

# Winston-Salem Urban Area Collector Street Plan



**September 2007**



## Introduction

The Winston-Salem Urban Area Metropolitan Planning Organization (MPO) is the transportation planning entity for our community. The Metropolitan Planning Area Boundary encompasses all of Forsyth County and the urbanizing areas of the surrounding counties of Davidson, Davie and Stokes. In 2002, the MPO Thoroughfare Plan was updated and expanded to include the newly identified urban area and was jointly adopted by both the MPO and the North Carolina Department of Transportation. The Thoroughfare Plan classifies roads into freeway/expressways and major and minor thoroughfares. To identify a finer grain street and highway system for local planning purposes, an additional classification of road type needs to be included - Collector Streets.

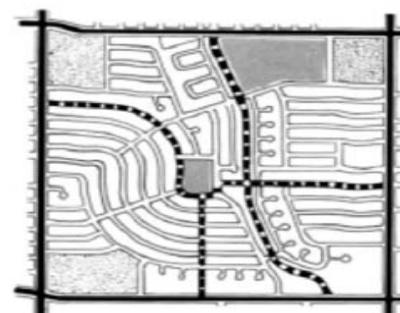
## What are Collector Streets?

The primary function of a collector street is to gather traffic from the local residential or commercial street system and deliver it to the closest minor or major thoroughfare. Collector streets provide both local access to adjacent properties and mobility for vehicles and other modes of transportation. Collector streets are an intermediate link supplying important continuity in the functional system between the local street with unlimited access and the thoroughfare roads meant to efficiently carry higher volumes of traffic at higher speeds and with limited access.

Collector streets generally are designed for shorter trip lengths and have lower traffic volumes in the 1,000 to 3,000 vehicles per day range than thoroughfares which carry more traffic. Collector streets provide alternative routes and additional circulation within the area circumscribed by thoroughfares. The increased connectivity afforded by collector streets creates safer routes for sidewalks and pedestrians, bicycles and school buses. Additionally, response times for emergency vehicles can be reduced and routing of transit services and public works functions such as garbage collection, recycling and snow removal are enhanced.

Collector Streets balance access and mobility and provide a necessary connection between the local roads where people begin their daily trips and the roads that carry commuters to their jobs. A well connected system of collector and local roads can relieve thoroughfares of short trip congestion.

## Schematic of Balanced Road Network



Legend  
— Major and Minor Thoroughfares  
— Local Streets  
- - - Collector Streets

## Purpose

The purpose of the Collector Street Plan is to **inventory** the existing collector street network and **develop a plan for future collector streets** that will **promote connectivity** by creating an efficient and balanced street system for automobiles, transit, pedestrians, and bicycles. The plan will provide each municipality in the MPO with the mapping and technical information to encourage the construction of the collector street network as development occurs.

## Goals and Objectives

The overall goal for the Winston-Salem Urban Area is a balanced and sustainable transportation system that links all modes of travel into a seamless transportation network with choices for people's travel needs. Specific objectives related to the Collector Street Plan are:

- Develop a first class street network that meets the short and long-term needs of the Winston-Salem Urban Area MPO
- Design streets that are safe, efficient and effectively move traffic, accommodate pedestrians and bicyclists and have minimum negative environmental impacts
- Promote land use patterns and transit-oriented design that supports walking, bicycling and public transit and reduces the number and length of automobile trips.
- Expand public transportation into an area-wide transit system of buses, van pools, car pools and special population transit services.

- Create a bikeway/sidewalk/greenway network that is an integral part of the transportation system and provides an alternative means of transportation and recreation.
- Develop a transportation system that balances community values and respects and enhances the natural and built environment.
- Establish policies and programs to reduce travel demand
- Identify/address the needs of minority/low-income populations in making transportation decisions.

## Process

The 2005 Long Range Transportation Plan for the Winston-Salem Urban Area included a Collector Street Inventory. The Collector Street Inventory catalogued the existing public streets within the urban area that were identified as functioning in the capacity of a collector street. The majority of the streets identified in the Collector Street Inventory serve residential areas and connect these communities to a minor or major thoroughfare. The Collector Street Inventory also included streets that provide direct access to important community facilities such as schools, parks, libraries or museums. The collector streets were identified through field observations, traffic volume data, property mapping and information on adjacent land use.

The Collector Street Inventory provided the basis for evaluating existing and future streets to be included in a Collector Street Plan. The need for a comprehensive Collector Street Plan became crucial with the adoption of street standards by the Winston-Salem City Council and the Forsyth County Commissioners in 2006 and 2007.

Over the past two years, the Winston-Salem Urban Area MPO staff has worked with the Winston-Salem/Forsyth County Planning Department staff and Planning staff from King and Davidson, Davie and Stokes Counties to identify the existing streets which currently function as Collector Streets and to propose potential future Collector Streets.

## Collector Street Plan Development

In developing a Collector Street Plan for the MPO, the following general goals directed the efforts:

- Prepare maps showing existing and proposed collector streets
- Facilitate multimodal transportation options
- Recommend endorsement by Planning Boards and adoption by the MPO

Developing the collector street network involved examining the MPO street network and connectivity, current land use and community planning guides, development patterns, stub streets, traffic volumes and environmental considerations to evaluate existing and proposed collector streets. The following resources were used to develop the Collector Street Plan:

- 2005 aerial photography
- Planimetric mapping (including parcels, right-of-way, and buildings)
- Environmentally sensitive areas (including rivers, streams, lakes, buffers, protected lands and Natural Inventory Heritage sites, and severe topography)
- Community features (including parks, schools, recreation centers, community facilities, railroads, historic structures and National Register Districts)
- Adopted Area Plans, Development Guides and Planned development
- Land use/zoning
- Future roads including Transportation Improvement Program and Capital Improvement Program projects
- Existing transit routes
- Average Daily Traffic counts
- Existing plans (including thoroughfare, greenways, bicycle, land use, and extension of sewerable areas)
- Existing policy (including street design standards and Subdivision ordinances)

**Collector Street Benefits**

The collector street network will provide numerous benefits to the community. An effective interconnected street network can provide:

- Reduced reliance on major and minor thoroughfares for short trips
- Reduced travel times
- Improved connectivity for pedestrians, bicyclists, cars, city and school buses, garbage and recycling collection, snow removal, and mail delivery
- Multimodal connections between similar land uses
- Improvements to the non-vehicular transportation system with increased opportunities to bike or walk to local destinations
- More direct emergency response access
- Potential to avoid widening existing thoroughfares
- Developer participation in the construction of collector streets

streets may carry more traffic and provide for a higher level of mobility than residential collector streets.

Residential collectors are streets that connect neighborhoods or most logically funnel traffic from within a neighborhood to another collector street or a major or minor thoroughfare. They provide a high level of access to adjacent properties and will be spaced at more frequent intervals than industrial or commercial collectors depending on the residential density. Residential collectors will provide multiple outlets for a neighborhood.

**Correlation between Land Use and Collector Street Spacing**

Land Use/Type of Collector Street	Mobility	Access	Approx Street Spacing	Environmental Impacts
Residential	Medium	High	1,500 - 2,000 ft,	Low
Commercial	High	High	1,500 - 2,000 ft,	Low
Industrial	High	High	½-1 mile	High

**Types of Collector Streets**

Collector streets connect to one another, to local streets, and to major and minor thoroughfares. Collector streets offer additional choices to people as they move from home to work to shopping. There are three types of collector streets identified in this plan.

Commercial and industrial collectors have adjacent land uses that require parking, bus stops and shelters, bicycle and pedestrian access and other amenities associated with activity centers. Commercial or industrial collector

## Residential Collectors

Residential collector streets serve primarily residential land uses and associated traffic. These streets function for both local traffic and for pedestrians and bicyclists. It is important to carefully consider design elements such as road width, vertical and horizontal curvature and sight distances when constructing collector streets to prevent cut through traffic or higher travel speeds.

Potential design elements recommended to enhance the residential character of these streets are:

- Pedestrian facilities (i.e., sidewalk or multiuse path)
- Street trees
- Street Lighting
- Traffic calming (as necessary)
- Small curb radii at intersections (15 to 20 feet)
- Narrower travel lanes
- Striped bicycle lanes

Managing intersections with other collectors or major and minor thoroughfares will improve the functionality and safety of the street. Exclusive left-turn lanes should be considered where residential collector streets intersect with major or minor thoroughfares. Roundabouts could be considered at collector to collector intersections. Intersections with local streets would not require special treatment unless conditions warrant it. Sufficient right-of-way should be protected for future residential collector streets.



Petree Road is an example of a residential collector.

## Commercial Collectors

Commercial collector streets serve commercial and office land uses. Recommended street design standards for commercial collector streets may be appropriate for areas transitioning between residential and non-residential land uses. These streets can attract moderate traffic volumes and could experience higher travel speeds. Context sensitive street design is essential for commercial collectors to prevent these streets from becoming popular cut-through traffic routes.

The following design elements are recommended to enhance the character of commercial collector streets:

- Pedestrian facilities (i.e., sidewalk or multiuse path)
- Curb and gutter drainage system
- Street trees
- Street lighting
- On-street parking (where appropriate)
- Bicycle lanes (where appropriate)
- Left-turn lanes at major intersections
- Traffic calming (as necessary)
- Small curb radii at intersections (15 to 25 feet)
- Intersection bulb-outs
- Centerline striping

Although the plan does not specifically note potential new commercial collector streets, there are several existing commercial collectors identified in the plan. It is recommended that additional right-of-way be protected for future commercial collector streets.



Trenwest Drive is an example of an existing commercial collector.



## Industrial Collectors

Industrial collector streets serve primarily light and heavy industrial land uses and adjacent land uses that may attract high volumes of heavy vehicle traffic. Most industrial collectors tie directly into major thoroughfares and are often close to freeways and other controlled access facilities.

Design elements recommended to enhance the character of these industrial collector streets include:

- Pedestrian facilities (where possible)
- Street trees
- Street lighting
- Left-turn lanes at major intersections
- Large curb radii at intersections (>25 feet)
- Intersection bulb-outs
- Centerline striping

Although the plan does not specifically note potential new industrial collector streets, there are several existing industrial collector streets identified in the plan. It is recommended that at least 60-feet of right-of-way be protected for future industrial collector streets.



Ivy Avenue is an example of an existing industrial collector.

## Mapping

The Collector Street Maps are illustrated in segments based on MPO boundaries, jurisdictions or Forsyth County Area Plan Subareas to provide additional detailed information at an appropriate scale. A compact disc with individual maps in PDF format is included with this document. The Collector Street Plan is available on the Winston-Salem Department of Transportation web page: [www.dot.cityofws.org](http://www.dot.cityofws.org)

The plan includes maps that show existing and future collector streets. It is important to note that the maps show proposed collectors in generalized locations to provide the desired level of connectivity, reasonable access to adjacent parcels, and to minimize impacts to streams, ponds and other environmental features. **The maps are not precise and do not reflect the actual location or alignment of a proposed facility.** Decisions about future alignments will be made as a part of the development review process.

## Implementation

The Collector Street Plan is important to the community because it recognizes potential growth and acknowledges the relationship between growth and the street system. The future collector streets do not depict specific alignments and the dashed lines on the map may shift, however, the Plan shows a conceptual system of collector streets that work together to provide needed interconnectivity. The incremental construction of the collector street network can effectively occur through

the Winston-Salem/Forsyth County Street Standards and the adoption of local policies and procedures for the municipalities in Stokes, Davidson and Davie Counties.

It is recommended that the development review process in each municipality include consideration of the future collector street network. Identification of the future street connections should be taken into account during the zoning and site plan review process. Implementation of this plan can be achieved either by private development through the zoning and subdivision plan approval process or through public/private partnerships. Funding from NCDOT is not available for collector streets.

The proposed collector streets are likely to be: (1) new collector streets to be constructed as land is developed, (2) proposed connections between existing stubbed collector streets, or (3) the extension of an existing collector street an existing major or minor thoroughfare.

## New Development

New collector streets that are constructed as land is developed will meet NCDOT or municipal street standards. In certain situations it may be necessary for a municipality to extend a collector street beyond the development limits of a project. This may prove advantageous where an extension will improve access and emergency response services within a given area or to avoid further burdening the existing local street network due to the lack of a reasonable and convenient outlet to a major or minor thoroughfare. In this case, the municipality may consider participating in the cost of

constructing the collector street and extending it to a logical or more desirable terminus.

### **Extending Collector or Stubbed Streets**

Often a proposed collector street will be constructed either as an extension that would connect to an arterial or as a missing link for a collector street. Policies could be established for municipalities to fund needed improvements through the Capital Improvement Program.

### **Next Steps**

Following the public review period from June 7 to July 13, 2007, comments were compiled and revisions were made to the draft plan. The Winston-Salem/Forsyth County Planning Board endorsed the Collector Street Plan on July 12, 2007. The Collector Street Plan was approved by the Winston-Salem Urban Area Transportation Advisory Committee on July 19, 2007 and adopted on September 20, 2007. The Winston-Salem City Council approved the Collector Street Plan on September 17, 2007. The Village of Clemmons approved the Collector Street element of the Village Transportation Plan on March 9, 2009. Other municipal governments will adopt the plan as requested.

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# Collector Street Plan Sidewalk and Pedestrian Facilities Plan Index Map

