

# 1. REDEFINING CHARLOTTE'S STREETS

The Urban Street Design Guidelines described in this document present a comprehensive approach to designing new and modified streets within Charlotte's designated Sphere of Influence. The Guidelines will allow us to provide better streets throughout Charlotte – streets that reflect the best aspects of the streets built in the past, and that will provide more capacity and safe and comfortable travel for motorists, pedestrians, bicyclists, and transit riders.

## *Why Do We Need New Urban Street Design Guidelines?*

Charlotte's tree-lined streets have long symbolized our City's beauty and quality of life. However, many streets have also come to symbolize the growing pains that can accompany growth and prosperity, with increased congestion in some portions of the City and streets that have become increasingly hostile to anyone but motorists. Therefore, these Urban

Street Design Guidelines have been developed in response to two basic issues:

- 1) Charlotte needs to better plan for continued growth and development, and
- 2) Charlotteans want better streets.

**1) Growth and Its Consequences:** Charlotte grew very rapidly over the course of the last three or four decades. The City is expected to continue to grow rapidly, with an additional 350,000 people projected to be living here over the next 25 years, along with 360,000 additional employees working here, many of whom will be commuters from other towns and counties. Our ability to accommodate this growth using the same development and transportation approaches as were used during previous decades is questionable at best. Our ability to do so *while also maintaining our high quality of life* is even less likely. Quality of life is one key to Charlotte's continued economic development.



The Urban Street Design Guidelines are intended to help the City accommodate growth in several ways. They support a variety of City policies, including the Centers, Corridors and Wedges growth framework and the recently adopted Transportation Action Plan, which describes the transportation-related policies and programs needed to help Charlotte maintain its many advantages as it continues to grow.

The Guidelines will help achieve the emerging vision for Charlotte (summarized in the box on the right) by supporting the goal of more compact and focused growth, and by offering more transportation choices. These are complementary intentions because compact development makes providing transportation choices easier and providing transportation choices makes compact development more liveable and viable.

“Transportation choices” are created both by providing more connections - more route choices for all travelers - and by building streets that are easier to use by more types of travelers - by people who want to walk, ride transit, or ride

## Vision for Charlotte

**“To be an urban community of choice for living, working and leisure”**

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- More compact and focused growth
- Protection of environmentally sensitive areas
- Expanded travel choices
- Mix of uses/integration of live, work, shop and play
- Viable and healthy economy
- Maintenance of quality, livable neighborhoods
- Revitalization and infill in older areas
- Variety of housing choices and costs
- High quality urban design
- Infrastructure needed to support development
- Empowered, informed and engaged citizenry

bicycles. Generally, more connections and better provision for all modes will help increase our transportation system's capacity, further sustaining growth. Providing transportation choices also helps address an important environmental consequence of growth - poor air quality. In Charlotte, like many cities, our major air pollution problem is

ozone, which is created when nitrogen oxides and volatile organic compounds combine in sunlight and stagnant air. In Mecklenburg County, nitrogen oxides are emitted mostly by motor vehicles. Therefore, the sheer number of cars and the miles they travel have a great impact on our air quality. In addition to the health effects of poor air quality, this also rep-

resents a significant potential cost, since our region must remain in compliance with federal standards on certain pollutants, including ozone. Failure to comply can result in withholding of federal funding for transportation projects, which can further impact our city's ability to sustain development. Air quality, therefore, is an important component of both quality of life and continued economic development.

One way to affect air quality is by reducing three aspects of motor vehicle use - the vehicle miles traveled (VMT) and the number and duration of engine starts. VMT refers to the total number of daily miles traveled by motor vehicles within or through a geographic area. It is virtually impossible to reduce total VMT in a growing city, but it is possible to reduce *VMT per capita*, so that each additional person doesn't increase VMT by the same amount as each person does today. We can help do this by offering viable transportation choices for people as they travel between land uses, an important goal of these Urban Street Design Guidelines.

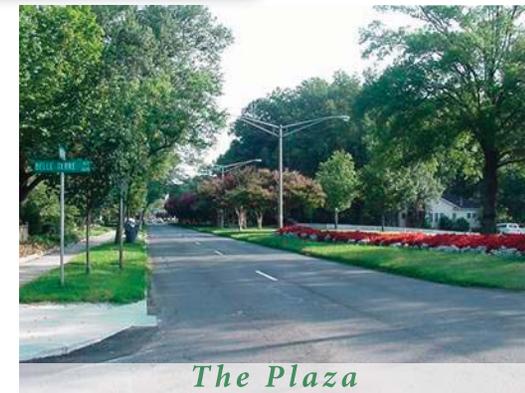
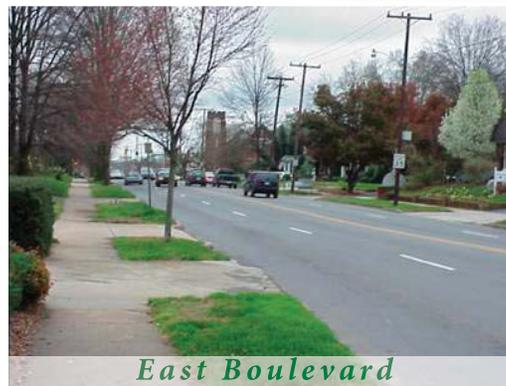
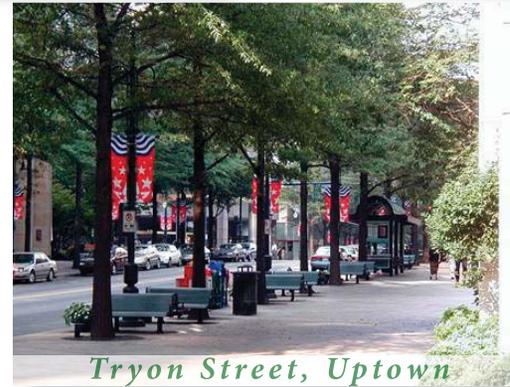
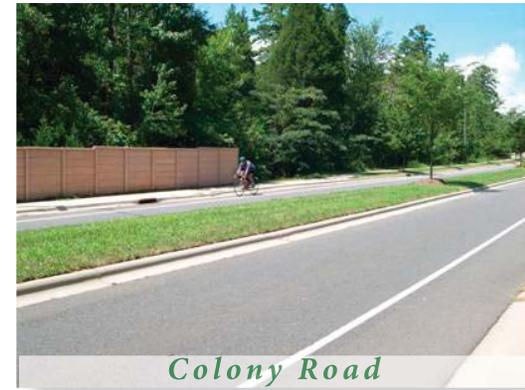
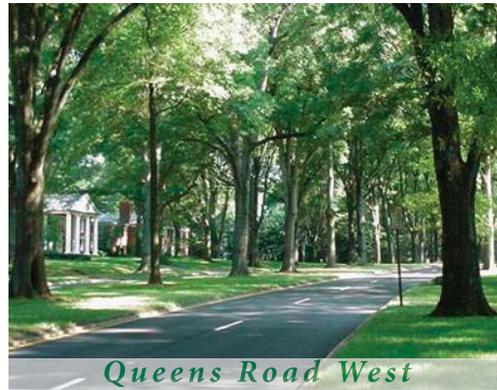
The Urban Street Design Guidelines will also help Charlotte plan for growth by better matching the transportation network to the land uses that lie along that network. Better integration of land uses and transportation, through context-based design, will ensure that mutually reinforcing decisions are made and that peoples' ability to take advantage of more transportation choices is enhanced.



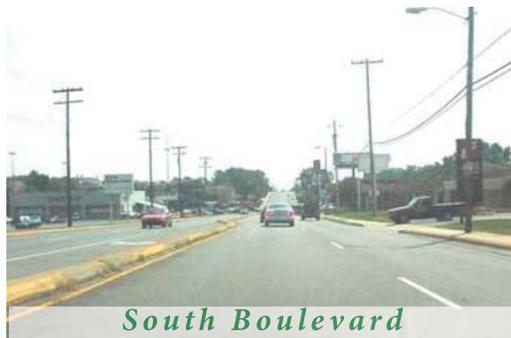
*The disconnected, cul-de-sac development style shown above reduces the street network's ability to handle traffic, because it forces all traffic onto a few streets. It also makes it more difficult for people to walk or bicycle between land uses, because of the lack of direct (shorter) routes.*

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2) **Better Streets:** Building streets to provide more choices will help Charlotte meet the challenges of growth, but it also means that we will be building better streets overall – the types of streets that Charlotteans have said they want. Stakeholder interviews held early in the development of the Guidelines resulted in a list of “most favorite” and “least favorite” Charlotte streets. The “most favorite” streets are typically located in the older, central neighborhoods of Charlotte. These streets include an abundant tree canopy and pedestrian amenities and were built before the dominance of the automobile.



Among the “least favorite” streets are those that reflect the prevailing approach to street design since WWII – the approach used throughout the outlying areas beyond Route 4. This approach is intended to move cars safely and swiftly through the City by adding lanes and otherwise increasing capacity...with little regard for the less positive impacts on others using the streets. These “least favorite streets” typically lack pedestrian amenities. Driveways, parking lots, and utility poles are more abundant than trees. They often consist of wide expanses of pavement for moving traffic. Even accounting for the different design and orientation of the land uses along the streets, motorists are clearly the dominant “users” of the least favorite streets.



The stakeholder interviews revealed that, across a broad spectrum of stakeholder groups, Charlotteans want streets that are:

- aesthetically pleasing (including street trees), and
- comfortable and safe for pedestrians and cyclists (specific design treatments and speed reduction were mentioned by several groups).

A follow-up internet-based survey of almost 1,000 people substantiated that the streets people most “prefer” do not look or function like many of the streets that we have been building in recent years. Some progress has been made - our ordinances and standards for local streets have been updated to provide better streets (to build sidewalks on both sides of the street and to reduce the use of culs-de-sac, e.g.). However, those standards still are not creating the quality of streets that people have said they prefer or that were built in previous eras - walkable, well-connected streets with street tree canopies. Further, our current street designs make retrofitting many of the streets built over the last 50 years (to include street trees, wider sidewalks, or more connections, e.g.) very difficult.

Since streets provide the framework for both current and future development, their long-term usefulness for all modes must be enhanced.

## *What Are the Guidelines Trying to Achieve?*

Providing the best possible streets to accommodate growth, provide transportation choices, and help keep Charlotte liveable requires a different approach to and philosophy of planning and designing streets. Cities across the country are seeing the need to plan for and design “complete” streets - streets that better serve all users, rather than focusing only on one set of users. The Urban Street Design Guidelines are essentially Charlotte’s complete street guidelines.

Through the years, we have become very good at designing auto-oriented streets, which has had unintended consequences. We are now getting better at providing design elements such as sidewalks, planting strips, and bike lanes on thoroughfares, but we do not have a consistent, clear method to decide which types of streets to build where. The Urban Street Design Guidelines will help us to get better at designing complete streets for all users. To accomplish this, City staff developed these Guidelines based on the following principles:

- Streets are a critical component of public space.
- Streets play a major role in establishing the image of a community. Therefore, they affect the health, vitality, quality of life, and economic welfare of a city.
- Streets provide the critical framework for current and future development. The locations and types of streets will affect the land development pattern, as well as how much development can be supported by the street network.
- The design of a street is only one aspect of its effectiveness. How the street fits within the surrounding transportation network and supports adjacent land uses will also be important to its effectiveness.
- Charlotte’s streets will be designed to provide mobility and support livability and economic development goals.
- The safety, convenience, and comfort of motorists, cyclists,

pedestrians, transit users, and members of the surrounding community will be considered when planning and designing Charlotte's streets.

- Streets should be designed to encourage Charlotteans to make trips by means other than cars, thereby positively impacting congestion, air quality, and the health of our citizens.
- Planning and designing streets must be a collaborative process, because it is necessary that decisions about the street be made with a variety of interests and perspectives represented.

Based on these principles, the recommendations contained within these Urban Street Design Guidelines reflect the following basic goals:

- 1) **Support economic development and quality of life** – by providing more transportation capacity, while creating more user-friendly streets overall.

- 2) **Provide more and safer transportation choices** – by creating a better-connected network (route choices) and building streets for a variety of users (mode choices).
- 3) **Better integrate land use and transportation** – by avoiding “mismatches” between land uses and streets and by creating the right combination of land uses and streets to facilitate planned growth.

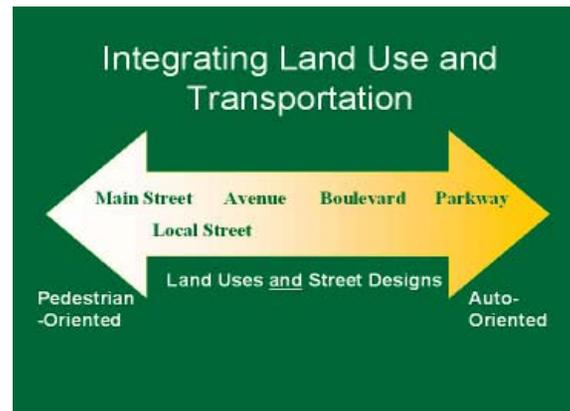


Figure 1.1

## **The New Street Types: Creating an Urban Street Network**

To meet the goals described above, Charlotte's streets will be classified according

to the following five street types:

- Main Streets
- Avenues
- Boulevards
- Parkways
- Local Streets

These street types fall along a continuum (Figure 1.1), with the Main Street being the most pedestrian-oriented street type and the Parkway being the most auto-oriented street type. “Pedestrian- and auto-oriented” refer both to the design of the street itself and to the characteristics of the land uses located along the street.

Even though each street type emphasizes different mixes of modes, all of these streets will be designed with all potential travelers and stakeholders in mind. By creating a variety of street types, the street network can better provide appropriate choices for those travelers and stakeholders, including Charlotte's current and future residents, commuters and visitors. Once a street (or portion of a street) is classified as a certain street type, the street design should reflect that classification and future land use decisions

along the street should also reflect that classification. Street design decisions and land use decisions should be mutually reinforcing, to create effective synergy between streets and land uses.

While a complete description of these street types and land use characteristics is provided in Chapter 4, the following are brief descriptions of each street type:

- **Main Streets** are “destination streets”. They provide access to and function as centers of civic, social, and commercial activity. Main Streets are designed to provide the highest level of comfort, security and access for pedestrians. Development along Main Streets is dense and focused toward the pedestrian realm.



Land uses on Main Streets are typically mixed and are generators and attractors of pedestrian activity. Because of their specialized function and context, Main Streets will represent a relatively small portion of Charlotte's overall street network.



- **Avenues** can serve a diverse set of functions in a wide variety of land use contexts. Therefore, they are the most common (non-local) street type in our city. They provide access from neighborhoods to commercial areas, between major inter-city destinations and, in some cases, through neighborhoods. Avenues serve an important function in providing transportation choices,

because they are designed to provide a balance of service for all modes of transport. They provide for high quality pedestrian access, high levels of transit accessibility, bicycle accommodations such as bike lanes, yet they may also carry significant automobile traffic. Most *thoroughfares* in our street network would be classified as Avenues. The *collector/connector* function can also be served by some Avenue cross-sections.

- **Boulevards** are designed to move larger numbers of vehicles (as through traffic) from one part of the city to another and to other lower level streets in the network.



Therefore, maintaining vehicular movement is a higher priority than with an Avenue, but pedestrians and cyclists are still provided for in the design. In fact, the higher speeds and traffic volumes increase the need for safe pedestrian and bicycle treatments, such as providing adequate buffers from the traffic. Land uses along Boulevards can vary, but development will usually be set back further from the street than on Avenues.

- **Parkways** are the most auto-oriented of the street types. A Parkway's primary function is to move motor vehicle traffic efficiently from one part of the metropolitan area to



another and to provide access to major destinations. Therefore, design decisions will typically favor the automobile mode over other modes. As with the Main Street, relatively few streets in Charlotte will be classified as Parkways.

- **Local Streets** provide access to residential, industrial, or commercial districts, as well as to mixed-use areas. They represent the majority of the lane miles of Charlotte's street network. Speeds and motor vehicle traffic volumes are low, providing a safe and comfortable environment for pedestrians and bicyclists. Since Local Streets are built through the land development process, specific cross-sections for a variety of different Local Street types are available. For residential streets, three alternative cross-sections are defined (narrow, medium, and wide), based on the expected need for on-street parking. For office/commercial Local Streets, two alternative cross-sections are provided (narrow and wide), based on the



expected need for on-street parking. The general intent is to keep the pavement on these streets as narrow as possible.

## *How Do these Guidelines Relate to Other Transportation Planning Activities?*

With the 2006 adoption of the Transportation Action Plan (TAP), the City of Charlotte established a comprehensive plan for providing the necessary transportation elements to sustain Charlotte's growth and quality of life. The TAP describes the policies, programs, and projects that will be implemented over the next twenty-five years to ensure that Charlotteans have the most travel choices available to them as the City grows. The Urban Street Design Guidelines, by describing how Charlotte's streets should be designed, is a fundamental component for implementing the TAP and providing the necessary street network for decades to come.

In addition to the TAP, the Urban Street Design Guidelines will relate to other planning processes, including the existing State-required Thoroughfare Plan and emerging Comprehensive Transportation Plan. Both of these planning approaches are based on the functional classification of streets. The new street types described in the Guidelines are intended to work as "overlays" to existing street classifications. This means that, while a street might be identified, for example, as a major thoroughfare from a functional standpoint, it might be labeled an Avenue from the Urban Street Design standpoint. The Urban Street Design Guidelines classification will then affect the planning and ultimate design of the street. An important point is that a given street may be classified differently on different segments, for example, as an Avenue for one portion of its length and as a Boulevard for another. Since most thoroughfares traverse more than one land use context, the Urban Street Design classifications will allow the ultimate design of the street to reflect those various contexts.

The use of this "overlay" approach will likely need to be refined somewhat, as NCDOT moves away from its traditional thoroughfare planning process. Recent attempts to make state road planning better reflect multi-modal and context-based design have resulted in a new type of plan to replace the Thoroughfare Plan – the Comprehensive Transportation Plan (CTP). The CTP will use some different classification schemes than the Thoroughfare Plan. The Urban Street Design Guidelines classification system should work in tandem with the CTP, with the major difference being the street function anticipated by NCDOT or the city.

By having a set of street types that better reflect and complement a variety of land use contexts, Charlotteans and visitors can expect to find viable transportation choices as they travel through the City, something that has become increasingly difficult in recent decades. Further, by defining and implementing street designs to meet the intent of the different street types, we have the best chance of meeting

the multiple and sometimes conflicting objectives of the different users of our streets. *Charlotte's Urban Street Design Guidelines will, over time, result in a well-connected network of "complete" streets that function well for all users and that complement and preserve the communities and neighborhoods they connect.*

## Content of the Guidelines

The following chapters are intended to provide a comprehensive treatment of Charlotte's approach to street design. Each chapter provides a separate, stand-alone piece of information pertaining to street design, but each chapter also relates to the others. In this fashion, the Guidelines provide both the "big picture" of developing Charlotte's desired street network *and* the detailed guidelines necessary to design individual street segments and intersections. The remaining chapters include:

- **Chapter 2: Designing Streets for Multiple Users.** This chapter

presents a thorough treatment of the need for and approaches to evaluating the tradeoffs among competing users and uses of the street right-of-way.

- **Chapter 3: Applying the Guidelines.** This chapter defines a recommended approach to applying the Guidelines, particularly in the case of non-local streets.
- **Chapter 4: Segments.** This chapter contains detailed information (text and diagrams) describing how to design the portions of the streets between the intersections.
- **Chapter 5: Intersections.** This chapter contains detailed information (text and diagrams) describing how to design various types of intersections.
- **Chapter 6: Glossary.** This chapter includes definitions or descriptions of different design elements, their intended purposes,

and how they are best applied.

- **Appendices.** Appendices A-C provide additional details about the application of the new approaches outlined in the Guidelines.

## Related Content Items to be Developed

Although the current document includes comprehensive coverage of planning and designing Charlotte's street network, there are some additional, related items that will be developed over the coming months and treated as supplements to the Urban Street Design Guidelines. Some of these are items that will require additional stakeholder comment or will be treated as part of the implementation of the Transportation Action Plan or the adopted Urban Street Design Guidelines. These additional items include:

- a section on designing "special" street types, such as green streets, alleys, culs-de-sac, one-way streets and private streets;

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- more details on “connector” streets, including development of a connector map;
- a section describing access control, including driveway designs;
- updates to the City’s Sight Distance Policy and pavement standards; and
- an appendix describing horizontal and vertical curvature allowances on Local Streets.