

CHARLOTTE STREETS MANUAL



CHARLOTTE STREETS MANUAL - INTRODUCTION

PURPOSE

The Charlotte Streets Manual (Streets Manual) provides information about key transportation components necessary for the design and approval of land development projects. Specifically, the Streets Manual provides supporting technical documentation and/or guidance about the following three components:

- Charlotte Streets Map,
- Access Management and Driveway Design, and
- Comprehensive Transportation Review Guidelines.

Each component of the Streets Manual helps implement Charlotte’s Unified Development Ordinance (UDO). **Table 0.1 Streets Manual Components** summarizes the components and their relationship to the UDO. Details and technical documentation for each component are provided in its respective chapter in this Streets Manual.

Table 0.1 Streets Manual Components		
Component	Description	UDO Reference
Charlotte Streets Map	Map of Charlotte's street network that reflects adopted transportation policies for multimodal streets and includes the expected multimodal cross-section for each arterial street.	Referenced for key street-related dimensions (Articles 32 and 33) and to help define frontages for zoning district standards (Articles 4-13).
Access Management and Driveway Design	Access management and driveway design requirements and guidance for private landowners and/or developers seeking access to public streets.	Streets Manual referenced for key access and driveway-related regulations (Article 31).
Comprehensive Transportation Review	Processes and methods used to evaluate and mitigate for a private land development’s impact on the multimodal transportation system.	Referenced as a requirement (Article 32).

POLICY BACKGROUND

The Streets Manual and its components are based on and support adopted transportation-related policies, including those from Charlotte Bikes, Charlotte Walks, and the Urban Street Design Guidelines (USDG). All elements of the Streets Manual reflect and support Goal 5 of the Charlotte Future 2040 Comprehensive Plan (2040 Plan), which states that:

Charlotte will provide **safe and equitable mobility options** for all travelers regardless of age, income, ability, race, where they live, or how they choose to travel. An integrated system of transit and tree-shaded bikeways, sidewalks, shared-use paths, and streets will support a sustainable, connected, prosperous, and innovative network that connects all Charlotteans to each other, jobs, housing, amenities, goods, services, and the region.

In addition to promoting Safe and Equitable Mobility Options, the Streets Manual integrates key aspects of the transportation network with land use and design policies from the 2040 Plan, including Place Types, which help form appropriate context-based applications of the Streets Manual regulations. Finally, the Streets Manual and its component parts align with all relevant regulatory documents, including the UDO, Chapter 19 of the City Code, and the [Charlotte Land Development Standards Manual](#).

APPLICATION

This Streets Manual was adopted on August 22, 2022 and became effective as of June 1, 2023.

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SECTION 1. CHARLOTTE STREETS MAP

- 1.1 CHARLOTTE STREETS MAP
- 1.2 STREET TYPES & STREET DESIGN

1.1 CHARLOTTE STREETS MAP

A. Purpose

The Charlotte Streets Map (Streets Map) establishes the design and location of Charlotte's existing and future public street network to implement adopted mobility policy and provide safe and equitable multimodal options for all users of our streets.

B. Applicability

The Streets Map defines the type, design, and location of existing and planned future streets as described in **Table 1.1 Street Types** and establishes a street's required street components, cross-section, future back of curb location, and necessary right-of way. The Streets Map applies specific requirements in the Unified Development Ordinance (UDO), as referenced in UDO Section 3.5 and Article 34, for streets in the City of Charlotte's municipal boundary and Extraterritorial Jurisdiction (ETJ).

C. Streets Map Amendments & Modifications

1. Amendments

The Streets Map is a City Council adopted map and policy document and amendments will be necessary to reflect changing conditions and policy. Changes and amendments to a street's classification (Street Type) or necessary components will require City Council approval.

2. Modifications

Specific modifications to the design, location, and dimensions of individual street components (as defined in Table 1.3) may be approved by the CDOT Director (or their designee) when it is determined that:

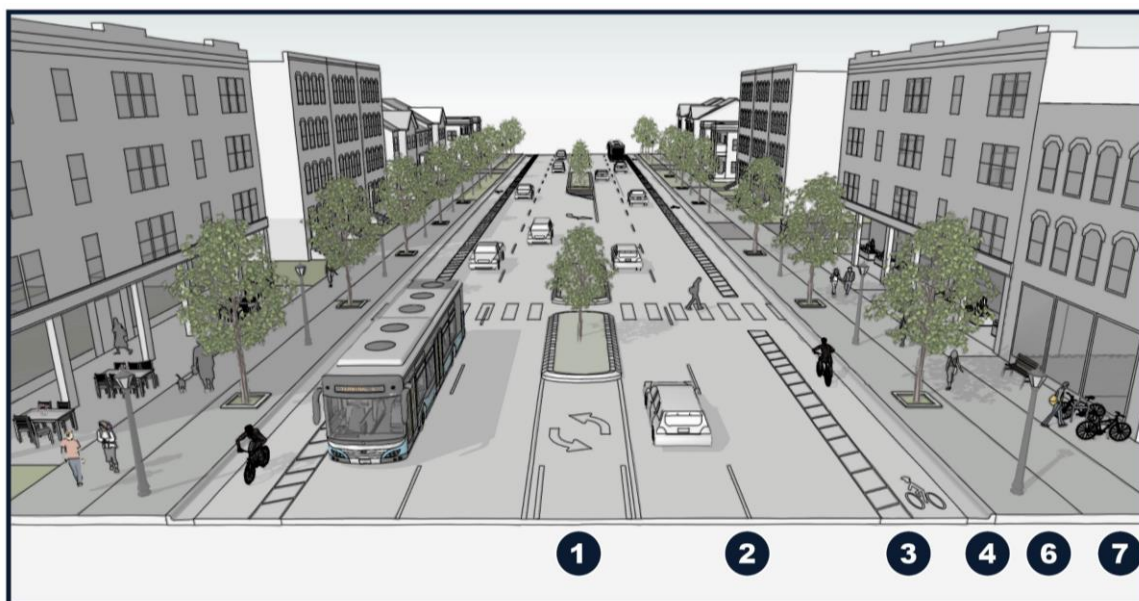
- a. The modification reflects refined or more detailed technical information about a street or unique constraint related to a street or corridor; or
- b. Significant physical barriers, such as topographic conditions and/or utility conflicts, prevent the original component/dimension from being implemented; and
- c. The modification does not degrade the safety and functionality of the street.

Modifications may or may not result in an amendment to the Streets Map based on the pervasiveness of the condition requiring the modification along a street or corridor.

1.2 STREET TYPES & STREET DESIGN

A. Street Components

Each arterial street on the Streets Map includes an expected cross-section. The arterial cross-sections are based on adopted policies for designing streets to serve all users. The figure below shows how the combination of different street components works together to create a "complete" street. The complete street, together with the "semi-public realm" created by the buildings and other spaces along the street, affects how the street looks and functions.



1. Center Space

Center space is a critical component of a complete street because it provides the space for important safety elements like turn lanes and “islands” to allow a pedestrian refuge midway across a street. These are particularly important design elements where there are likely to be few safe crossing and turning opportunities and where there are many destinations nearby. The center space also provides additional opportunities for green space and trees, thereby supporting Charlotte’s tree canopy goals, helping calm traffic, and creating a shadier/cooler environment. The “+” on some of the street descriptions refers to the need to provide center space in addition to travel lanes. So, “4+” doesn’t mean “4 or more lanes”, it means “4 lanes and center space”.

2. Travel Lanes

Travel Lanes provide space for motor vehicle and (in some cases) bicycle travel. The number of travel lanes for arterials will generally range from 2 to 6 lanes with the possibility of some segments having more than 6 lanes (in rare circumstances).

3. Bike Facility

The Streets Map incorporates several different categories of bicycle facilities based on adopted policy guidance. Some types of bicycle facilities require more (or less) space than others, while other types of bike facilities might require the same amount of space but could be configured slightly differently when a capital project or other construction project occurs. Section 1.3.D shows the range of bicycle facility types that can be included in the Streets Map cross-sections.

4. Curb and Gutter

The Streets Map cross-section for most arterial streets includes 2.5’ for curb and gutter. Parkway may or may not include curb and gutter, and more typically include a shoulder.

5. On-Street Parking

Certain streets, such as Main Streets and some Avenues, will include on-street parking to provide for an additional buffer for pedestrians and to support adjacent land uses.

6. Planting Strip/Amenity Zone

Planting Strip or a hardscaped Amenity Zone creates a buffer between the pedestrian space and the adjacent roadway and provides space for trees and other street furnishings. The Streets Map indicates whether a planting strip or an amenity zone is the typical facility, based on the street and land use context and whether there is on-street parking.

7. Pedestrian Facility

The Streets Map describes the type and width of the pedestrian facility located within the streetscape. The two types of pedestrian facilities are sidewalks and shared-use-paths (shared with bicyclists).

B. Street Type Summary

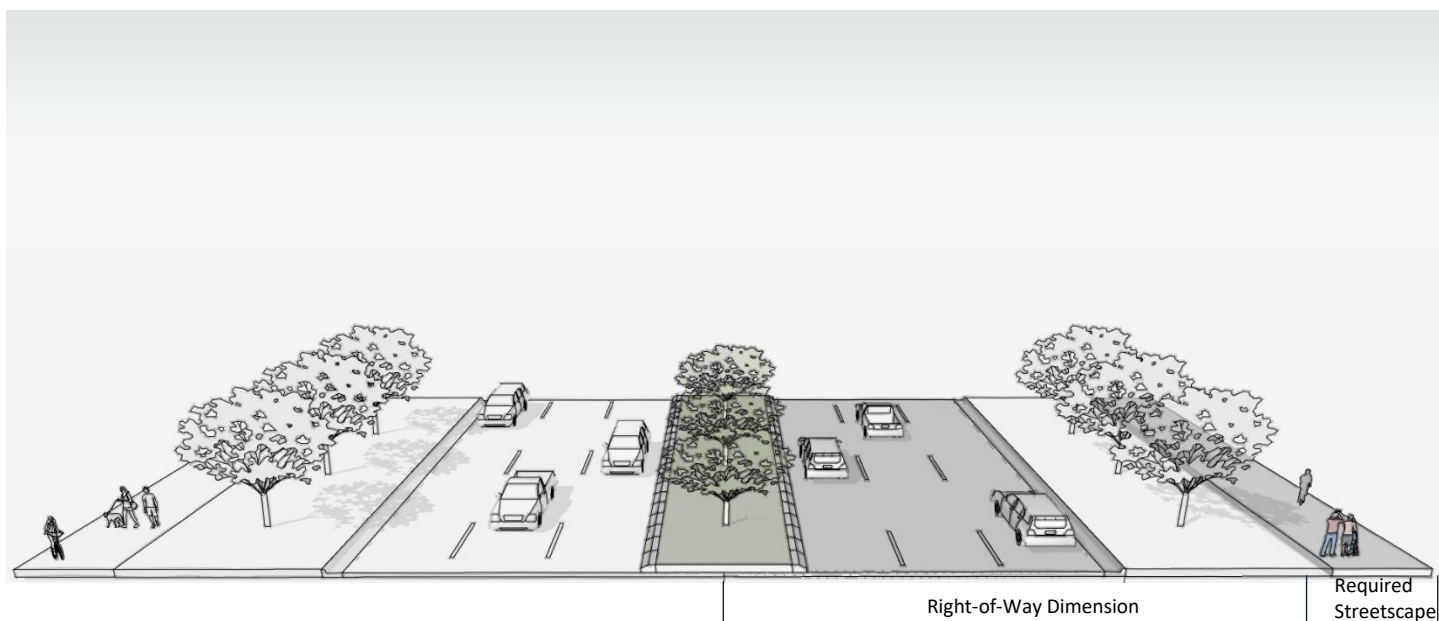
The Streets Map defines and maps a range of Street Types and Special Facilities, as summarized in **Table 1.1 Street Types**.

Table 1.1 Street Types			
Type	Description	On Streets Map	Design Standards
Arterial Street Types			
Parkway	Streets that provide efficient regional multimodal connectivity with limited direct access to adjacent land uses.	Location and Cross-Section	Arterial Street Type Cross-Section Standards
Boulevard	Streets that provide efficient city-wide multimodal connectivity with direct access to and supporting adjacent land uses.	Location and Cross-Section	Arterial Street Type Cross-Section Standards
Avenue	Streets that provide access between neighborhoods and activity centers in a range of land uses, balancing all modes of transportation.	Location and Cross-Section	Arterial Street Type Cross-Section Standards
Main Street	Streets that provide multimodal access to centers of civic, social, and commercial activity, designed to provide the highest level of pedestrian comfort and support mixed use activity.	Location and Cross-Section	Arterial Street Type Cross-Section Standards
Additional Street Types			
Limited Access	Regional and/or interstate highways or freeways designed exclusively for vehicular traffic with limited development access.	Location Only	Under State and/or Federal design and access control
Collector	Streets that collect traffic from local streets and other collectors and distribute the traffic to higher volume streets and roads.	Location Only	Charlotte Land Development Standards Manual (CLDSM)
Locals	Streets that provide local vehicular, pedestrian and bicycle connections to a range of adjacent land uses.	Any street not mapped as an Arterial, Limited Access, or Collector	Charlotte Land Development Standards Manual (CLDSM)
Uptown Streets			
<i>Applies to streets inside I-277 establishing future back of curb (where on-street parking is required)</i>			
Uptown Signature Street	Streets that form the spine of the Uptown street network and support major activity corridors.	Location and Future Curb Line for each side of street	UDO Tables 33-3 and 33-6
Uptown Primary Street	Streets that connect subareas, activity centers and transit stations or transit stops to the Signature streets	Location and Future Curb Line for Each Side of Street	UDO Tables 33-3 and 33-6
Uptown Secondary Street	All other non-local streets which serve the sub-areas of Uptown and link to the Primary and Signature streets.	Location and Future Curb Line for Each Side of Street	UDO Tables 33-3 and 33-6
Linear Park	Sub-category of Signature Streets with enhanced streetscape width.	Location and Future Curb Line for Each Side of Street	UDO Tables 33-3 and 33-6
Special Facilities			
Greenway On-Street (Arterials)	Designated greenway facilities identified by the City or County that provide necessary on-street connections for larger greenway corridors.	Location and Cross-Section	Arterial Street Type Cross-Section Standards
Greenway On-Street (Collectors and Locals)	Designated greenway facilities identified by the City or County that provide necessary on-street connections for larger greenway corridors.	Location Only	Charlotte Land Development Standards Manual (CLDSM)

C. Arterial Street Types

1. Parkway

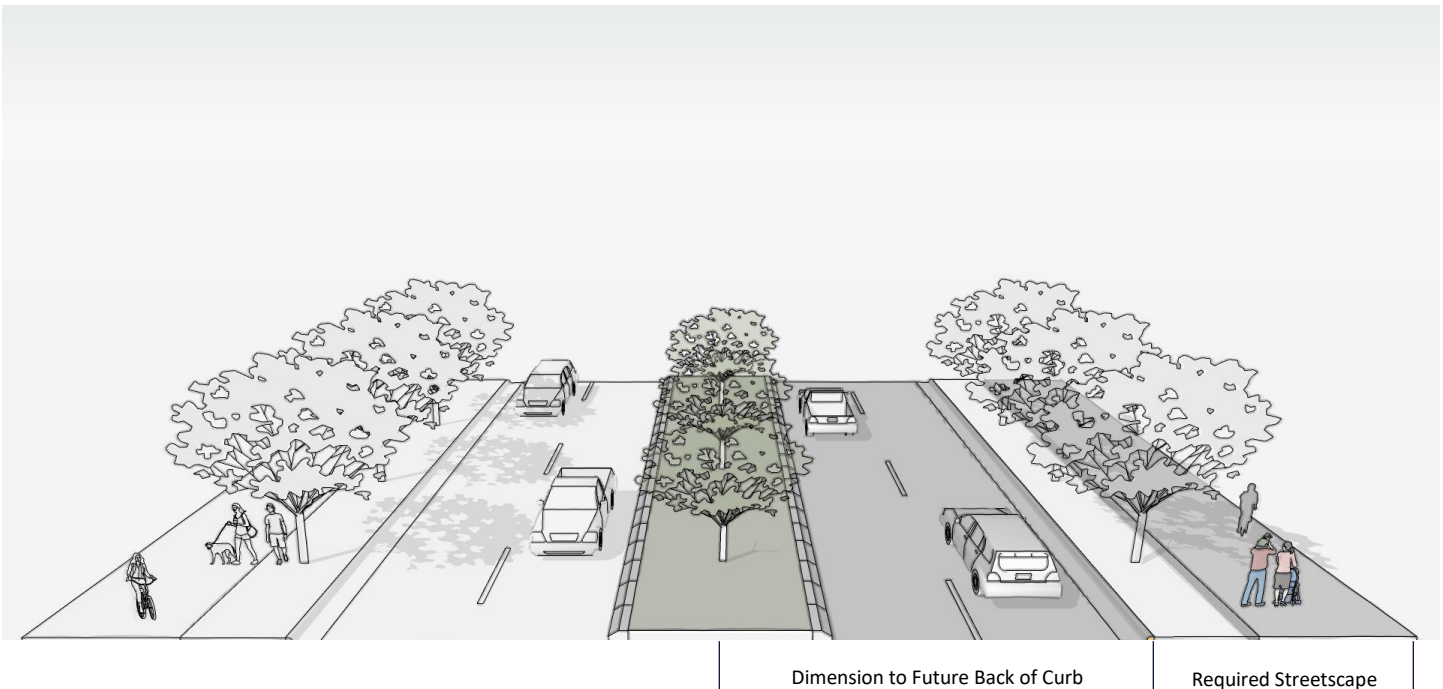
Streets that provide efficient regional multimodal connectivity with limited direct access to adjacent land uses.



Component	Description
Center Space	Parkways always include center space in the form of a continuous median to manage access.
Travel Lanes	Parkways will have 4 or more travel lanes.
Bike Facility	Parkways provide important connections over longer distances for cyclists. Dedicated bicycle facilities will be on shared-use paths set away from the travel lanes.
Curb & Gutter	Parkways may or may not include curb and gutter, and more typically include a shoulder.
On-Street Parking	Parkways do not include on-street parking because planting strips typically vary in width and nearby land uses typically do not orient to the street.
Planting Strip/Amenity Zone	Parkways always include planting strips and the width of the planted strip, or planted buffer, may be as wide as 25' on State-maintained streets (equivalent to the clear zone).
Pedestrian Facility	On Parkways, pedestrians will typically be accommodated on a shared-use path set away from the travel lanes.

2. Boulevard

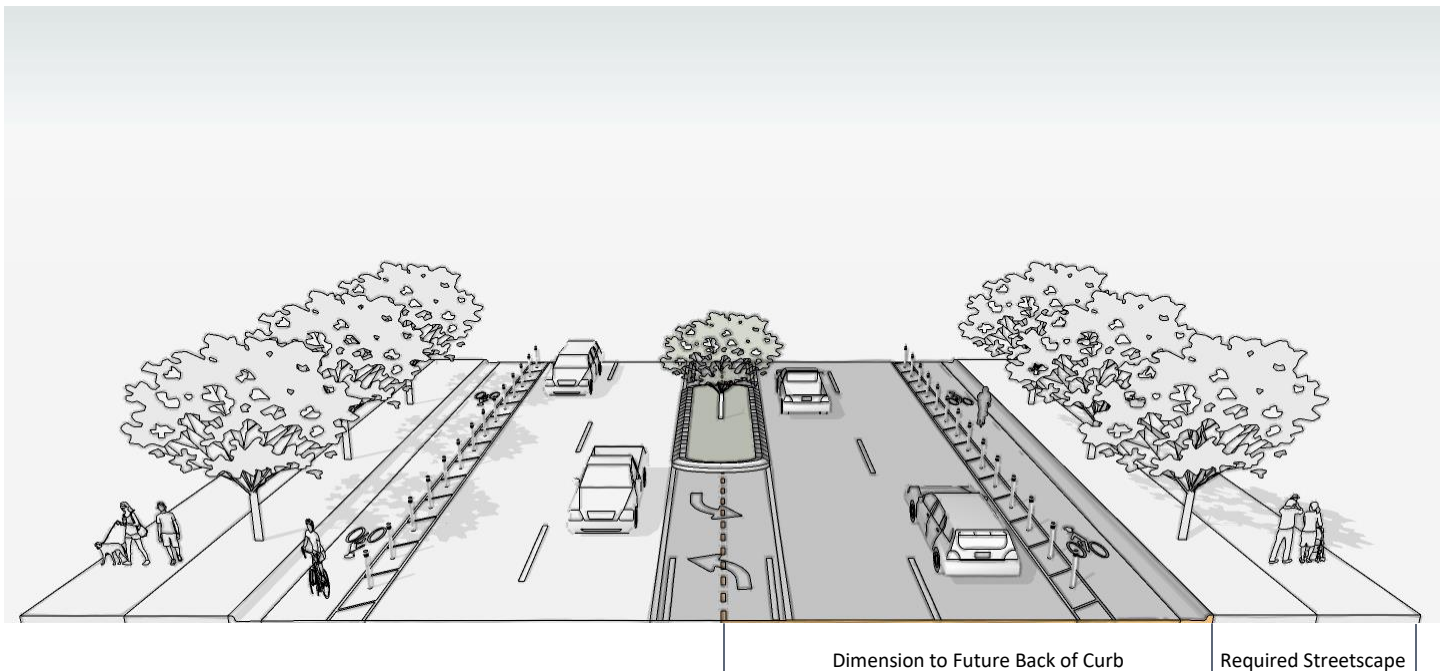
Streets that provide efficient city-wide multimodal connectivity with direct access to and supporting adjacent land uses.



Component	Description
Center Space	Boulevards always include center space in the form of a continuous median to manage access.
Travel Lanes	Boulevards will have 4 or more travel lanes.
Bike Facility	Boulevards will always include specified bicycle facilities. The bike facility is typically a separated bike lane or shared-use path to ensure that all modes can move efficiently and safely.
Curb & Gutter	Boulevards typically include curb and gutter.
On-Street Parking	Boulevards typically do not include on-street parking.
Planting Strip/Amenity Zone	A planting strip with trees is appropriate for most Boulevards because on-street parking is atypical.
Pedestrian Facility	Boulevards in lower-intensity Place Types will typically include 6' sidewalks, or in certain contexts, shared-use paths. Boulevards in higher-intensity Place Types will typically include 8' sidewalks or, very rarely, shared-use paths.

3. Avenue

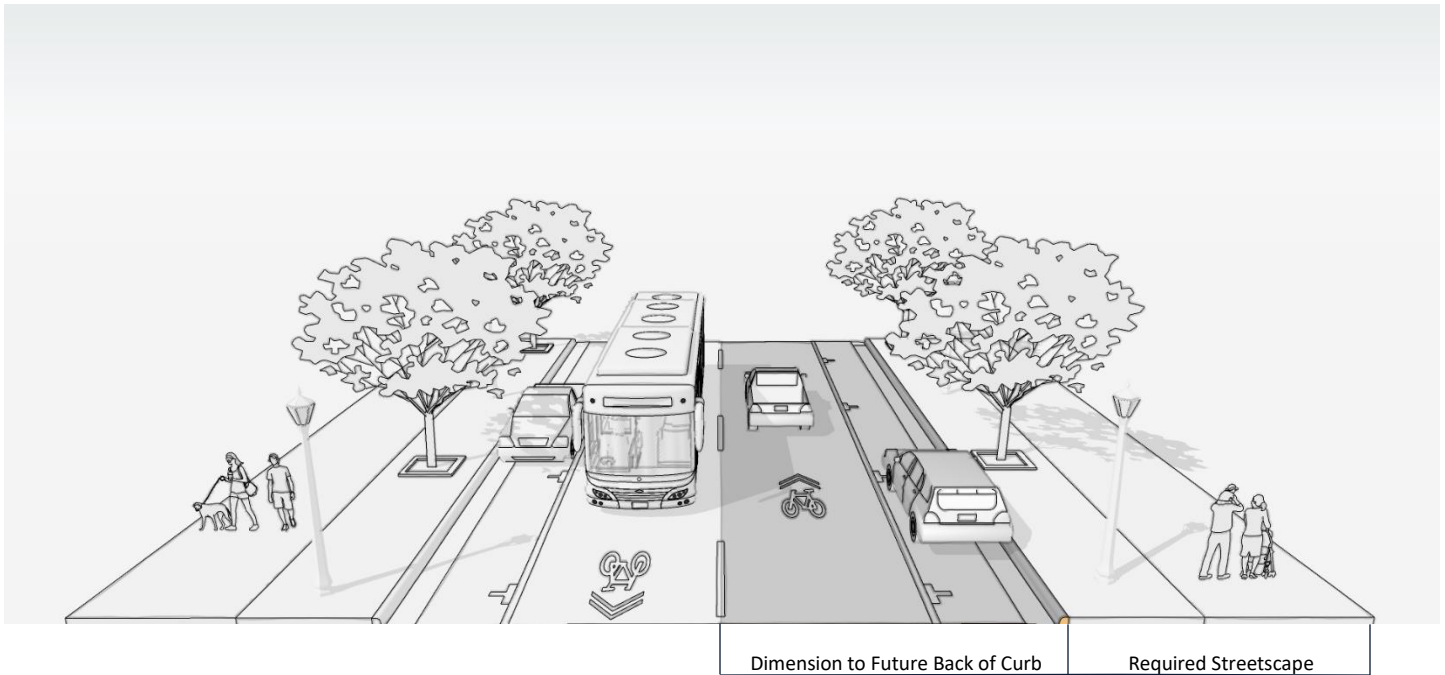
Streets that provide access between neighborhoods and activity centers in a range of land uses, balancing all modes of transportation.



Component	Description
Center Space	Most Avenues include center space.
Travel Lanes	The number of travel lanes for Avenues varies from 2 to 6. Six lane Avenues are rare, but still should be designed to balance all modes.
Bike Facility	Avenues always include a specified bike facility to ensure that all modes can move efficiently and safely. The specific treatment varies by the characteristics of the Avenue.
Curb & Gutter	Avenues typically include curb and gutter.
On-Street Parking	On-street parking is allowed on Avenues in some contexts, typically in higher-intensity Place Types that include walkable destinations oriented to the street.
Planting Strip/Amenity Zone	Avenues will typically have planting strips in lower-intensity Place Types and have amenity zones in higher-intensity Place Types, especially when there is on-street parking.
Pedestrian Facility	Avenues in lower-intensity Place Types will typically include 6' sidewalks or, in certain contexts, shared-use paths. Avenues in higher-intensity Place Types will typically include 8' sidewalks or, very rarely, shared-use paths.

4. Main Street

Streets that provide multimodal access to centers of civic, social, and commercial activity, designed to provide the highest level of pedestrian comfort and support mixed use activity.



Component	Description
Center Space	Main Streets do not include center space, because driveways should be limited, speeds should be low, and all turns should take place at intersections.
Travel Lanes	Main Streets are limited to two travel lanes, which are wide enough to accommodate delivery and transit vehicles, maneuvering for on-street parking, and shared space with bicyclists.
Bike Facility	Main Streets are low speed, multimodal streets where bicyclists comfortably utilize shared roadways alongside motorists.
Curb & Gutter	Main Streets always include curb and gutter.
On-Street Parking	Main Streets always include on-street parking to support retail and other destinations and to provide additional buffering for the pedestrian space.
Planting Strip/Amenity Zone	Main Streets will typically include a hardscaped amenity zone, which provides a buffer between the sidewalk and vehicles, as well as space for trees (in grates) and other street furnishings to support the high level of pedestrian activity along the street.
Pedestrian Facility	Main Streets have the widest sidewalks (10') to accommodate higher pedestrian volumes expected along this destination street.

D. Bike Facilities

Table 1.2 Bike Facilities		
Component	Description	Illustrative Example
Shared Roadway	Streets without dedicated bike facilities because speeds and volumes are low enough that bicyclists share the space with motor vehicles (0' included in the Streets Map cross-section).	
On-Street Bike Lanes	Bike facilities that designate an exclusive space for bicyclists through the use of pavement markings and signage to provide additional buffer between bikes and motor vehicles. A 5' dimension is included in the Streets Map cross-section (each side). This 5' dimension can include several configurations, which is decided based on specific characteristics of the street and the adjacent context, usually during a more detailed plan or when designing a project.	
Buffered/Separated Bike Lanes	Bike facilities that either include additional buffered space between bikes and motor vehicles (top graphic), are physically separated from motor vehicles (bottom graphic) or are "raised" behind the curb. An 8' dimension is included in the Streets Map cross-section (each side). This 8' dimension can include several configurations, which is decided based on specific characteristics of the street and the adjacent context, usually during a more detailed plan or when designing a project.	
Shared-Use Path	A pathway serving both pedestrians and bicyclists located along a street, between the curb and adjacent development. A 12' dimension is included in the Streets Map cross-section (each side), to allow for a completely separated, off-street facility. This space is shared with pedestrians and is only used in certain contexts.	
Greenway On-Street	A designated greenway facility identified by the City or County that provides necessary on-street connections for larger greenway corridors and allows for expected higher volumes of bicyclists and pedestrians along these special street segments. A 16' dimension is included in the Streets Map cross-section (one side). The other side of the street will include more standard bicycle facilities, if they are identified for that street segment.	

E. Arterial Street Type Cross-Section Standards

The Arterial Street Type Cross-Section Standards govern the design of Parkways, Boulevards, Avenues and Main Streets including the placement, amount, and/or dimension of the key street and streetscape components. The table below shows the typical design and dimensional standards for components of arterial streets. Refer to the Streets Map for the required cross-section for each arterial street segment, as the cross-section dimensions may vary from the typical standards due to context, constraints, or existing conditions. The Streets Map cross-sections are measured for each half of the street, with the dimension to the future back-of-curb typically measured from the centerline of the crown of the street. In rare instances where the street centerline does not correspond with the center of the right-of-way and this creates a significantly disproportional impact to one side of the street, the street centerline location for the corridor (or relevant portion of the corridor) will be determined by CDOT, on a case-by-case basis.

Table 1.3 Arterial Street Type Cross-Section Standards				
Component	Parkway	Boulevard	Avenue	Main Street
Future Back of Curb Placement (from which setbacks are measured in most UDO districts)	N/A	Refer to Streets Map: Varies by street and based on Arterial Street Type Cross-Section Standards (measured from centerline of street)		
Number of Travel Lanes (11 feet)	4 to 6	4 to 6	2 to 6	2
Center Space (minimum dimension)	Varies	17 feet	11 feet	-
Curb and Gutter (2.5 feet)	Varies	Required	Required	Required
Bicycle Facilities				
Shared Roadway	-	-	-	Required
Bike Lane (5 feet)	-	-	Required based on context	-
Buffered/Separated Bike Lane (8 feet)	-	Required based on context		-
On-Street Parking				
7 feet from face of curb	-	-	Permitted/required based on context	Required
Streetscape & Pedestrian Facilities				
Amenity Zone/Planting Strip Determination	Planting Strip	Planting Strip	Varies (apply standards in Section 33.3; Table 33-5 of the UDO, unless specified on Streets Map)	Amenity Zone
Amenity Zone/Planting Strip Dimension	Varies	8 feet		8 feet
Sidewalk (Lower-intensity Place Types: <i>Neighborhood 1, Commercial, Manufacturing & Logistics, Campus (IC-1, OFC Zoning Districts), Parks and Preserves</i>)	-	6 feet		10 feet
Sidewalk (Higher-intensity Place Types: <i>Neighborhood Center, Community Activity Center, Regional Activity Center, Innovation Mixed Use, Campus (IC-2 Zoning District), Neighborhood 2</i>)	-	8 feet		10 feet
Shared Facilities				
Shared-use path (12 feet)	Required based on context			-
Greenway On-Street (16 feet on one side)	Required as necessary based on adopted City and County Greenway Plans (including on Collector and Local Street designations)			

SECTION 2. ACCESS MANAGEMENT & DRIVEWAY DESIGN

- 2.1 PURPOSE & APPLICABILITY
- 2.2 ACCESS MANAGEMENT
- 2.3 DRIVEWAY DESIGN CRITERIA
- 2.4 SPECIAL ACCESS PROVISIONS FOR UPTOWN STREETS

2.1 PURPOSE & APPLICABILITY

A. Purpose

The public street network provides mobility and access for and must safely serve many users, including motorists, pedestrians, transit users, and cyclists. All benefit from the safety and efficiency created by removing unnecessary conflicts with other users of the street. The guidance in this chapter is intended to provide the highest degree of safety and operational efficiency by:

1. Providing design requirements and guidance to private landowners and/or developers who seek access to public streets
2. Effectively linking appropriate driveway type to land-use context
3. Providing consistent and predictable administration of access to the public street system

B. Applicability

These regulations and guidance will apply to all land development activities occurring in the City of Charlotte and ETJ including, but not limited to, activities that trigger: Commercial Plan Review, Subdivision Review, and Zoning Map Amendments (Rezoning). These guidelines also apply when a CTR is triggered. Sections 2.2.B, 2.2.C, and 2.2.D apply to new street connections, as well as to driveways. Driveways for individual single-family residential parcels are subject to Section 2.3.B.6 only.

1. Regulatory Authority

Regulatory authority for creating and maintaining these access and driveway regulations is provided in Chapter 19, Article II, Section 19-36 of the City Code of Ordinances, which states that the “Director/Engineer has the authority to adopt, amend, and repeal rules and regulations governing driveway connections to public streets and issue and revoke driveway connection permits.”

2. Driveway Plan Approval Process

Driveway Plan approval will typically be an outcome of one of the following processes:

a. [Commercial Plan Review Process \(Commercial\)](#),

In addition to the general Commercial Plan Review, a non-residential change of use must also apply these guidelines if:

- i. The current driveway is in disrepair and does not meet minimum design requirements
- ii. The current driveway does not meet ADA requirements
- iii. As determined in UDO Article 31.3.A.3

b. [Subdivision Review Process \(Subdivision\)](#).

The approval of a development plan under these processes also serves as approval of (or “permit” for) each driveway/street connection approved as part of that development plan. No separate driveway approval document will be issued unless any of the access points connect to a public street that is maintained by the North Carolina Department of Transportation (NCDOT). Such connections must obtain a driveway permit from the North Carolina Department of Transportation’s District 2 Office. Further information can be found on the [Development Services webpage](#).

2.2 ACCESS MANAGEMENT

Access management includes determining “how much” vehicular access to a site is appropriate. This includes the number, frequency, and locations of driveways/access points, as well as whether an individual driveway will be allowed “full movement” for entering and exiting vehicles. This section describes how CDOT will make these determinations. Additional access provisions for specific Uptown streets are described in Section 2.4. Where those provisions conflict with any of the applicable provisions in this Section (2.2), the more restrictive applies.

A. Street Types & Access Management Guidelines

CDOT manages access on arterial streets, collector streets, and local streets throughout the City and its ETJ. Each street type has characteristics that influence how access will be regulated. Generally, arterial street types at either end of the spectrum from “most auto-oriented” to “most pedestrian-oriented” will have the highest access restrictions for operational and/or safety purposes. Sites located in higher intensity Place Types will also have more access restrictions, to ensure safe multimodal access. **Table 2.1 Access Guidelines** describes the expected form and amount of access based on the street type and additional context-based characteristics.

CDOT will apply the guidance in **Table 2.1 Access Guidelines**, as well as sections 2.2.B, 2.2.C, and 2.2.D for existing and site-specific conditions during any driveway/access review and approval process. If requesting a different access approach, it is the designer’s responsibility to demonstrate why a site cannot meet the access conditions outlined in **Table 2.1 Access Guidelines**.

Table 2.1 Access Guidelines			
	Preferred Access Location	Access Amount/Spacing	Access Restrictions
Parkway	<p><i>Priority order:</i></p> <ol style="list-style-type: none"> 1. Side or parallel street 2. New street 3. Shared driveway 4. Individual driveway typically not allowed 	<p><i>Amount:</i></p> <ol style="list-style-type: none"> 1. Typically, access amount pre-determined by NCDOT 2. Additional access considered on a case-by-case basis <p><i>Spacing:</i></p> <ol style="list-style-type: none"> 1. Typically, access spacing pre-determined by NCDOT 	<ol style="list-style-type: none"> 1. Full movement considered for signalized street intersections 2. Typically, less than full movement for non-signalized street access 3. Additional restrictions per 2.2.B and 2.2.C
Boulevard	<p><i>Priority order:</i></p> <ol style="list-style-type: none"> 1. Side or parallel street 2. New street 3. Shared driveway and/or 4. Cross-access 5. Individual driveway 	<p><i>Amount:</i></p> <ol style="list-style-type: none"> 1. Typically, one access point 2. Additional access based on new street requirements (UDO Article 31) <p><i>Spacing:</i></p> <ol style="list-style-type: none"> 1. Access spacing based on preferred block length (UDO Table 31-1) 	<ol style="list-style-type: none"> 1. Full movement considered for street and shared driveway/cross-access 2. Typically, less than full movement for individual driveways 3. Additional restrictions per 2.2.B and 2.2.C
Avenue	<p><i>Priority order:</i></p> <ol style="list-style-type: none"> 1. Side street 2. New street 3. Shared driveway and/or 4. Cross-access 5. Individual driveway 	<p><i>Amount:</i></p> <ol style="list-style-type: none"> 1. Typically, one access point 2. Additional access based on new street requirements (UDO Article 31) 3. Additional access considered if there's a significant case that site's circulation/operations will not work with a single access point <p><i>Spacing:</i></p> <ol style="list-style-type: none"> 1. Access spacing based on half the preferred block length (UDO Table 31-1) 	<ol style="list-style-type: none"> 1. Typically, full movement on 2+ Avenues 2. Typically, less than full movement on 4+ and 6+ Avenues 3. Additional restrictions per 2.2.B and 2.2.C
Main Street	<p><i>Priority order:</i></p> <ol style="list-style-type: none"> 1. Side street 2. Cross-access 3. Individual driveway typically not allowed 	<p><i>Amount:</i></p> <ol style="list-style-type: none"> 1. Typically, no direct access point (to ensure high-quality pedestrian access) 2. Direct access considered if no side street or cross-access is possible <p><i>Spacing:</i></p> <ol style="list-style-type: none"> 1. Access spacing based on preferred block length (UDO Table 31-1) 	<ol style="list-style-type: none"> 1. Restrictions per 2.2.B and 2.2.C
Collector & Local Streets	<p><i>Priority order:</i></p> <ol style="list-style-type: none"> 1. Shared driveway and/or cross-access (encouraged) 2. Individual driveway 	<p><i>Amount:</i></p> <ol style="list-style-type: none"> 1. Typically, one access point 2. Additional access if the site meets all applicable access requirements per 2.2.B and 2.2.C <p><i>Spacing:</i></p> <ol style="list-style-type: none"> 3. Minimal spacing requirements (see 2.2.B) 4. Less frequent spacing in higher intensity contexts (for pedestrian safety) 	<ol style="list-style-type: none"> 1. Typically, full movement 2. Restrictions per 2.2.B and 2.2.C

B. Driveway Location

To ensure safe and efficient operations, CDOT will review driveways/access points based on their location relative to other “features” (such as intersections, other driveways, and property lines). The following section outlines requirements for driveway location.

1. Signalized Intersections

Traffic signals are critical to the transportation system because they meter traffic to help address congestion and they also organize demand by safely managing conflicts among users. Locating driveways too close to a signalized intersection can degrade that intersection’s capacity, operational efficiency, and ability to safely manage conflicts. Proposed driveways that could affect existing or proposed traffic signals will be evaluated subject to Article 31.3 of the UDO. Submitted plans must identify all existing/proposed driveways and traffic signal equipment (such as traffic signal loops and associated boxes) within 200’ feet of signalized intersections.

2. Unsignalized Intersections

Proposed driveways near unsignalized intersections will be evaluated subject to UDO Article 31.3.

3. Adjacent Driveways

Driveways located too close to one another can create sight distance problems and introduce unnecessary conflicts along the street. The minimum required separation of a proposed driveway from other (existing or proposed) driveways along a public street is:

- a. 50' for a non-median divided street.
- b. 20' for a median-divided street.

These driveway spacing dimensions will not accommodate every situation and CDOT reserves the right to modify/adjust these dimensions based on the existing/proposed site and roadway conditions.

4. Property Lines

To ensure adequate driveway spacing, the following applies:

- a. 10' minimum separation from property lines.
 - i. Measure from the property line to the radius point of the driveway, except for Type II and Type IV.
 - ii. For Type II and Type IV, measure from the tie-in location of the taper to the existing street pavement.
- b. If an existing driveway is within 10' of the property line, CDOT may require additional separation from the property line to ensure a minimum 20' driveway separation.
- c. For an urban infill site, CDOT may reduce these requirements on a case-by-case basis if an access plan can be developed that clearly minimizes negative impacts to the street (including roadway, sidewalk, and bicycle facilities) while allowing the site to achieve other design objectives relevant for the context.
- d. CDOT will encourage the use of shared driveways to help address spacing and minimize conflicts along streets.

C. Access Restrictions & Mitigations

In addition to reviewing each driveway location, CDOT will determine whether access restrictions apply. Access restriction refers to whether full vehicular movements will be restricted for a given driveway/access point. The following requirements apply:

1. Refer to UDO Article 31.3 for common circumstances where vehicular access will be restricted. CDOT may also restrict full movements for other specific circumstances, based on safety and efficient street operations.
2. Where access is restricted, the typical design to restrict movements is a raised concrete median to allow only "right-in/right-out" movements.
3. CDOT will consider other designs for restricting access, including directional crossovers ("leftovers"), based on the expected street cross-section and context, but will not approve "pork chop islands" near intersections.

D. Supporting Transportation Infrastructure

Even with appropriate driveway locations and access restrictions, other infrastructure is sometimes necessary to provide safe and efficient access to public streets. This section describes requirements for supporting infrastructure.

1. Turn Lane Warrants - Authority

Under North Carolina General Statute §160A-307 "[Curb cut regulations](#)", the City has the authority to require certain transportation infrastructure including but not limited to raised medians and acceleration and deceleration lanes to ensure the safe and efficient operations of the public street network. In addition, UDO Article 31.3 gives authority to require turn lanes for private development.

2. Left-Turn Lanes

Left-turn lanes reduce the potential for rear-end crashes and improve operations where appropriate for the context. Left-turn lanes are required when:

- a. A site generates 50 or more left turns from an arterial during the peak hour, or
- b. A CTR identifies a left-turn lane as mitigation
- c. These requirements for left-turn lanes are further subject to the following considerations:
 - i. Not typically required for collectors and local streets, unless the street has high volumes or known operational, safety, or sight distance deficiencies.
 - ii. Might not be required in higher intensity Place Types, even if the site exceeds the 50 peak hour left-turn threshold.
 - iii. The USDG provides additional information on the appropriateness of left-turn lanes based on street type.

3. Right-Turn Lanes

Right-turn lanes can improve traffic operations and allow for higher speeds. However, if used at mid-block locations, they can degrade safe and comfortable operations for pedestrians and cyclists, due to frequent turning movements and higher driveway entry speeds. CDOT does not generally require or support mid-block right-turn “deceleration lanes” as a condition of driveway plan approval, subject to the following considerations:

- a. A CTR may identify a right-turn lane as a required mitigation.
- b. Right-turn lanes are more appropriate for, and may be required in, the Manufacturing and Logistics Place Type where high truck volumes are anticipated.
- c. Right-turn lanes are generally not appropriate in higher-intensity Place Types but may be required at signalized intersections.

4. Traffic Signals

Per UDO Article 31.3, a [Signal Installation/Modification Agreement](#) is required when a proposed development either warrants a new traffic signal or alters an existing traffic signal. “Altering” includes, but is not limited to, modifications/impacts to existing loop detectors, controller cabinets, pull boxes, wood poles, strain poles, and mast arms. The Signal Installation/Modification Agreement must be executed, and any associated fees paid prior to construction plan approval.

2.3 DRIVEWAY DESIGN CRITERIA

Type and design of access points are key decisions affecting safety and operations of streets. This section describes how CDOT regulates those decisions. Additional provisions for specific Uptown streets are described in Section 2.4. Where those provisions conflict with any of the applicable provisions in this Section (2.3), the more restrictive applies.

A. Driveway Types & Selection

CDOT generally follows national design criteria identified in the latest version of the *AASHTO Policy on Geometric Design* when regulating the minimum requirements for driveway placement and design, and applies the standard driveway designs included in the [Charlotte Land Development Standards Manual](#) (CLDSM) for land development projects seeking driveway access to public streets. **Table 2.2 Driveway Types** describes how the driveway types will generally be applied, subject to the following guidance:

1. CDOT reserves the right to require a different standard driveway type than proposed based on safety, land use context, characteristics of the adjacent street, and site design.
2. The site designer can submit a standard driveway type that differs from the guidance in **Table 2.2 Driveway Types**, with supporting reasons for the substitution, for CDOT’s review and consideration.

3. If standard designs do not meet site-specific needs, the site designer can submit a non-standard driveway design to CDOT for review and consideration. Note that review time for non-standard designs may take longer than the typical commercial review timeframe. Therefore, the site designer is encouraged to coordinate with CDOT about the design as much as practical before formally submitting the construction documents for review.
4. In all cases, CDOT will make the final decision on the driveway type and design.

Table 2.2 Driveway Types		
Driveway Type (CLDSM)	Description / Intent	General Parameters
Type I (10.24 A,B,C; 10.25 A, C; 10.27.A)	Driveways designed for low turning volumes and slow turning speeds. Typically used for lower density residential development, including single-family residences, townhomes, duplexes, and triplexes.	<ul style="list-style-type: none"> • Generally used on Locals and Collectors • May apply on Arterials • Recommended width 16'-20'
Type II (10.24 A, B, C; 10.25 B, D)	Driveway with flares. Designed for higher turning volumes, but relatively slow turning speeds, to support moderate to high pedestrian activity.	<ul style="list-style-type: none"> • Generally used on streets with speed limits of ≤ 35 mph • Typically <500 daily vehicle trips • Recommended width 26'-30'
Type II Modified (10.25 E)	Driveway with small radii. Designed for higher turning volumes and somewhat higher speeds to balance ingress/egress in moderate to high pedestrian areas.	<ul style="list-style-type: none"> • Generally used on streets with speed limits >35 mph • Higher trip generating sites (typically ~500 daily vehicle trips). • Recommended width 26'-30'
Type III (10.28)	Street-type driveway serving as: <ul style="list-style-type: none"> • primary shared access for multiple developments, • access primarily for truck traffic, or • the fourth leg to a signalized intersection. 	<ul style="list-style-type: none"> • Generally used on arterials • Higher trip generation developments (typically ~2,500 daily trips) • Typically, one ingress and two egress lanes • Recommended width 35'-40'
Type IV (10.25F)	Street-type driveway designed to accommodate high truck activity where no curb and gutter exists.	<ul style="list-style-type: none"> • Used on a variety of street types • Recommended width 35'-40'

B. Additional Design Guidelines

1. Convenience Stores & Gas Stations

Convenience stores and gas stations tend to favor corner sites near signalized intersections, which presents access challenges. Even when not on corner sites, these uses present unique challenges, due to high trip generation and typically undefined on-site circulation patterns. To balance the needs of those using the site, while providing safe use of the street and driveways, the following requirements apply to these uses:

- a. Type III driveways will not be permitted.
- b. CDOT will work with site designers to ensure site plans offer the highest degree of on-site traffic organization and vehicular circulation.

2. Gated Entrances

CDOT shall review and approve all gated entrances and exits.

3. Channelization & Internal Driveway Access

Internal channelization on commercial driveways safely organizes entering and exiting traffic by eliminating excessive maneuvering within the driveway stem. CDOT applies the following guidance for internal channelization (all lengths are measured from the back of the driveway apron into the site):

- a. 50' minimum length for commercial site access to a public street.
- b. 100' minimum length for larger shopping centers and higher density mixed-used developments.
- c. 200' minimum length where a driveway serves as a leg of a signalized intersection.
- d. Internal driveways are typically not permitted within the channelized portion of a driveway accessing a public street.
- e. Right in/right out access within the channelized stem may be allowed, on a case-by-case basis, subject to analysis of intersection operation and appropriate design.

These minimum dimensions will not address every situation. CDOT reserves the right to modify/adjust these dimensions based on the existing/proposed site and access conditions. In those cases, CDOT will work with the site designer to find the safest and most efficient channelization design.

4. Driveway Alignment

Refer to UDO Article 31.3 for driveway/street connection alignment and internal access rules.

5. Schools

CDOT will use the regulations and design criteria in these guidelines when reviewing new school construction plans. In addition:

- a. Each proposed school is required to submit a completed NCDOT [Municipal School Transportation Assistance \(MTSA\)](#) vehicular queue calculator, to ensure adequate on-site vehicular storage and stacking, and that vehicular queuing does not spill into the public right-of-way.
- b. School sites may be required to submit a CTR, based on the number of students, adequacy of existing public infrastructure to accommodate the increase in traffic volume, proposed bell times, and future student population growth potential.
- c. Transportation improvements and reimbursements will follow N.C.G.S. § 160A-307.1.

6. Residential Driveways

For single-family residential driveways, most reviews/approvals are included as part of the Subdivision process (defined elsewhere). Where single-family access to an individual parcel from a public street or right-of-way is proposed:

- a. Stormwater Services, in consultation with CDOT, will review the driveway request for location and impacts to drainage.
- b. Use Type I driveways.
- c. Contact Charlotte Development Services at (704-336-6692) or www.Charlottenc.gov/DevelopmentCenter.

7. Sight Distance

Adequate available sight distance is a critical criterion for providing safe access to the public street system. Therefore, all existing and proposed driveway entrances must conform to the latest version of [CDOT's Sight Distance Policy](#).

8. Permanent Pavement Markings & Signage

All permanent traffic control signs and pavement markings placed on driveway entrances and within the public right-of-way:

- a. must conform to the latest edition or revision of the [Manual on Uniform Traffic Control Devices](#) (MUTCD),
- b. must conform to CDOT's latest version of the [Pavement Marking Standards](#), and
- c. shall be located and maintained in accordance with the approved site plan.

9. Construction-Related Traffic Control

During construction activities, all traffic control signs, and pavement markings placed on driveway entrances and within the public right-of-way:

- a. must conform to the latest edition or revision of the MUTCD,
- b. must conform to CDOT's latest version of the [Work Area Traffic Control Handbook](#) (WATCH), and
- c. shall be located and maintained in accordance with the approved site plan.

2.4 SPECIAL ACCESS PROVISIONS FOR UPTOWN STREETS

This section describes additional provisions for specific Uptown streets. Where those provisions conflict with any of the applicable provisions in Sections 2.2 and 2.3, the more restrictive applies.

A. Area Definitions

The Tryon Street Mall is defined as the area contained between the John Belk Freeway bridge and the Brookshire Freeway bridge along Tryon Street, including the 100 blocks of West and East Trade Street. The Brevard Street Area is defined as the area bounded by the LYNX Blue Line, East Trade Street, South Caldwell Street, and I-277, but including the property immediately fronting both sides of these streets.

B. Access Provisions

The following access provisions shall apply specifically to the Tryon Street Mall and the Brevard Street Area:

1. No vehicular access to or from surface or structured parking shall be allowed along Tryon Street within the Tryon Street Mall.
2. Any service or utility areas of buildings with access only along the Tryon Street Mall are subject to the following time restrictions:
 - a. Monday through Saturday, access is only allowed between 6:00 p.m. and 7:30 a.m.
 - b. On Sundays and holidays, access is allowed at any time.
 - c. Emergency service vehicles are allowed access at all times.
3. Along the Trade Street portion of the Tryon Street Mall (the 100 blocks of East and West Trade Street), any vehicular access, whether from surface or structured parking, will be restricted to "right in, right out" access.
4. No new structured or grade-level parking facilities shall be allowed to have direct vehicular access on Brevard Street.
5. Along all other streets in the Brevard Street Area, vehicular access to structured parking facilities is allowed, subject to the following:
 - a. Facilities shall provide a street level transition area for vehicular stacking between entrance and/or exit gates or pay station and the back of the sidewalk.
 - b. CDOT shall review and approve all gates and transition areas.
 - c. Sloped express exit ramps are prohibited on any frontage.

SECTION 3. COMPREHENSIVE TRANSPORTATION REVIEW GUIDELINES

- 3.1 PURPOSE & APPLICABILITY
- 3.2 COMPREHENSIVE TRANSPORTATION REVIEW (CTR) PROCESS
- 3.3 MULTIMODAL ASSESSMENT (MA)
- 3.4 TRANSPORTATION DEMAND MANAGEMENT (TDM)
- 3.5 TRAFFIC IMPACT STUDY (TIS)
- 3.6 COMPREHENSIVE TRANSPORTATION REVIEW (CTR) TIS SCOPING FORM
- 3.7 AREA OF INFLUENCE (AOI) MODIFICATION REQUEST

3.1 PURPOSE & APPLICABILITY

A. Purpose

The purpose of the Comprehensive Transportation Review (CTR) Guidelines is to advance the City of Charlotte's adopted transportation goal to provide safe and equitable mobility options for all travelers. The CTR Guidelines define the process and methods that the Charlotte Department of Transportation (CDOT) will use to review, assess, and identify the impact and appropriate mobility and transportation mitigation for land development projects.

B. Applicability

The CTR Guidelines apply to all new development, redevelopment, and zoning map amendments (conditional and EX rezonings) in the City of Charlotte and its extra-territorial jurisdiction (ETJ).

3.2 COMPREHENSIVE TRANSPORTATION REVIEW (CTR) PROCESS

A. CTR Assessments & Thresholds

The CTR process includes three types of assessment: 1) Multimodal Assessment (MA), 2) Transportation Demand Management (TDM), and 3) Traffic Impact Study (TIS). The type and tier of CTR assessment is based on the trip generation thresholds and conditions outlined in **Table 3.1 Comprehensive Transportation Review Thresholds**. The applicant shall apply the assumptions outlined in **Table 3.5 Trip Calculation Assumptions and TIS Data Requirements** to determine trip generation.

B. CTR Scoping & Review Process

To determine CTR scope and review process, applicants should follow the steps outlined in **Table 3.2 CTR Scoping and Review Process**. The Applicant may request one voluntary pre-submittal or pre-scoping meeting to discuss the potential project, but determination of the CTR scope will not be finalized until the applicant has formally submitted the scope and received final scope approval from CDOT. The CTR Scope must be approved before proceeding with any CTR assessments or analyses.

For developments that do not meet the TIS threshold, the scoping process does not apply. The applicant should include the MA and/or TDM Assessments in the construction plans/rezoning and submit as part of the land development review process, using the supplemental guidance provided in the CTR Process Summary Guide.

C. CTR Mitigations

Mitigations are infrastructure improvements provided by a development to the transportation system, that directly relate to the impacts associated with that development. Information about mitigations and mitigation options are included in Sections 3.3, 3.4, and 3.5. All mitigations must be included in the assessment documentation/final report.

1. **Fee-in-lieu** is a mitigation option where a development would pay a fee instead of providing infrastructure improvements.
 - a. CDOT will establish a detailed fee-in-lieu program and fee structure following adoption of the Streets Manual.

D. Professional Requirements

All TIS must be prepared by a Professional Engineer registered with the State of North Carolina. When a TIS is not required, MA and TDM assessments may be prepared by a Transportation Planner, Landscape Designer, Engineer, or other transportation professional with competency and relevant experience.

Table 3.1 Comprehensive Transportation Review Thresholds									
		Multimodal Assessment			Transportation Demand Management Assessment (TDM)			Traffic Impact Study (TIS)	
		Intent Identify pedestrian mitigations			Intent Identify vehicle trip reduction strategies			Intent Identify vehicle trip mitigations	
		Multimodal Mitigation			TDM Mitigation			Traffic Impact Study	
Zoning Districts	Land Use	Tier 1 (Mitigation Points:3)	Tier 2 (Mitigation Points:6)	Tier 3 (Mitigation Points:9)	Tier 1 (Mitigation Points: NA)	Tier 2 (Mitigation Points: NA)	Tier 3 (Mitigation Points: NA)	Threshold	Additional Conditions
Net New Trip Thresholds: Low Intensity Development (based on zoning districts)									
N1 Districts N2-A N2-B MHP ML-1 ML-2 IC-1 OFC N2-C IC-2 CG CR	Residential	≥ 750 daily trips	≥ 1,500 daily trips	≥ 2,000 daily trips	Not Required			≥ 1,500 daily trips or ≥ 150 peak hour trips	Regardless of threshold, a TIS may be required if any of the following conditions exist. 1. Impacts a location with a high vehicle or multimodal crash history. 2. Occurs at a high congestion location. 3. Creates the fourth leg of or otherwise modifies an existing signalized intersection. 4. Impacts a unique access situation, such as a railroad crossing, fire station access location, etc. <i>Thresholds are based on ITE Suburban classification. CDOT may allow other classifications.</i>
	Commercial	≥1,000 daily trips	≥1,250 daily trips	≥1,500 daily trips					
	Office	≥100 peak-hour	≥125 peak-hour	≥150 peak-hour					
	Industrial	≥1,000 daily trips	≥1,250 daily trips	≥1,500 daily trips					
	Mixed Used ¹	≥1,000 daily trips	≥ 1,500 daily trips	≥ 2,000 daily trips					
Net New Trip Thresholds: Medium to High Intensity Development (based on zoning districts)									
Zoning Districts	Land Use	Tier 1 (Mitigation Points:5)	Tier 2 (Mitigation Points:9)	Tier 3 (Mitigation Points:14)	Tier 1 (Mitigation Points:2)	Tier 2 (Mitigation Points:4)	Tier 3 (Mitigation Points:6)	Threshold	
IMU NC CAC-1 CAC-2 TOD-UC TOD-NC TOD-CC TOD-TR RAC UC UE	Residential	≥ 350 daily trips	≥750 daily trips	≥1,100 daily trips	≥350 daily trips	≥ 750 daily trips	≥ 1,100 daily trips	≥ 2,000 daily trips or ≥ 200 peak hour trips (after 30% trip reduction for TDM)	
	Commercial	≥1,000 daily trips	≥1,250 daily trips	≥1,500 daily trips	≥1,000 daily trips	≥1,250 daily trips	≥1,500 daily trips		
	Office	≥100 peak-hour	≥125 peak-hour	≥150 peak-hour	≥100 peak hour	≥125 peak hour	≥150 peak hour		
	Industrial	≥1,000 daily trips	≥1,250 daily trips	≥1,500 daily trips	≥1,000 daily trips	≥1,250 daily trips	≥1,500 daily trips		
	Mixed Used ¹	≥1,000 daily trips	≥ 1,250 daily trips	≥ 1,500 daily trips	≥1,000 daily trips	≥1,250 daily trips	≥1,500 daily trips		

¹Includes Public Parks and Recreational Centers

Table 3.2 CTR Scoping & Review Process ¹

Step	Description	Purpose/Outcomes	CDOT Review Time
TIS Scope			
1	Applicant screens for CTR triggers & submits initial Scoping Form (see section 3.6)	<ul style="list-style-type: none"> • Confirm whether a CTR is required • Confirm required CTR reviews 	10 working days
2	Scoping Meeting (optional)	<ul style="list-style-type: none"> • Discuss CTR assumptions and methods • Identify any required revisions to the Scoping Form 	
3	Applicant re-submits revised Scoping Form based on comments and any related documents, as necessary	<ul style="list-style-type: none"> • Changes to project details may prompt new comments • Approve Scoping Form OR • Identify any further revisions required for approval 	10 working days
CTR Submittals			
4a	Applicant submits a standalone MA, or MA with TDM, as part of construction plans/rezoning through the land development review process (when no TIS is required)	<ul style="list-style-type: none"> • Review and Approve OR • Identify any further revisions required for approval 	Follows land development review process (includes resubmittals)
4b	Applicant submits MA, or MA and TDM, with TIS	<ul style="list-style-type: none"> • Review and Approve OR • Identify any further revisions required for approval 	Initial Review 20 working days Re-submittals 10 working days

¹This table applies to CDOT requirements only. It is the Applicant’s responsibility to determine if a North Carolina Department of Transportation (NCDOT) TIA is required and work with the City and State to coordinate scoping and reviews.

3.3 MULTIMODAL ASSESSMENT (MA)

A. Intent

The intent of a Multimodal Assessment (MA) is to identify site-specific and development-related pedestrian, bicycle, and transit-supportive infrastructure necessary to establish an accessible and connected multimodal network.

B. Assessment

Many of the City’s multimodal network needs have been documented in the City’s ADA Transition Plan (for public right-of-way and transit) and in CDOT’s list of approved pedestrian crossings and signal locations. These sources exist as GIS data and are examples of preapproved mitigation opportunities to meet the MA requirements. The Applicant can use these data sources and/or choose to conduct a field review to propose specific (previously unidentified) improvements.

The applicant shall review and assess the publicly accessible pedestrian network within 1/4 mile walking distance of the site to identify multimodal infrastructure needs including:

- 1. Sidewalks & Shared Use Paths** - Missing or non-compliant sidewalks, curb ramps, or other features necessary for pedestrian connectivity as identified in the ADA Transition Plan or field-identified by the applicant.
- 2. Intersections & Accessible Ramps** - ADA compliance at intersections including presence of accessible clear paths, curb ramps with detectable warning surface, and signals with audible pedestrian signals (APS).
- 3. Pedestrian Crossings** – Identified need or opportunity for pedestrian crossings.

C. Documentation

The scale of development determines the associated MA Tier (as shown in **Table 3.1 Comprehensive Transportation Review Thresholds**) and the amount of multimodal mitigation points required. **Table 3.3 Multimodal Assessment Mitigation Options** documents the menu of potential multimodal improvements and their associated mitigation points.

1. MA Summary

A summary of the MA shall be included in the submitted CTR Report for review and approval. If no TIS is required, the MA summary should instead be submitted in table form in the construction plan/rezoning as part of the land development review process. Summary information shall include:

- a. Documentation of required MA mitigation points
- b. A list of MA mitigations proposed, including the point values
- c. Plans, descriptions, and locations of physical MA mitigations. This information shall also be submitted with land development construction plans.

Table 3.3 Multimodal Assessment Mitigation Options	
Sidewalks & Shared Use Paths	Mitigation Points
Construct or reconstruct missing or deficient sidewalk or shared use path (SUP) (per 25 linear feet constructed)	0.5
<ul style="list-style-type: none"> • New sidewalk should be a minimum of 6' wide and constructed at the back of right-of-way. • Reconstructed sidewalk should match the width of the existing sidewalk, unless the existing sidewalk is less than 6' wide, then the reconstructed sidewalk should be a minimum of 6' wide. • SUP should match the width of the existing SUP. • Use constrained space guidance from UDO Article 32.7.D.4, where ROW or existing built environment won't allow the standard. 	
Intersections & Accessible Ramps	Mitigation Points
Construct or reconstruct 2 accessible ramps (unsignalized intersection)	1
Construct or reconstruct 2 accessible ramps (signalized with APS buttons)	2.5
Construct or reconstruct 8 accessible ramps (full intersection) with APS buttons	10
Pedestrian Crossings	Mitigation Points
Construct Pedestrian Refuge Island with receiving ramps	5
Install Rectangular Rapid Flashing Beacon (RRFB) and construct receiving ramps	6
Install Pedestrian Hybrid Beacon and construct receiving ramps	14
Other	Mitigation Points
All loading and solid waste pickup within the site (zoning districts IC-2, IMU, NC, CAC-1, CAC-2, RAC, UE, UC, TOD-CC, TOD-NC)	14

Notes:

1. CDOT may consider other Multimodal mitigation options.
2. Improvements are based on right-of-way availability.
3. Any physical improvements for bicycle or transit modes required by the UDO may be used for MA mitigation points.
4. Mitigation points earned through multimodal improvements may also qualify for UDO Bonus Points (UDO Table 16-1: Bonus Menu), if improvements are above the required CTR tier/points.

3.4 Transportation Demand Management (TDM)

A. Intent

The intent of a Transportation Demand Management (TDM) assessment is to identify site-specific and development-related ways to reduce single occupant vehicle trips and encourage alternative modes of transportation.

B. Assessment

It is the City's goal to collaborate with applicants to identify appropriate TDM measures and assess their effectiveness relative to the land use and mobility context of the site.

C. Documentation

The scale of the development determines the associated TDM Tier (as shown in **Table 3.1 Comprehensive Transportation Review Thresholds**) and the amount of TDM points required. **Table 3.4 TDM Mitigation Options** documents the menu of potential TDM strategies and their associated mitigation points.

1. TDM mitigation ("TDM Plan")

A summary of the TDM Plan shall be included in the CTR Report submitted for review and approval. If no TIS is required, the TDM summary should instead be submitted in table form in the construction plan/rezoning as part of the land development review process. Summary information shall include:

- a. Documentation of required TDM mitigation points.
- b. A list of TDM mitigations proposed, including the point values.
- c. Plans, descriptions, and locations of physical TDM mitigations. This information shall also be submitted with land development construction plans.

2. TDM Plan Monitoring

Following implementation of the TDM Plan, the City will periodically reach out to the property owner's designated TDM Coordinator to request usage data for each of the selected measures. The intent is for the City and property owners to jointly assess the effectiveness and viability of the measures over time. The City and property owner may elect to discontinue less effective measures, expand more effective measures, and/or implement measures not previously utilized. The property owner may also proactively reach out to the City to request a joint evaluation of measures and/or provide a proposal to adjust measures to maximize effectiveness.

Table 3.4 TDM Mitigation Options	
Tier 1 Required Strategies	Mitigation Points
TDM Point of Contact – Provide a contact person and information for City to coordinate on TDM strategies.	0
TDM Coordinator - Identify a TDM Coordinator to serve as point of contact to the City regarding all aspects of TDM Plan creation and implementation. Required for sites triggering a TIS.	1
Multimodal Assessment (MA)	Mitigation Points
Multimodal Infrastructure – Completion of required Multimodal Assessment (MA) improvements.	1

Table 3.4 continues next page

Table 3.4 TDM Mitigation Options (cont'd)	
Programmatic Strategies	Mitigation Points
Education, Marketing and Outreach - Provide employees and/or tenants TDM education packets with information about non-SOV travel options including specific transit and bicycle routes.	1
Transit Fare Subsidy - Provide contributions or incentives equivalent to 50% of the adult-fare cost of a CATS Express Monthly pass for each employee/resident, at least once annually. New employees/residents should be offered the subsidy upon hire/move-in if the annual request deadline has passed.	1
Joy Rides Membership - For sites within 1,000 feet of an existing or planned Joy Rides station, offer annual Charlotte Joy Rides bike share membership to employees and/or residents annually.	1
Ride-Matching Service - Work with CATS to enroll employees and residents in an online ride matching service, such as ShareTheRideNC, that provides a secure network for people to post and search for shared rides.	1
Vanpool Program - Offer sponsored (no cost to employee) vanpools providing service between the site and employees' residences.	1
Vanpool Subsidy - Cover monthly <u>CATS Vanpool fares</u> for on-site residents and employees.	1
Guaranteed Ride Home - Provide reimbursement for up to five Taxi/TNC rides home annually for registered employees who commute by non-SOV modes and/or forgo on-site parking.	1
Flexible Work Schedules - Encourage and track participation in flexible work schedules, compressed work weeks, or partial telecommuting schedules.	1
Resident TDM Amenities - Provide equipment for non-motorized errands such as collapsible shopping/utility carts and cargo bikes for residents' shared use.	1
Physical Strategies	Mitigation Points
Bicycle Facilities – Construct Streets Map designated bicycle facility along the development frontage (including ordinance requirements) and/or off-street trails or crossing treatments that encourage bicycling to and from the site.	3
Shared Ride/Car Share Parking – Designate (5) parking spaces, or 5% of spaces for carpooling/vanpooling and car share vehicles.	1
TDM Wayfinding – Provide TDM supportive wayfinding/signage at key locations internally and externally to site and area-related multimodal transportation options and amenities.	1
On-site Childcare – Provide childcare services on site with preferential placement for children of employees/residents.	1
Active Transportation Strategies	Mitigation Points
Bicycle Parking – Provide bicycle parking to at least 125% of that required by UDO Article 19.4.	1
Bicycle Parking – Provide secure long-term bicycle spaces at a rate of 1 per 20 dwelling units.	1
Bicycle Repair Station – Provide a bicycle repair station on-site in a covered area such as a bicycle storage room or garage with tools and supplies necessary perform basic maintenance.	1
End-of-trip Facilities – Provide end-of-trip facilities for people using active modes including showers, changing locations, and lockers.	1
Bike Share Station – Locate a bike share station on-site or provide a fleet of shared bikes for use of employees, residents, and/or guests.	1

Table 3.4 continues next page

Table 3.4 TDM Mitigation Options (cont'd)	
Transit Strategies	Mitigation Points
Transit Stop/Mobility Hub Improvements – Provide improvements at an existing or planned CATS stop or mobility hub as required by UDO Article 32.4.	1
Transit Service Upgrades – Fund and/or partner in funding CATS service improvements, such as increased service frequency, reduced trip times, expanded service spans, etc.	1
Real-Time Information – Provide monitors that display travel options and real-time transit schedules, availability and location of car share and bike share vehicles, and approximate walking times to those locations.	1
Shuttle/Connector Service – Provide shuttle service for use of employees, residents, and/or guests, serving key transit hubs, commercial centers, and relevant civic destinations.	1
Parking Strategies	Mitigation Points
Parking Supply – Provide ≤ 75% of maximum allowed parking per land use.	1
Parking Supply – Provide ≤ 50% of maximum allowed parking per land use.	2
Parking Supply – Provide ≤ 25% of maximum allowed parking per land use.	3
Unbundle Parking – Unbundle parking spaces from all residential/tenant lease or purchase fees so that residents/employers have the choice of renting or buying a space.	3
Share Parking – Provide public access to parking (minimum 10 spaces and/or 10% of the total number of all spaces).	1
Price Parking – May include hourly, daily, or dynamic rate pricing for non-tenant (visitor) parking and/or all available parking.	2

Notes:

1. Programmatic measures shall remain in place throughout the course of site occupancy, unless the City and property owner evaluate and agree that other programs or improvements would be equally or more effective.
2. Any physical improvements for bicycle or transit modes required by the UDO or a MA may be used for TDM mitigation points.
3. CDOT may allow other TDM Strategies with documentation.
4. Mitigation points earned through TDM programs and strategies may also qualify for UDO Bonus Points (UDO Table 16-1: Bonus Menu), if improvements are above the required CTR tier/points.

3.5 TRAFFIC IMPACT STUDY (TIS)

A. Intent

The intent of a Traffic Impact Study (TIS) is to identify site-specific and development-related ways to mitigate the vehicular impact of development.

B. Assessment

1. Projects meeting the TIS thresholds shown in **Table 3.1 Comprehensive Transportation Review Thresholds** must conduct a TIS. In addition, an updated TIS may be required if:
 - a. The proposed development's land use mix changes,
 - b. Access to the site changes,
 - c. A previous (approved) study is more than 2 years old, or
 - d. Other significant changes have occurred to the surrounding area.

2. CDOT reserves the right to modify the TIS requirement under certain circumstances, including but not limited to:
 - a. Applicant agrees to alternative mitigations,
 - b. Applicant provides a modified analysis or assessment that still meets the intent of a TIS.

3. The following describes the process for conducting the TIS.

- a. **TIS Area of Influence (AOI)**

The TIS AOI must include all intersections that might reasonably be impacted by the proposed development. The AOI intersections will typically lie within ½ mile of the proposed development. However, developments generating more than 5,000 daily trips or 500 peak hour trips may require a study area that extends further from the development. At a minimum, the AOI should consider:

- I. All site access points.
- II. Nearest signalized intersections in all directions from site access points.
- III. Unsignalized intersections and access drives within the development's area of influence.
- IV. Both sides/direction of any interchange within the development's area of influence.

CDOT may consider a modified AOI under certain scenarios described in the Scoping Form (Section 3.6), and when criteria included in a AOI Modification Request (Section 3.7) have been met.

CDOT will make the final determination for the AOI during the Scoping Approval Process

- b. **TIS Analysis**

- I. **TIS Data Requirements**

The Applicant shall review data assumptions with CDOT as part of the Scoping Approval Process. **Table 3.5 Trip Calculation Assumptions and TIS Data Requirements** outlines the key assumptions and data requirements.

- II. **General Capacity Analysis Requirements**

The Applicant shall use the most recent version of Synchro or equivalent traffic analysis software based on the latest Highway Capacity Manual and approved by CDOT. Analysis must include level of service for study intersections, and all approaches and movements, including queue analysis.

- III. **Study Scenarios**

The TIS must analyze scenarios comparing build and no-build conditions. The Applicant must propose an anticipated build-out year for the entire project. Phased developments should include build out year for each future phase. The TIS must include the following conditions:

- a) Existing Conditions
- b) Future Background Conditions (No-Build)
- c) Total Future Conditions (with Development)
- d) Total Future Conditions (with Development and Mitigation/Improvements)

- IV. **Roadway Capacity Analysis**

The results from the capacity analysis for all scenarios should include, but not be limited to, the following:

- a) Intersection Level of Service (LOS) by individual approaches at an intersection
- b) Delay (veh/sec) by approach and intersection
- c) For individual movements at intersections, provide 95% Queue length (feet) from Synchro and/or SimTraffic maximum, whichever is greater

C. Documentation

1. Mitigation Identification

The Applicant shall identify and propose mitigation improvements to the roadway network if at least one of the following conditions exists when comparing base network conditions to project conditions (Future No-Build to Build):

- a. The total average delay at an intersection or individual approach increases by 25% or greater, while maintaining the same level of service, or
- b. The Level of Service degrades by at least one level, or
- c. Level of Service is "F", or
- d. The 95th percentile queue exceeds the storage capacity of the existing lane (for turning lane mitigations).

2. Mitigation Determination

All proposed improvements shall be evaluated as to their effectiveness and consistency with CDOT's approach to mitigation. The mitigation measures shall be assessed by comparing the existing conditions and the future conditions, with and without the proposed mitigations. CDOT will make the final determination of mitigation improvements required to be constructed by the Applicant. Mitigations proposed and approved by CDOT shall be incorporated into submitted land development construction plans. Any transportation network improvements from previously approved development projects within the study area that were used in the analysis must be implemented by the proposed development's build-out year or must be provided by the proposed development.

3. Summary Report

A summary report shall be prepared for review and final TIS approval and at a minimum include:

- a. Executive Summary
- b. Site Plan & Project Overview
- c. Existing Traffic Conditions
- d. Project Trip Generation
- e. Multimodal Assessment Summary
- f. TDM Summary (if applicable)
- g. Traffic Impact Study Analysis and Mitigations
 - I. Summary of analysis and mitigations
 - II. Graphic of mitigations
 - III. Suggested Conceptual Improvements (if requested by CDOT)
 - IV. Analysis of study intersections
- h. Appendix
 - I. Approved Scope
 - II. List of Tables
 - III. List of Figures
 - IV. Synchro and SimTraffic Reports (provide electronic software files)

Table 3.5 Trip Calculation Assumptions and TIS Data Requirements

Background Growth Rate
<ul style="list-style-type: none"> • Must be based on historic AADT and growth rates measured along the study corridors. • If no data are available, a fixed 2% rate will be applied, unless CDOT determines a different rate based on developments near the site. CDOT staff will approve the list of nearby projects to be included in the analysis.
Existing Trip Reduction
<ul style="list-style-type: none"> • Projects may deduct existing trips from the total proposed development trip generation when; 1) existing site land uses were active over the prior year, 2) peak hour characteristics are similar, 3) there are documented vehicle counts collected over the prior year (CDOT may allow ITE Trip Generation to determine existing trips, on a case-by-case basis). • Trip credits cannot be used for sites that have been closed/dormant for more than one year.
Internal Capture
<ul style="list-style-type: none"> • Use NCDOT Congestion Management Capacity Analysis Guidance (or latest guidance) for internal capture. • Use NCHRP 684 Enhancing Internal Trip Capture Estimation for Mixed-Use Developments (or latest national guidance) to calculate the rate. • Apply the internal capture reduction before the pass-by trips are calculated.
Pass-By Trips
<ul style="list-style-type: none"> • Use maximum peak hour trip rates prescribed in NCDOT Congestion Management’s “Rate versus Equation” table (or latest guidance). • CDOT may consider a higher pass-by discount, with appropriate documentation.
Trip Distribution
<ul style="list-style-type: none"> • Projects proposed to be built in phases must use actual phasing time forecasts for full project build-out. • Provide exhibits showing trip distribution percentages based on existing and future traffic patterns, locations of population/employment.
Turning Movement Counts (TMC)
<ul style="list-style-type: none"> • Required for all vehicles, bicycles, pedestrians, and trucks at all study area intersections. • Must be collected in 15-minute increments and for industry-standard days and times: <ol style="list-style-type: none"> a. 6:30-9:30 AM and 4:00-7:00 PM on a typical Tuesday, Wednesday, or Thursday, b. when public schools in session, c. weather not a factor, and d. non-holiday weeks. • CDOT may require additional analysis periods based on project location and proposed uses: <ol style="list-style-type: none"> a. Saturday peak periods for developments with significant retail uses (typically, 11:00 AM to 2:00 PM), b. Sunday peak periods for projects including or adjacent to church uses, c. weekday evening game-day peak periods for projects adjacent to major sporting facilities. • If site is currently in use, count all existing driveways and report the TMC data as existing site trips in the trip generation summary table. • For TMCs more than one (1) year old, but less than two (2) years old, apply a growth rate, to be determined by CDOT.
Other
<ul style="list-style-type: none"> • Utilize the most recent version of ITE Trip Generation guidelines and methods for trip generation.

3.6 COMPREHENSIVE TRANSPORTATION REVIEW (CTR) TIS SCOPING FORM

Contact Information:	Name & Company	Phone	Email
Developer			
CTR Consultant			
Project Information			
Project Name			
Location/Cross-Street			
CTR Reviews	<ul style="list-style-type: none"> • Transportation Demand Management <input type="checkbox"/> • Multimodal Assessment <input type="checkbox"/> • Traffic Impact Study <input type="checkbox"/> 		
Development Type	Rezoning <input type="checkbox"/> RZ No: _____	By-Right <input type="checkbox"/>	
Existing Zoning		Proposed Zoning	

Development Plan: (use separate pages as needed for phased development)

Trip Generation												
ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	

Refer to current [NCDOT Congestion Management for Trip Generation Rate Equation Recommendations](#)

Other Pertinent Information about the Project: (e.g. constraining site conditions) : _____

Meetings: Pre-Application/Pre-Submittal Meeting/others If yes, Date: _____

Reason TIS is Required: _____

Study Parameters		
Background growth rate	_____ % (CDOT standard is 2% per year, applied once)	
Peak Hour Counts	<input type="checkbox"/> 6:30–9:30 AM, 4:00–7:00 PM (if nearby school, extend to 2:00-7:00)	<input type="checkbox"/> Other _____
<ul style="list-style-type: none"> • Additional times may be requested if geography has multiple peak-hour trips • 13-hour counts recommended if the analysis will potentially include recommendation for new signal 		
NCDOT Review	<input type="checkbox"/> No	<input type="checkbox"/> Yes
If yes, contact The Division 10, District 2 District Engineer at (980) 523-0000 for NCDOT requirements		

Study Intersections				
No.	Intersection	Signalized (Y/N)	Coordinated (Y/N)	AOI Modification (Y/N)

Notes:

- i. For AOI Modification Request, the development must be in located within a High Intensity Zoning District and vehicle trips must be within 15% of TIS threshold. Other requests will be reviewed on a case-by-case basis by CDOT.
- ii. AOI Modification Requests must meet the requirements in Section 3.7.

3.7 AREA OF INFLUENCE (AOI) MODIFICATION REQUEST

A. Criteria

An AOI Modification request will be considered based on the following criteria:

1. The development is located within a CTR High Intensity zoning district or within a CTR Low Intensity zoning district that meets the following two conditions:
 - a. Adjacent to a High Density zoning district, and
 - b. Surrounding land use and transportation context promotes multimodal transportation.
2. The development is within ¼ mile of an existing transit station, high frequency bus network or mobility hub, and/or streetcar stop.
3. Surrounding corridors reflect and are built to the Streets Map standard cross-section.
4. AOI study intersections have significant physical constraints, or have the maximum auxiliary lanes to align with the Streets Map corridor cross-section.

B. Request Summary

The applicant shall provide a written rationale for the AOI modification request based on the criteria listed in Section 3.7.A. The request should include the rationale for modification to any of the study intersections, along with any proposed alternative mitigations such as vehicular, multimodal and/or TDM, to be provided in-lieu of studying the selected intersections. All alternative mitigations shall be in addition to any required MA and TDM Assessment mitigations.

C. Assessment

The applicant shall provide a detailed AOI Modification Assessment, addressing each intersection requested for modification. The following information shall be included in the submitted AOI Assessment:

1. An aerial showing the site, surrounding zoning districts, all study intersections, and transit stations, streetcar stops, and bus routes within ¼ mile of the site
2. A detailed assessment of each intersection that supports the reason for not studying the intersection and includes:
 - a. Aerial of intersection with transit stops, streetcar stops, bus stops, and bus routes
 - b. Reason(s) for intersection modification
 - c. Alternate mitigations: vehicular, multimodal, and/or TDM

D. Outcomes

CDOT will review and make a final determination on the outcome of the request from one of the following options:

1. **Deny:** AOI Modification Request is denied
2. **Approve AOI Request:** Study intersections are reduced or changed and CDOT and Applicant agree on the alternate mitigations
3. CDOT may elect to waive a TIS based on AOI Modification Review, if Applicant and CDOT agree on alternate mitigations.

Once a final determination has been made on the AOI Modification Request, CDOT will provide the Applicant with an approved CTR Scope and the applicant may proceed with the schedule in **Table 3.2 CTR Scoping and Review Process**.

