

# Bicycle Policies

“This BikeRaleigh Plan Update exists on a foundation of citywide planning policy, while its policy framework enhances the details and intent of past city plans.”

Planning policies, regulations, and design standards play a critical role in fostering more bike-friendly communities by creating the conditions that support **safe** bicycling. Such policies can establish a new social norm where bicycling is seen as practical and appealing for people of **all ages and abilities** by providing for the infrastructure and amenities to support **healthy** choices and **active** transportation.

In Raleigh, planning and development regulations provide guidelines and requirements for most of what is developed, and as such are fundamental to the bike-friendly atmosphere of new development. Since most new development in Raleigh is provided through private investment or investment by non-City agencies, bike-friendly development policies and ordinances are one of the most cost-effective means that the City has to establish walkable and bikeable infrastructure for its neighborhoods and districts.

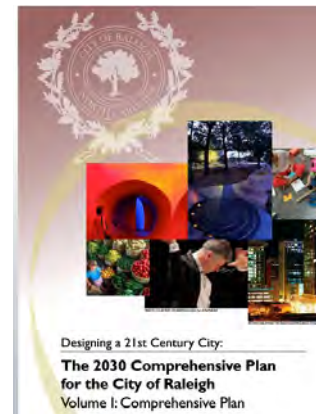
The City’s primary policy document is the Raleigh 2030 Comprehensive Plan. This document, in conjunction with a recently adopted Complete Streets Policy, provides the policy context for the Raleigh Bike Plan Update. In this chapter, the Plan provides both an assessment of current policies and an overview of new policies that can encourage more cycling and cyclists in the City.

## RALEIGH 2030 COMPREHENSIVE PLAN

The 2030 Comprehensive Plan is a long-range policy document adopted and amended by the City Council. The Plan establishes a vision for the City, provides policy guidance for growth and development and contains action items directed at the City to implement the vision. The Plan contains six strategic vision themes, which are referenced in every element, or chapter, of the document. The Plan is divided into four major sections: the Introduction and Framework, the Plan Elements, the Area Plans, and Implementation.

The Transportation element focuses on the importance of developing a balanced, efficient, multimodal transportation network that minimizes impacts to the environment and reinforces the livability of neighborhoods. The following policy and action items directly relate to bicycle transportation:

- *Policy T1.3: Multi-modal Transportation Design*
- *Policy T1.4: Increasing Mobility Choice*
- *Action T1.3: Context Sensitive Solutions*
- *Policy T2.1: Integration of Travel Modes*
- *Policy T2.3: Eliminating Gaps*
- *Policy T2.5: Multi-modal Grids*
- *Policy T2.11: Lane Additions*
- *Policy T2.13: Increasing Vehicle Occupancy*
- *Policy T2.14: Employer-Based Trip Reduction*
- *Policy T2.16: Assessing Changes in Road Design*
- *Policy T2.17: Bridge Improvements*
- *Action T2.1: Transportation Demand Management*
- *Action T2.5: Inter-modal Facility Prioritization*
- *Action T2.6: Reducing Single Occupant Driving*
- *Action T2.7: Special Transportation Studies*
- *Action T2.8: Transportation Funding Strategy*
- *Policy T3.1: Complete Street Implementation*
- *Policy T3.2: Accommodating Multiple Users*
- *Policy T3.3: Redefining LOS*
- *Action T3.4: Transportation Data Collection*
- *Action T3.5: Operationalizing Complete Streets*
- *Policy T5.1: Enhancing Bike/Ped Circulation*
- *Policy T5.2: Incorporating Bike/Ped Improvements*
- *Policy T5.3: Bicycle & Pedestrian Mobility*
- *Policy T5.4: Pedestrian and Bicycle Network Connectivity*
- *Policy T5.6: Bridges, Underpasses, and Interchanges*
- *Policy T5.7: Capital Area Greenway*
- *Policy T5.8: Workplace Bicycle Facilities*
- *Policy T5.11: New Bike Routes*
- *Policy T5.12: Safe Routes to School*
- *Policy T5.14: Rails to Trails*
- *Action T5.5: Trail and Path Width*
- *Action T5.6: Bicycle Plan Implementation*
- *Policy T7.1 Safety Improvements*
- *Policy T7.2: Traffic Calming*
- *Policy T7.3: Transportation Safety Data*
- *Policy T7.4: Road Capacity and Safety*
- *Action T7.2: Crash Analysis*
- *Policy LU2.5 Healthy Communities*
- *Policy RC1.7 Regional Bicycle Planning*



The 2030 Comprehensive Plan was adopted in 2009 and is currently being updated.

## COMPLETE STREETS

In 2015, the City Council adopted the “City of Raleigh Complete Streets Policy,” which establishes the vision and framework for Raleigh to “provide mobility for all types of transportation modes (pedestrian, bicycle, auto, transit, freight).” The Complete Streets Policy provides a foundation of support for the inclusion of more bike-friendly facilities in Raleigh. City Council also adopted a Strategic Plan in 2015 to guide the work of the City as it grows and responds to the evolving needs of residents. The Transportation and Transit strategic focus supports Complete Streets efforts with the vision to “Develop an equitable, citywide transportation network for pedestrians, cyclists, automobiles, and transit that is linked to regional municipalities, rail, and air hubs.”

This policy includes language that ensures users of all ages and abilities will be accommodated, and that the Complete Street design standards will be context-sensitive, up-to-date, and contribute toward a connected network for all modes. The policy applies to both new and retrofit projects and calls for the City to coordinate with local, regional, and federal transportation agencies.

As the City works to develop its standard operating procedures to implement the Complete Streets Policy, consideration should be given for the development of performance measures to complement traditional vehicular Level of Service (LOS) measures. Cities like San Francisco, CA, and Charlotte, NC, have already begun to develop their own. These performance measures would include those described in Chapter 8 such as safety (crash rate) and mobility/connectivity (percentage of roadways with bike facilities and intersections with bicycle treatments). Additional performance measures may include environmental stewardship for the ability to create Complete “Green” Streets.

Also, the inclusion of specific implementation steps could help spur Raleigh’s Complete Streets into action. Examples of such implementation steps were provided in the development of the policy and include:



*Hillsborough Street is an excellent example of a successful “Complete Street” project that is continually being monitored for evaluation purposes.*

- » Restructuring of procedures to accommodate all users on every project;
- » Development of new design policies and guides (see next section on street design standards); and
- » Provision of workshops and educational opportunities for transportation professionals and community leaders.

## STREET DESIGN STANDARDS

On-road bicycle facility design standards are prescribed in the *Street Design Manual*, an adjunct document to Raleigh's *Unified Development Ordinance* (UDO). It provides for bicycle facilities on many street types and contexts.

In order to better accommodate users of "all ages and abilities," there are a number of policy updates that should be adopted to make bicycling a more practical mode choice, especially for potential cyclists who are "Interested but Concerned" (as described in Chapter 1). Policy updates to the Street Design Manual are described below and bike facility type options are matched to street type in the Design Guidelines appendix of this Plan.

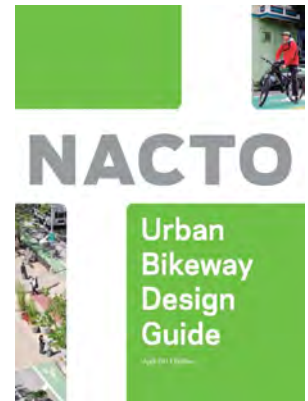
For instance, in Section 4.2. on "**Local Streets,**" the design standards for neighborhood streets should be amended to include pavement markings, wayfinding signage, and traffic calming measures when the road is designated as part of the neighborhood bikeway system.

Further, under Section 4.3., regarding "**Mixed Use Streets,**" the design standards should specify additional bicycle facility treatments as options where appropriate. Specifically, Sections 4.3.1 and 4.3.2 call for bike lanes in the design standard, but separated bikeways should also be considered in certain situations. In Section 4.3.3, there is no specific bike treatment called for on the "**Main Street**" typology, but shared-use markings are appropriate for this setting and should be added to the design standards to designate as a main street bikeway.

In Section 4.4. on "**Major Streets,**" bike lanes are called for along 4- and 6-lane avenues (Sections 4.4.1. and 4.4.2.). Separated bikeways should be added as an option for the bike facilities along both of these street types, and would be the preferred option, over bike lanes, for Section 4.4.2. Sidepaths should also be added as a preferred option to consider for Section 4.4.2.

Section 6.24.2. describes the **design standards and criteria for on-road bicycle facilities**, specifically bicycle lane and shared lane markings (sharrows). Design standards should be added for separated bikeways (also known as cycle tracks), sidepaths, and neighborhood bikeway/bike boulevard facilities. Examples of design standards for these facility types can be found in the Bicycle Facility Design Guidelines appendix.

Finally, the design standards could be updated to include **bicycle accommodations at intersections**. The Bicycle Facility Design Guidelines appendix of this plan provides model design standards that should be considered for inclusion in Raleigh's *Street Design Manual*.



Raleigh should endorse NACTO and incorporating design elements from the *Urban Bikeway Design Guide* (above) and the *Urban Street Design Guide* (below) into the *Street Design Standards*.



## BICYCLE PARKING

Bicycle parking is an important element of a bicycle friendly community and must be provided in adequate supply in order to make bicycling a safe, accessible, and convenient choice. Raleigh's Unified Development Ordinance (UDO) and the Street Design Manual provide policies regarding minimum bicycle parking requirements and accompanying design standards. Section 7.1.2. of the UDO specifies the minimum number of short- and long-term bicycle parking spaces required for all new construction and redevelopment. A sample of the minimums from the UDO, shown below, is consistent with practices used in many other US cities (text in red highlights recommended additions):

- » **Office:** 1 short-term and 1 long-term space per 10,000 square feet of gross floor area, minimum 4 spaces;
- » **Retail:** 1 short-term space per 5,000 square feet of gross floor area, minimum 4 spaces
- » **Multi-Unit Residential:** 1 short-term space per 20 units, minimum 4; **Minimum of 1 long-term space for first 20 units, 1 space per unit for additional units**
- » **Industrial:** 1 long-term space per 40,000 square feet of gross floor area, minimum 4

Section 6.24.1. of the *Street Design Manual* describes the details of design standards for standard U-racks and on-street bicycle corrals, which are two common short-term bicycle parking facilities. Design standards for long-term bike parking facilities are not provided in the *Street Design Manual*. Recommendations for long-term options, such as bike lockers and secure bicycle parking areas, can be found in the Bicycle Facility Design Guidelines appendix and should be incorporated into the *Street Design Manual*.

The following recommended strategies strengthen Raleigh's bicycle parking policies:

### BIKE PARKING RECOMMENDATIONS

Allow secure bicycle parking to substitute for a portion of required automobile parking.

Specify bicycle parking requirements for transit stations, transit hubs, and heavily-used bus stops, transit stops without parking lots, park-and-ride lots, and temporary (event) parking.

Develop illustrated design guidelines for long-term parking facilities and wayfinding signage.

Prioritize the installation of bicycle racks and on-street corrals in high-demand locations. Develop incentives for private development to add bike parking where demand is high.

Create an inventory of existing public bike parking in an interactive online map format through [bikeraleigh.org](http://bikeraleigh.org)

Support temporary events with portable racks.

Add long-term parking requirements for multi-family residential.

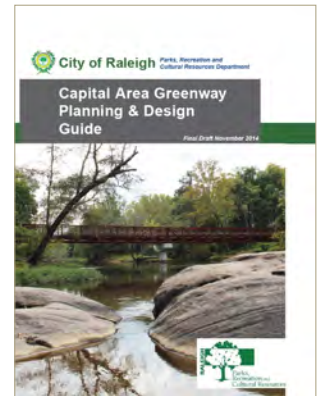
## GREENWAYS

Raleigh’s trails network is referred to as the Capital Area Greenway (CAG) System, and the policies that support its growth and development are found in the Capital Area Greenway Planning & Design Guide, recently adopted in January of 2015. This document serves as a guide for the planning, design, and engineering of greenway trail facilities.

The Guide includes a greenway classification system that outlines the various types of greenway trails:

- » Cross-City Greenway Trail: The highest level of greenway trail development to support non-motorized transportation and recreation uses.
- » Greenway Collector Trail: Connects to larger residential, employment, and retail centers with a higher number of access points while maintaining mobility.
- » Neighborhood Greenway Trail: Extends from the Greenway Connector into the neighborhoods.
- » Greenway Connector: Links trails across topographic ridges and connecting trails between greenway corridors.

In addition to the definitions of the various types of trails in the CAG System, it designates user types, potential conflicts, and guidance on design features and key amenities for each trail type. The guidance it provides on wayfinding and etiquette signage is also vital to the proper planning of Raleigh’s greenway system as these types of signage help ensure safe and proper usage of greenway facilities. The following are some valuable additions that could be considered to improve upon the policies in the CAG Planning & Design Guide, especially as it relates to bike commuters:



*The 2015 Capital Area Greenways Planning & Design Guide provides valuable guidance on greenway trail design.*

### GREENWAY RECOMMENDATIONS

**Prioritize future greenway trail construction using demographics with a methodology using need and equity factors with a focus on areas with low current bicycle facility service.**

**Prioritize key routes where lighting should be installed.**

**Designate main commuting routes and introduce policies to allow these routes to remain open past the current closing time at dusk.**

**Develop strategies to reduce the travel time along main commuting routes, especially cross-city trails (additional trail clearing activity, trail widening, user conflict signage, and education are examples to consider).**

**Integrate BikeRaleigh wayfinding signage (Chapter 5) with greenway wayfinding standards to ensure a cohesive user experience from the greenway network to the on-road bikeway network.**

**Add signage to avoid user conflicts such as “On Your Left” for bicyclists to communicate, similar to the American Tobacco Trail in Durham.**





*The City of Los Angeles purchases small street sweepers specifically for cycle track maintenance to ensure the facilities are clear of debris.*

## BICYCLE FACILITY MAINTENANCE

Bicycle facilities require regular maintenance in order to keep them free of debris and structural deterioration. Bikeways are especially vulnerable to the accumulation of leaves and gravel as they are blown off the travel lane by automobile traffic. Such accumulation, as well as potholes, cracks, and joints, create serious obstacles and hazards to cyclists. A good maintenance program is necessary to protect the public investment in bikeways and keep them safe for their users.

Currently, there are no specific policies addressing the maintenance of on-road bicycle facilities in Raleigh. The American Association of State Highway and Transportation Officials (AASHTO) has provided some model maintenance policy language in its *Guide for the Development of Bicycle Facilities*. Below are some examples of recommended maintenance policies regarding roadway sweeping, specifically. The AASHTO Guide also has policy recommendations for the following areas: surface repairs, pavement overlays, vegetation, traffic signal detectors, signs and markings, drainage improvements, chip sealing, patching activities, utility cuts, snow clearance, and operating bikeways in work zones.

It is recommended that Raleigh develops a strategy for bicycle facility maintenance and policies to support it. In addition, Raleigh bicyclists commonly report parked cars and other obstacles in bicycle lanes. The City should target offenders with education/enforcement strategies.

### Example Maintenance Policies from the AASHTO *Guide for the Development of Bicycle Facilities*

- » Establish a regular sweeping schedule for roadways and pathways that anticipates both routine and special sweeping needs. This may involve more frequent sweeping seasonally, and also should include periodic inspection, particularly in areas that experience frequent flooding, or in areas that have frequent vandalism. The sweeping program should be designed to respond to user requests for sweeping activities.
- » Remove debris in curbed sections with maintenance vehicles that pick up the debris; on roads with flush shoulders, debris can be swept off the pavement.
- » Reduce the presence of loose gravel on roadway shoulders by paving gravel driveway approaches, prioritized on corridors that receive heavy bicyclist use. Also require parties responsible for debris to contain it; for example, require tarps on trucks loaded with gravel. Local ordinances often require tow-vehicle operators to remove glass after crashes, and contractors are usually required to clean up daily after construction operations that leave gravel and dirt on the roadway.

## BICYCLE FACILITY MAINTENANCE CASE STUDIES

### From 2014 Seattle Bicycle Master Plan<sup>III</sup>, Maintenance Activities Table

Maintenance Activity	Recommended Timing
Replace drain grates with new bicycle-friendly grates	As needed and with all new bicycle projects
Repair and replace pavement	Arterials: 25-65 years
Fill concrete joints within bicycle facilities	Upon improvement request and within corridor assessment
Repair potholes	Within 72 hours of report
Replace signs	As needed
Replace pavement markings and stripings on bike facilities	Multi-year basis
Trim vegetation	Upon request
Clean leaves, debris, trash, snow, and sand	As needed
Maintain bike racks	As needed
Sweep streets with bicycle facilities	Arterials: monthly Non-arterials: as needed

### From 2014 Seattle Bicycle Master Plan, Maintenance Strategies Table

Strategy	Actions
Maintain on-street bike facilities	Develop maintenance standards and schedules. Plan for and adequately fund maintenance activities and needs, including equipment and labor.
Consider maintenance costs, procedures, and long-term funding mechanisms as part of all new bike facility projects	Gather life-cycle information and cost estimates based on facility type. Identify maintenance costs in the project development and design stage of bike facility projects. Establish clear maintenance responsibilities in advance of construction. Identify new maintenance needs (e.g. sweepers of cycle tracks).
Encourage bicyclists to report maintenance complaints	Distribute street maintenance request form. Respond to requests in a timely manner.

### From 2014 Advocacy Advance report (“How Communities are Paying to Maintain Trails, Bike Lanes, and Sidewalks”)<sup>IV</sup>

**CINCINNATI, OH: “Bicycle facilities are like any other road facility.”**

- » “In Cincinnati, bicycle lanes are treated like other road facilities and contracted out to private firms for regular sweeping. The bidding process occurs every two years and additional requirements, and costs, for specific bicycle lane sweeping are relatively new. Sweeping costs were reported at between **\$55-62 per curb mile of bicycle lanes for sweeping once a month** plus an additional sweep in March, April, May, September, and October – peak months for bicycle traffic in a city with slightly lower bicycle commuter rates than average. Funding for street sweeping comes from the stormwater management fund, which is paid for by utility bills to citizens.”



### ADDITIONAL POLICY SUPPORT

There are a number of additional policies and council actions at the local, regional, and state level that highlight and support the importance and benefit of a shift from drive-alone automobile trips to biking trips.

To further Raleigh's effort to adopt a policy framework that reflects the desire to increase bicycle transportation, the following new policy and action items are recommended:

#### ADDITIONAL POLICY RECOMMENDATIONS

Expand the Climate Action Plan to highlight the benefits of bicycle transportation and the mutual objectives to reducing energy consumption.

Incorporate policies and action items for the development of a bike share program into the 2030 Comprehensive Plan Update.

Work with local and state advocates to present an "Idaho Stop" bill to the NC General Assembly allowing cyclists to treat a stop sign as a yield sign and a red light as a stop sign.

Adopt TDM-friendly site design features into the development review process as a comprehensive policy.

Lower the speed limits on streets that provide important bicycle connections or are identified as a neighborhood bikeway.

Develop a policy to encourage field testing of emerging planning and design techniques to improve bicycling conditions (See Chapter 8 for pilot project implementation strategies).

Endorse NACTO's *Urban Bikeway Design Guide* and the *Urban Street Design Guide* and consider becoming an affiliate member city of NACTO.

## **RESOURCES**

i Zimmerman, Sara, and Karen Kramer. "Getting the Wheels Rolling: A Guide to Using Policy to Create Bicycle Friendly Communities." 2013.  
<http://www.changelabsolutions.org/bike-policies>

ii American Association of State Highway and Transportation Officials. (2012). Guide for the Development of Bicycle Facilities: 2012 Fourth Edition.  
[https://bookstore.transportation.org/item\\_details.aspx?id=1943](https://bookstore.transportation.org/item_details.aspx?id=1943)

III "Seattle Bicycle Master Plan." 2015.  
<http://www.seattle.gov/transportation/bikemaster.htm>

IV Advocacy Advance. "How Communities are Paying to Maintain Trails, Bike Lanes, and Sidewalks." 2014.  
<http://www.advocacyadvance.org/docs/Maintenance.pdf>