CITY OF CHARLOTTE

# Public Rights-of-Way ADA Self-Evaluation Summary of Findings

## December 2020

***Prepared by:***

cole

CITY OF CHARLOTTE

## 1. Introduction

The City of Charlotte (the "City") is a major city and commercial hub in North Carolina, with a population of over 872,500 people. The City takes pride in providing access to its many community members not only through vehicular access, but also through its connected sidewalk network, pedestrian and bike trails, on-street parking facilities, and an extensive transit system. In an effort to improve access for all, the City has evaluated all of its pedestrian facilities in the public rights-of-way to determine the physical barriers that may restrict access for people with disabilities. The information gathered from this self-evaluation, along with public input, will allow the City to update its ADA Transition Plan with data specific to public rights-of-way and further the City's ongoing commitment to all residents, employers, businesses, and visitors for creating an inclusive and accessible place to live, work and play.

The City of Charlotte strives to do its part in removing physical barriers and improving accessibility throughout the city for residents and visitors. According to the Center for Disease Control, it is estimated that as of 2018, 26% or 1 in 4 adults has a disability that impacts major life activities such as walking and climbing stairs (13.7%), independent living (6.8%), difficultly hearing (5.9%), and vision difficulty (4.6%). These percentages are likely underreported and will increase as people age. It also does not account for people that experience temporary disabilities.

Currently, the City removes physical barriers through one of the following methods:

- Citizen submitted requests to 311 for curb ramp construction/replacement, repair of broken sidewalk, sidewalk obstructions, or the addition of accessible pedestrian signals;
- Curb ramp, sidewalk or intersection alteration projects included with City projects (street, sidewalk, stormwater, etc.);
- Private land development projects that include curb ramp, sidewalk, and/or intersection alteration projects by the property owner as a part of the property owner's site redevelopment or reconstruction project;
- Roadway widening or reconstruction projects;
- New or altered bus stops through CATS' Bus Stop Committee; and
- Pedestrian improvement projects including pedestrian signal installations or upgrades

The City has routinely budgeted funds for addressing accessibility into capital construction and reconstruction projects as well as achieving better accessibility through the land development process for many years. Any deficiencies identified within active or future City projects will be addressed as part of those projects. Stand-alone ADA projects identified in this Transition Plan will be funded using the ADA Improvements Program within the City's Capital Improvement Program.

## 2. Report Overview / Public Outreach & Next Steps

The Self-Evaluation process provides public entities with the opportunity to identify barriers to accessibility and develop action plans to remove existing barriers and mitigate future barriers. This report provides an overview of the City's Public Rights-of-Way ADA Self-Evaluation process and a high-level review of the findings. The Table of Contents outlines the information included in the process and this Summary of Findings Report. This will assist City staff in identifying physical barriers to accessibility and developing barrier removal solutions that will facilitate improved access to all individuals within the City of Charlotte over time.

The next step in the process will be a public comment period. In an effort to gain valuable feedback from interested citizens as the City prepares to prioritize needs for barrier removal and to update the City's Public Rights-of-Way ADA Transition Plan, while being conscious of the current public health concerns, the City will be providing virtual opportunities for the public to review and provide feedback on the Public Rights-of-Way ADA Self-Evaluation Summary of Findings Report.

The next step in the process will be a public comment period. In an effort to gain valuable feedback from interested citizens as the City prepares to prioritize needs for barrier removal and to update the City's Public Rights-of-Way ADA Transition Plan, while being conscious of the current public health concerns, the City will be providing a virtual opportunity for the public to review and provide feedback on the Public Rights-of-Way ADA Self-Evaluation Summary of Findings Report.

The City and Consultants will record a virtual presentation in order to share with the public the findings of the ADA Self Evaluation of public rights of way. The presentation will be posted at **https://charlottenc.gov/crc/ADA-Public-Rights-of-way/Pages/default.aspx.** Also available on the website will be the full Summary of Findings Report available for download or viewing, and a link for providing comment and feedback via a public survey. Captioning and American Sign Language interpretation services will be included in the presentation. Other forms of effective communication can be requested by contacting:

**Tracy Van Tassell**
Charlotte Department of Transportation
Americans with Disabilities Act (ADA) Liaison
tracy.vantassell@charlottenc.gov
704-941-5476 cell

Once the recorded presentation and report are posted, the City will begin a comment period of 45 days for members of the public to provide feedback. Once the public comment period has closed, the City will be ready to prioritize the data collected and develop an implementation plan for improvements.

This report describes the overall scope of the project, the methodology used to assess facilities in the public rights-of-way, and an overview of the findings. All the information collected, after public input, will be utilized to develop final prioritization, schedules for implementation for areas of the City requiring improvement, and costs involved in such improvements. These action items will be reported through the ADA Transition Plan for Public Rights-of-Way, an addendum to the City of Charlotte's ADA Transition Plan, which covers additional assets, programs, services, and activities of the City.

## 3. Project Scope Summary

From 2017 through 2020, Cole Design Group, Inc. along with Henson Foley, a local sub-consultant to Cole, performed a thorough assessment of the facilities within a defined public rights-of-way boundary. An ADA Self-Evaluation involves collecting data and analyzing it for ADA compliance per various federal and state standards.

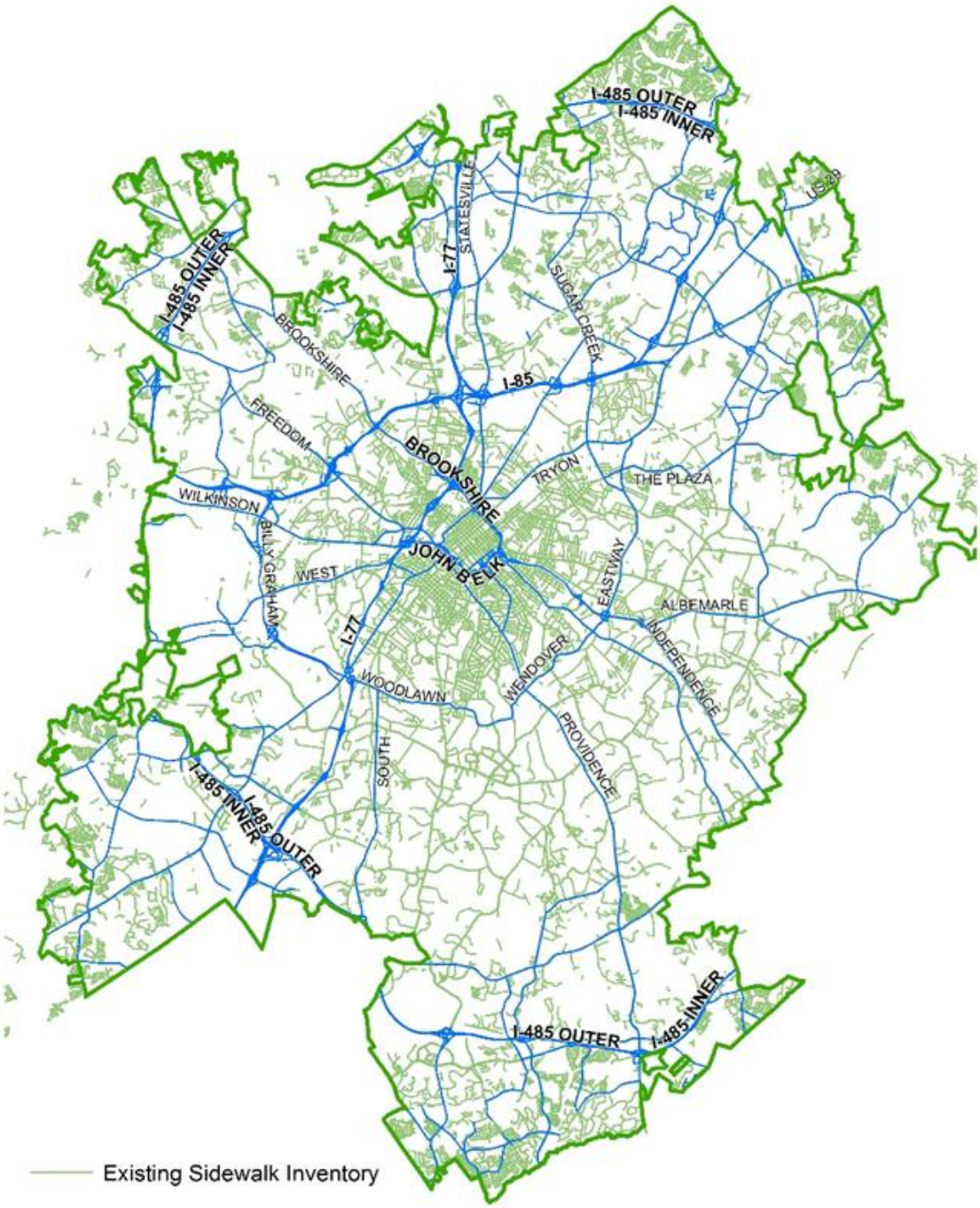
**Data Collected Included:**

- Sidewalks
- Curb Ramps
- Pedestrian Push Buttons
- Bus Stops
- On-Street Accessible Parking Spaces
- Pedestrian Rail Crossings

***See Exhibit A on the next page for the boundary map of sites collected.***

CITY OF CHARLOTTE

**Exhibit A**
**ADA Self-Evaluation**
**Public Rights-of-Way Boundary Map**



**Information collected on sidewalk**

- Cross slopes
- Run slopes
- Driveway cross slopes
- Gaps in sidewalk connectivity
- Heaves in concrete
- Obstruction (utility poles, light poles, vegetation, moveable obstruction, etc.)

**Information collected on pedestrian push buttons**

- Pedestrian push button elements
  - Button height
  - Button pressure
  - Distance to curb
  - Distance to crosswalk
  - Clear space
  - Sign present
  - Obstructions
  - APS features

**Information collected on accessible parking**

- Parking elements
  - Cross slope
  - Access aisle
  - Access aisle slopes
  - Length/Width
  - Run slope
  - Sign present
  - Meter
  - Clear height

**Information collected on curb ramps**

- Types of curb ramps
- Curb ramp elements
  - Cross slope
  - Gutter slope
  - Gutter lip
  - Detectable warning
  - Run slope
  - Landings
  - Obstructions
  - flares

**Information collected on pedestrian railroad crossings**

- Pedestrian crossing elements
  - Cross slope
  - Gate
  - Detectable warning
  - Run slope
  - Rail distance
  - Obstructions

**Information collected on bus stops**

- Bus stop elements
  - Boarding area width
  - Boarding area length
  - Boarding area slopes
  - Shelter/Bench
  - Clear space
  - Bench
  - Sidewalk
  - Sign present

**The public rights-of-way inventory included a total of 2,547.8 miles of sidewalk (including 404.2 miles of uncollectable sidewalk), 38,371 curb ramp locations (including 5,504 missing curb ramps), 2,949 bus stop locations, 69 accessible on-street parking spaces, 2,773 pedestrian signal pushbuttons, and 139 pedestrian rail crossing locations. An overview of the analysis of the data collected is found later in this report.**

Data collected from this assessment enables City staff to:

1. Determine if sidewalks and curb ramps comply with the federal and state standards for ADA compliance
2. Identify portions of sidewalks or curb ramps requiring modifications
3. Quantify the extent of the work required
4. Assign planning level budget factors
5. Include the data in the City's Geographic Information Systems (GIS) database

The City of Charlotte's approach to this project (described in Section 4, "Methodology of the Assessment") will assist the City in determining the barrier rankings of pedestrian facilities documented in the self-evaluation inventory report to identify corrective measures. The City is seeking public input before ranking the various sidewalk segments and curb ramp locations to determine the highest priorities for barrier removal and remediation. Recognizing that the City cannot and is not required to immediately make all public rights-of-way pedestrian facilities fully accessible, and that the City will need to replace or install many pedestrian facilities over time, public input is vital to the decision-making process. Once prioritization is completed, the City will generate an implementation schedule to align with the highest priorities first. An updated Public Rights-of-Way ADA Transition Plan will be developed and approved by the City that will communicate an action plan for making access modifications over time.

## 4. Methodology of the Assessment

### 4.1 Accessibility Standards and Guidelines

The method for conducting the public rights-of-way self-evaluation for the City of Charlotte is dictated by federal accessibility laws and regulations requiring or promoting equal or improved access for people with disabilities. These laws include:

- The Americans with Disabilities Act of 1990
- The Rehabilitation Act of 1973, specifically Section 504

The pedestrian facilities within the public rights-of-way were analyzed for compliance with the following standards and guidelines of the accessibility laws:

- 2010 ADA Standards for Accessible Design
- Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Rights-of-Way, 2011 (PROWAG)


The United States Access Board provides standards and guidance documents for the design and alteration of accessible pedestrian facilities. These guidelines are known as the 2010 ADA Standards and the 2011 Proposed Guidelines for Pedestrian Facilities in the Public Rights-of-way (PROWAG). PROWAG guidelines have not yet been adopted as an enforceable Standard, but are recognized by the Federal Highway Administration (FHWA) as guidance and best practice for pedestrian facilities within the public rights-of-way. The FHWA and the US Department of Justice have also issued a joint memorandum that provides guidance regarding street alterations that requires curb ramp upgrades when a street undergoes defined resurfacing activities. A combination of the standards and guidelines noted above are used for compliance evaluation to ensure compliance with adopted and enforceable Standards and recognized best practices. These documents also provide guidance on defining the methods used to make facilities accessible. The vast majority of the projects undertaken in Charlotte are not classified as new construction, but rather as alterations. Alterations are required to meet the new construction standards to the maximum extent practicable within the scope of the project.

### 4.2 Approach to Sidewalk and Curb Ramp Inventory Collection

The traditional accessibility inventory process in public rights-of-way can be labor-intensive. Many public entities rely on collection methods that provide limited information or assess barriers intermittently. This does not offer comprehensive data or allow for adequate cost estimates for the planning of barrier removal. The City of Charlotte indicated an interest in utilizing a technology that would quickly and adequately document more information, such as the type, severity, and location of sidewalk and curb ramp barriers within the scope boundary. The City contracted with Cole Design Group, Inc. to utilize an exclusive technology called the ULIP-ADA to allow for an efficient and effective process to complete the City's assessment for pedestrian infrastructure within the public rights-of-way.


The technology was originally developed through a pilot program funded by the Federal Highway Administration. The Ultra-Light Inertial Profiler (ULIP) is mounted on a Segway. The device's displacement laser, three accelerometers, optical trigger, distance measurement instrument, and gyroscope are designed to measure the sidewalk surface at a rate of 10,000 records per second. Together, these devices capture detailed information about cross and running slope and small surface variations. A mounted computer offers an interactive display during data collection. The technical approach offered by this technology was identified as a best practice in *ADA Compliance at Transportation Agencies: A Review of Practices* (NCHRP 20-07 Task 249), a National Cooperative Highway Research Program study.

Field Data Specialists also collected the required information for the curb ramps, signals, bus stops, on-street accessible parking, and pedestrian rail crossings throughout the defined project area. Based on inspection and measurements of the existing features, Field Specialists entered data directly into the data collectors, ensured that all relevant characteristics were recorded and that photos and videos were properly linked with location data logged into the database, as described in the next section.

Throughout the collection process, data collection, data validation, and linking to location and digital photo files happened automatically as the Field Data Specialists entered data and moved from point to point. The Field Data Specialists then accessed the data entry, validation forms, and aerial orthophoto images along with rights-of-way, utility, topographic, or other feature data sets that were preloaded and appeared on the data collectors for easy reference in the field. Digital photos were automatically logged for location and linked to the database, based on synchronized time and date stamps.

### 4.3 Geographic Information System (GIS) Database Analysis

The Consultant team created and utilized a geodatabase using the ESRI ArcGIS system. The customized fields for Geodatabase include location, directions, size, features, and obstruction size. The data structure was pre-programmed for data collection, as described above. Data was then logged into a project database and analyzed for compliance.

City of Charlotte's pedestrian rights-of-way data provides staff geographic data with:

- Positional information: the digital representation of a barrier conforms to the location found in the field.
- Attribute information: the digital representation of a barrier is represented in a manner that best represents the conditions found in the field (% running slope, % cross-slope, inches of vertical separation, etc.).

Guidance for public rights-of-way facilities in defining the method with which to assess the data was found in *Designing Sidewalks and Trails for Access* (FHWA, 1999). This report advises that grade and cross-slope "should be measured over 2 ft. intervals, the approximate length of a wheelchair wheelbase, or a single walking pace."

Adherence to FHWA's interpretation of features in the data set provided quality assurance in the attributes of the resulting database.

Once the field data collection and validity checks were performed, the raw data was processed so it could be stored in the City's centralized GIS database for analysis and reporting. GIS played a pivotal role in the project from data acquisition (organizing the millions of data points generated during the study) to creating an ArcPad user interface for asset management and compliance monitoring. Additional available data point attributes can be used for compliance tracking. Compliance reporting capabilities are available to deploy and to track progress.

# 5. Self-Evaluation - Summary of Findings

## 5.1 Introduction

The Summary of Findings provides a high-level overview of the City's sidewalks, curb ramps, bus stops, pedestrian signals, accessible on-street parking, and pedestrian railroad crossings analysis. Please see Section 3 for information detailing the scope of work; please see Section 4 for details on the methodology used to complete the assessments for ADA compliance. Each rights-of-way facility has detailed compliance reports with all of the data collected for that facility. Due to the magnitude of the reports and data, this Summary of Findings provides an overview of the results evaluated. More detailed reports are available upon request.

**The City of Charlotte's public rights-of-way assessment generated a significant amount of information regarding the accessibility within the defined boundaries. A total of 2547.8 miles of sidewalk (including 404.2 miles of uncollectable sidewalk, 38,371 curb ramps (including 5,504 missing curb ramps), 2,949 bus stops, 2,773 pedestrian signals, 139 rail crossings, and 69 accessible on-street parking spaces were evaluated.**

**Pedestrian on motorized cart**

## 5.2 Sidewalk Inventory Data

The sidewalk corridors were evaluated for:

- run slope
- cross slopes
- obstructions
- joint heaving
- driveway crossings
- driveway cross-slope
- gaps in connectivity
- missing sidewalk

Observations showed that although many sidewalks comply with the accessibility standards and guidelines, some common issues are outlined throughout the report. For each of these elements assessed, findings are summarized in tables on the following pages.

### a. Sidewalk Obstructions

**Sidewalk Obstruction – Uneven Heaving**

**Sidewalk Obstruction – Low Vegetation Protrusion**

| Obstruction Type | Count |
|---|---|
| Vegetation Side | 8,722 |
| Vegetation Overhead | 6,255 |
| Uneven Heaving | 1,246 |
| Pole/Post/Hydrant | 1,151 |
| Miscellaneous | 1,132 |
| Utility | 1,098 |
| Sign | 207 |
| Temporary Private Obstruct | 176 |
| Tree | 17 |
| Ponding | 9 |
| Transit | 5 |
| Storm Grate | 3 |
| Traffic Post | 1 |
| **Total** | **20,022** |

**Common Issues:**

- Vegetation growing overhead or alongside the sidewalk represent the two highest factors in barriers to the sidewalk.
- Uneven heaving in the sidewalk concrete is the third highest of obstruction counts.
- Utilities and power poles/posts/hydrants represent 2,249 locations combined. These types of obstructions are costly to relocate and/or require challenging design solutions. In some cases, obstruction removal may be the responsibility of other agencies (such as NCDOT, a utility company, etc.) and require more coordination and time to correct.

## b. Sidewalk Changes in Levels (Heaves)

**Sidewalk Heave**

| % Slope | Count |
|---|---|
| ¼ – ½" | 108,897 |
| ½" – ¾" | 22,424 |
| ¾" – 1" | 7,744 |
| 1"+ | 6,222 |
| **Total** | **145,287** |

**Notes on Uneven Heaving:**

- Changes in level, or heaves, are common issues found in sidewalks for every community.
- Heaves are caused by many factors, including but not limited to tree root growth and changing soil conditions over time.
- Uneven heaving in the sidewalk concrete is a common occurrence of obstruction counts, as previously reported.
- Heaves of a certain dimension can often be addressed by cutting or grinding sidewalks.
- Only 4% of heaves are 1" or higher.
- Over 75% of the heaves measured fall between ¼" and ½", which often represent an opportunity for remediation without replacing an entire sidewalk segment. While not compliant, these are also found to be far less severe.

## c. Sidewalk Heaving Clusters

**Sidewalk Heaving Clusters**

| Count | Square Feet |
|---|---|
| 3,894 | 92,150.64 |

**Common Issues:**

- Heaving Clusters are multiple measurements of vertical displacement in close proximity, consistent with broken/cracked panels, spalling, or other surface roughness.
- Heaving clusters are distinguished from panel joint heaves, where remediation can be grinding.
- Remediation of this type of accessibility issue is typically sidewalk replacement.
- Locations with other issues requiring sidewalk replacement are not counted in this total.

## d. Sidewalk Cross Slope

**Sidewalk Cross Slope, as depicted by arrows**

| % Slope | Miles | Status |
|---|---|---|
| 0-2.00 | 827.8 | Compliant |
| 2.01-3.00 | 634.6 | ADA Concerns |
| 3.01-4.00 | 371.8 | ADA Concerns |
| 4.01-5.00 | 160.4 | ADA Concerns |
| 5.01-6.00 | 67.3 | ADA Concerns |
| 6.01-7.00 | 31.1 | ADA Concerns |
| 7.01-8.00 | 16.9 | ADA Concerns |
| 8.01-9.00 | 10.9 | ADA Concerns |
| 9.01-10.00 | 7.5 | ADA Concerns |
| 10.01-12.00 | 9.3 | ADA Concerns |
| 12.01-25.00 | 6.0 | ADA Concerns |
| **Total** | 2143.6 | |

e. Sidewalk Run Slope

**Sidewalk Run Slope, as depicted by the arrow**

| % Slope | Miles | Status |
|---|---|---|
| 0-5.00 | 1,809.5 | Compliant |
| 5.01-8.33* | 35.2 | ADA Concerns |
| 8.34-10.00* | 6.2 | ADA Concerns |
| 10.01-12.00* | 3.1 | ADA Concerns |
| 12.01-25.00* | 1.5 | ADA Concerns |
| **Total** | 1,855.5 | **Excludes 288.1 miles where sidewalk slope matched road grade** |

**Common Issues for Slope:**

- 29% of the cross slope issues fall in the 2-3% range and many of these fall to just above the 2% maximum allowable standard. This is considered a less severe violation unless additional compliance issues are present.
- 17% of cross slope issues fall in the 3-4% range, and 14% of the remaining violations are above 4% cross slope, where the slope may become very visible.
- Sidewalk cross-slope violations are a common issue at driveway crossings.
- Run slope issues were less common (19.5 miles of compliance concerns) compared to cross slope.
- 10.8 miles or 23% of the issues fell above 8.33% run slope grade, which is considered more severe than the 35.2 miles at 5-8.3% grade.

***Where the Sidewalk is contained within the street or highway rights-of-way, Sidewalk Run Slope is permitted to match the general grade of the adjacent street or highway, according to PROWAG.**

## f. Sidewalk Gaps

**Sidewalk Gap**

| Inches | Total |
|---|---|
| ½" – ¾" | 57 |
| ¾" – 1" | 33 |
| 1"+ | 29 |
| **Total** | **119** |

## g. Sidewalk Connectivity

**Sidewalk Connectivity**

| Sidewalk | Miles |
|---|---|
| Connectivity Gaps | 374 |

## h. Driveways

**Sidewalk built through a driveway**

| Driveway Type | Surveyed | ADA Issues |
|---|---|---|
| Commercial | 13,608 | 12,141 |
| Residential | 68,030 | 52,057 |
| **Total** | **81,638** | **64,198** |

**Common Issues:**

- Sidewalk gaps create mobility challenges in similar ways to sidewalk heaves, but gaps are horizontal instead of vertical. Wheelchairs, canes, or other devices may be hindered by these gaps. While gaps represented only 119 instances across all mileage collected, 52% were ¾" or greater.
- Driveway Crossings: Cross slopes of driveway crossings often exceeded the 2% maximum allowable per the standards for cross slope.
- Driveways are a common reason for cross slope violations unless the sidewalk is built through the driveway to keep a continuous slope, while a ramp extends from the sidewalk continuing to the street.

### 5.3 Curb Ramp Evaluation

**The consultant teams evaluated 32,867 existing curb ramp locations.**

The curb ramps were evaluated for many different elements of compliance. The following highlights the major elements evaluated:

- run slope
- cross-slope
- length
- width
- curb slope
- obstructions
- surface conditions
- landing measurements
- gutter slope/gutter lip
- detectable warning surface (DWS)
- flare slope

Observations showed that, although many curb ramps comply with the accessibility standards and guidelines, there are some common issues. The following tables summarize the findings for curb ramps.

#### a. Curb Ramp Run Slope

**Curb Ramp Run Slope**

| % Slope | Count | Status |
|---|---|---|
| 0.00 - 5.00 | 5,077 | Compliant |
| 5.01-8.33 | 11,966 | Compliant* |
| 8.34-10.00 | 8,924 | ADA Concerns |
| 10.01-12.00 | 4,582 | ADA Concerns |
| 12.01-25.00 | 2,318 | ADA Concerns |
| **Total*** | **32,867** | **(Excludes 5,504 Missing Ramp)** |

**Common Issues:**

- 48% of all curb ramps had run slope issues.

***Maximum Ramp Run Slopes of 8.33% is permitted for a length of fifteen feet per PROWAG.**

## b. Curb Ramp Cross Slope

**Curb Ramp Cross Slope**

| % Slope | Count | Status |
|---|---|---|
| 0.00 - 2.00 | 12,092 | Compliant |
| 2.01 - 3.00 | 6,120 | ADA Concerns |
| 3.01 - 4.00 | 4,266 | ADA Concerns |
| 4.01 - 5.00 | 2,621 | ADA Concerns |
| 5.01+ | 7,768 | ADA Concerns |
| **Total** | **32,867** | **(Excludes 5,504 Missing Ramp)** |

**Common Issues:**

- 37% of Curb Ramps met cross slope requirements.
- 20,775 of Curb Ramps had cross slope issues. Of these, 19% fell into a 2-3% cross slope range, generally considered less severe than higher ranges.

## c. Detectable Warning Surfaces (DWS)

**Curb Ramp Detectable Warning Surface**

| Type | Count |
|---|---|
| Compliant | 1,274 |
| Non-Compliant | 1,916 |
| Missing | 655* |
| Failed Initial Test | 29,022** |
| **Total (Excludes 5,504 Missing Ramps)** | **32,867** |

**Common Issues:**

- DWS falling in the Non-Compliant count were most often due to the DWS not extending for the full width of the ramp

***Only 2% of the DWS were missing altogether**

**Of the 29,022 which failed at an early Initial Pass/Fail scenario, the ramps failed for other non-compliant ramp component reasons, and there is most often some degree of reconstruction necessary. For these ramps, any DWS concern will be addressed when the ramp is corrected for compliance.

### d. Missing Curb Ramp

**Missing Curb Ramp**

| Missing Ramp | Non-Compliant |
|---|---|
| Missing Ramps | 5,504 |

**Common Issues:**

- Missing Curb Ramps are ramps that are not present in locations where they are required.
- T-Intersections can sometimes be the cause of a report of missing curb ramps. These locations most often must be reviewed closely by the City to determine if an alternate approach can be taken to rectify the concern.

### 5.4 Bus Stop Boarding Area Evaluation

**The consultant teams evaluated 2,949 Bus Stop locations used by the Charlotte Area Transit System (CATS) within the City limits and surrounding area**. Numerous locations did not have bus stop boarding areas. Where the bus stop boarding area did exist, a high number had accessible slope and size issues. The bus stop boarding area findings are summarized below:

#### a. Bus Stop Boarding Areas


**Bus Stop Boarding Area**

| Boarding Area | Count |
|---|---|
| Compliant Boarding Area | 247 |
| Missing Boarding Area | 1,251 |
| Non-Compliant Boarding Area | 1,451 |
| **Total** | **2,949** |

247 of the boarding areas are compliant.

**Common Issues:**

- 42% of all bus stop boarding areas are missing.
- Boarding area length and/or width below the minimum requirements.
- Boarding area slopes above the maximum allowable slope.

### 5.5 Pedestrian Signal Evaluation

The consultant teams evaluated 2,993 pedestrian signal pushbuttons. The majority of the pedestrian signal push buttons were non-APS pushbuttons (Accessible Pedestrian Signal). The number of push buttons vs. pedestrian signal posts will vary. The pedestrian signal pushbutton findings are summarized below:

#### a. Pedestrian Signal

**Pedestrian Signal**

| Pedestrian Pushbuttons | Count |
|---|---|
| APS | 1,043 |
| Non-APS | 1,950 |
| **Total** | **2,993** |

#### b. Pedestrian Signal Height


**Signal APS**

| Pedestrian Pushbuttons | Count |
|---|---|
| Height <48 in. Compliant | 2,939 |
| Height> 48 in. Non-Compliant | 54 |
| **Total** | **2,993** |

## c. Pushbutton - Clear Floor Space & Slope

**Pedestrian Signal – Clear Space Slope**

| Clear Floor Space | Count |
|---|---|
| Compliant Slopes | 661 |
| Non-Compliant Slopes | 2,096 |
| No Clear Floor Space | 236 |
| **Total** | **2,993** |

## d. Pushbutton Side Reach

**Pedestrian Signal – Pushbutton Side Reach**

| Pushbutton Side Reach | Count |
|---|---|
| 0” to 10” Compliant | 1,814 |
| >11” Non-Compliant | 938 |
| **Total** | **2,752*** |

**Common Issues:**

- 69% of the pedestrian signal pushbuttons were non-APS signals.
- 60% of the pedestrian pushbutton clear floor spaces had slope issues.
- Side reach exceeding 10 inches.

*241 Pushbuttons surveyed were a forward reach.

### 5.6 On-Street Accessible Parking Evaluation

**The consultant teams evaluated 69 on-street accessible parking spaces in the public rights-of-way.** Forty-nine square blocks were surveyed for the appropriate number of on-street accessible spaces. The majority of the blocks had a compliant number of required accessible parking spaces. The on-street accessible parking findings are summarized below:

#### a. On-Street Accessible Parking Block Counts

**Accessible Parking Slopes**

| Accessible Parking Block Counts | Count |
|---|---|
| Compliant Accessible Parking Count | 43 |
| Non-Compliant Accessible Parking Count | 6 |
| **Total** | **49** |

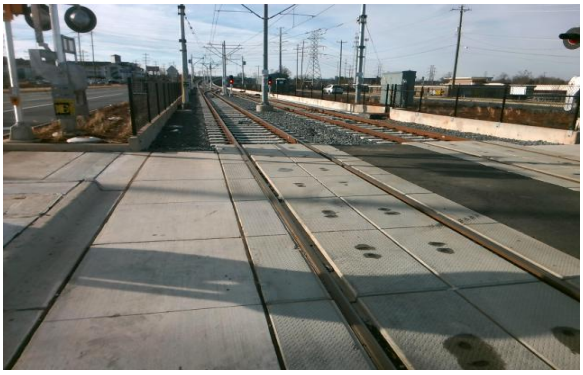
**Common Issues:**

- 97% of the blocks with parking in the public rights-of-way had a compliant number of accessible spaces.

### 5.7 Pedestrian Railroad Crossings

**The consultant teams evaluated 139 pedestrian rail crossings.** The majority of the rail crossings contained non-compliant detectable warning surfaces, missing detectable warning surfaces, or missing pedestrian gates. The pedestrian rail crossing findings are summarized below:

#### a. Pedestrian Rail Crossing DWS



**Rail Crossing – Missing Pedestrian DWS**

| Pedestrian Rail Crossing DWS | Count |
|---|---|
| Compliant DWS | 8 |
| Non-Compliant DWS | 94 |
| Missing DWS | 37 |
| **Total** | **139** |

#### b. Pedestrian Rail Crossing Gate

**Missing Pedestrian Gate at Rail Crossing**

| Pedestrian Rail Crossing Gate | Count |
|---|---|
| Compliant Pedestrian Gate | 24 |
| Missing Pedestrian Gate | 115 |
| **Total** | **139** |

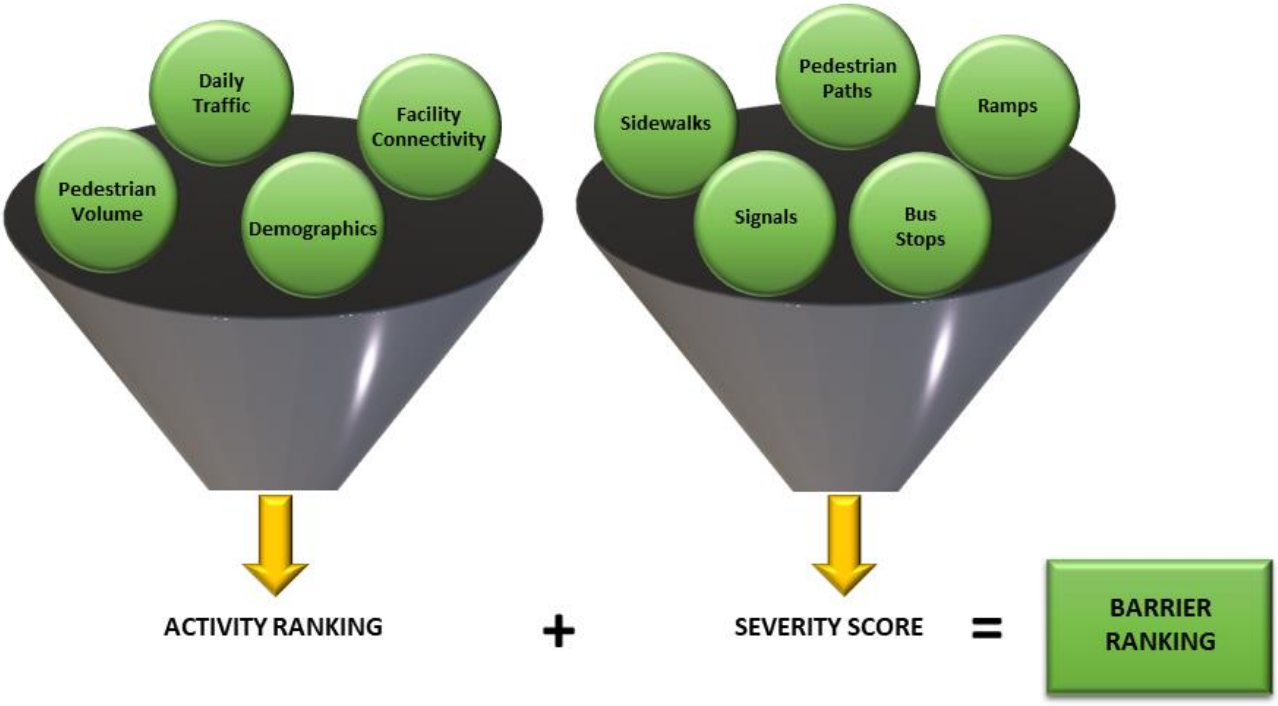
**Common Issues:**

- 68% of the pedestrian rail crossings had non-compliant DWS and 27% had missing DWS.
- 83% of the pedestrian rail crossings had missing pedestrian gates.

**5.8 Prioritizing the Findings**

As depicted in this report, some compliance issues are more severe than others. The sidewalks and curb ramps were reviewed in their entirety to determine the level of compliance and the degree of severity for all the data collected and analyzed. It is important to consider not only the number and severity of issues with a pedestrian facility but also the level of use by persons with disabilities. The City plans to utilize a sophisticated quantitative ranking system to review the severity of each of these locations, combined with the level of activity or use. The ranking system will also integrate specific public input from people with disabilities who live, work, and visit within the City of Charlotte, to prioritize pedestrian facilities for remediation.

***Public input from the disability community, prior to the prioritization of the data collected, is a priority for the City of Charlotte.***



## 6. Planning Level Cost Estimates

Planning level cost estimates will be utilized by the City for scheduling barrier removal. It is not financially feasible to immediately remove all barriers to access. The City may choose to modify barrier removal priorities to allow flexibility in accommodating community requests, petitions for reasonable modifications from persons with disabilities, and funding constraints and opportunities. It is the goal of the City with the updated ADA Transition Plan to provide access to the programs, activities, and services provided by the City. The City of Charlotte has on-going programs that monitor proposed alteration projects and all maintenance projects include the review and upgrades of curb ramps to PROWAG standards. Where technical infeasibility exists, the City designs and constructs pedestrian facilities to the maximum extent feasible, as is allowable per the ADA. The City plans to remove barriers within the sidewalk corridors and intersections through programs such as Charlotte Walks and the Transportation Action Plan. Sidewalk corridors and barriers will be addressed based on their priority, as established by the City through a public outreach process, and available funding.