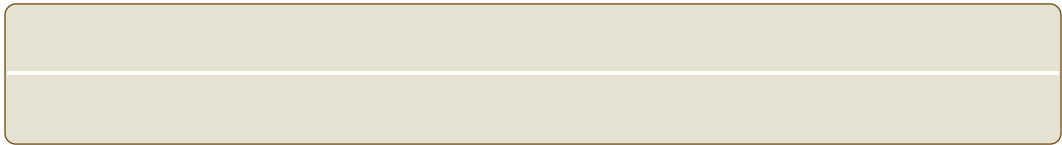
Bicycle Element Recommendations

B.6	Conduct public awareness campaign to educate citizens of the danger in riding bicycles on sidewalks.	WF CAMPO	Near-term (2010-2015)	Too many motorists do not anticipate and therefore do not see cyclists (young and adult) until it is too late.
B.7	Consider a new Police program to distribute “coupons” to Wake Forest youth for demonstrating responsible bicycling in a “Catch ‘em biking right” campaign	WF	Near-term (2010-2015)	Police enjoy connecting with people in positive teaching situations. Young cyclists riding correctly with the proper equipment enjoy the interaction too, especially when it comes with a coupon for ice cream.
B.8	Complete the collector street network through and to 36 activity centers in Wake Forest to provide slower-speed, lower-volume streets suitable for many cyclists. See Figure 4.1.	WF Developers	Near- term Mid- term Long-term (2010-2035)	Figure 4-1 shows 36 activity centers in Wake Forest. Collector street connections to and through each activity center serves all modes, increases commercial sales and adds value to neighborhoods.

GOAL E: Ensure serviceable operation of existing facilities and services.

Bicycle Element Recommendations

B.9	Organize quarterly bike rides with Town staff to assess bike route conditions.	WF	Near-term (2010-2015)	Inaugural ride may be with a select group to test the practicality, but consider public rides.
B.10	Designate space to permit interested organizations to create valet bike parking at Town.	WF	Near-term (2010-2015)	Close-in parking that results in shorter walks than for motorists would be motivation to leave cars at home. Bike parking should be sheltered and secure. An attendant would be a customer-oriented touch.
B.11	Encourage formation of web-based “Ride Anytime” site to match groups of riders.	WF	Near-term (2010-2015)	Town support may consist of safe riding tips, cyclist-friendly businesses, and maps.
B.12	Sponsor a bicycle mentor program.	WF	Near-term (2010-2015)	People starting to bicycle again like advice from friends who cycle regularly. The Town can facilitate volunteer-driven online efforts to offer League of American Bicyclists-trained mentors.



B.13	Launch free adult bicycle safety courses including web-based and television-based short courses.	WF	Mid-term (2015-2020)	Begin with adult training that teaches how to teach our youth, then transition to adults training other adults.
B.14	Run a public service message campaign in the Town's newsletter and in neighborhood newsletters.	WF	Mid-term (2015-2020)	Safety tips are widely available through NCDOT and UNC Highway Safety Research Center websites.
B.15	Develop a corporate outreach program to encourage bicycle commuting.	CoC WF	Mid-term (2015-2020)	Such outreach could double as a corporate retention and recruiting strategy.
B.16	Implement a local bike event in conjunction with the Triangle "Bike to Work Week" in the month of May.	WF	Near-term (2010-2015)	Promote bicycling by holding events for citizens. Engage police assistance to manage conflicts at key intersections.
B.17	Install a kiosk and provide pamphlets at Wake Forest Town Hall.	WF	Near-term (2010-2015)	Promote the pedestrian- and bicycle-friendliness of Wake Forest.

Street Element Recommendations

S.13	Protect the integrity of the existing system and balance the transportation network with strategic investments in pedestrian, bicycle, and transit projects.	WF CAMPO NCDOT	Ongoing	Roadway widening projects are expensive, disruptive, and intrusive to adjacent property owners. Extend the useful life of existing roads by doing everything practically reasonable to shift short trips out of cars and into other modes.
S.14	Introduce new project selection factors at CAMPO to reinforce the importance of maintaining existing systems.	WF CAMPO	Near-term (2010-2015)	Existing project prioritization procedures do not give enough bonus points to level the playing field when sidewalk, transit and bicycle projects are compared with major highway and roadway projects. Too much emphasis currently is placed on travel time savings. These savings are fleeting.
S.15	Monitor intersection operations to determine LOS deficiencies; implement engineering, policy, transit, and multimodal improvements to extend the life of intersection for acceptable operations.	WF	Near-term Mid-term (2010-2020)	Routine monitoring should measure delays to all modes at major intersections and report trends to the Board of Commissioners.

Transit Element Recommendations

T.5	Develop a corporate outreach program to encourage transit use.	CAMPO WF	Mid-term (2015-2020)	Such outreach could double as a corporate retention and recruiting strategy.
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GOAL F: Proactively plan, in conjunction with other agencies, for well-planned transportation linkages to other parts of the Triangle region.

Street Element Recommendations

S.16	Work cooperatively with CAMPO during the next update of their transportation plan to incorporate the recommendations of the Wake Forest Plan.	WF	Near-term (2010-2015)	An iterative process is underway with this Plan updating the prior Wake Forest Transportation Plan based on the latest CAMPO Plan.
S.17	Review development applications for sites along Capital Boulevard and parallel frontage roads and require roadway modifications consistent with the long-range plan to convert to a freeway with continuous two-way frontage roads on both sides.	WF	Ongoing	The planned incremental conversion of US 1 to a freeway requires conformity with the Plan over time. Land access decisions consistent with the US 1 Corridor Plan are important.

Transit Element Recommendations

T.6	Pursue CAMPO funding opportunities for transit improvements.	CAMPO WF	Near- term Mid- term Long-term (2010-2035)	Coordinate with CAMPO.
T.7	Host transit events targeted to a range of cultural groups.	WF	Mid-term (2015-2020)	As transit service in Wake Forest matures, customer-based outreach will be important.

GOAL G: Identify sufficient, timely, and equitable financing mechanisms for well-timed transportation services and improvements.

Street & Transit Element Recommendations

S.18	Continue to seek state and federal transportation funds through cooperative planning with CAMPO and NCDOT.	WF	Ongoing	Staff and elected leader participation is important.
S.19	Form a staff Safety Committee and hold periodic meetings to share information among the Police, Engineering, Parks & Recreation, and Planning departments to review crash data and create an Action Plan.	WF	Near-term (2010-2015)	The meetings should include a report from engineering staff who have personally visited crash sites following injury crashes.
S.20	Develop an Action Plan to address streets and intersections that exceed statewide crash rate averages. Review the Action Plan in committee.	WF	Near-term (2010-2015)	Coordinate with NCDOT.
S.21	Implement intersection safety improvements at top crash locations.	NCDOT WF	Near-term (2010-2015)	Coordinate with NCDOT.

