



## MEMORANDUM

**To:** Jeanette Janiczek  
City of Charlottesville, Neighborhood and Development Services

**From:** Brian McPeters, PE  
Kimley-Horn and Associates, Inc.

**Date:** November 17, 2017 (revised on February 28, 2019)

**Subject:** Belmont Bridge Replacement Project (VDOT Project 0020- 104-101, UPC 75878)  
From: 0.173 Mi. S. of Water Street  
To: 0.086 Mi. N. of Water Street  
ADA Requirements

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The Belmont Bridge in Charlottesville, Virginia is scheduled for replacement as part of VDOT Project 0020- 104-101, UPC 75878. The vision for the replacement of the Belmont Bridge is to provide a community connection for bikes, pedestrians, buses, and cars between the surrounding neighborhoods and the City's downtown/urban core. The project limits are from the intersection of Avon Street, 9th Street, and Levy Avenue to the intersection of 9th Street and Market Street. The purpose of this memorandum is to summarize the conceptual design efforts and plans relative to project compliance with Americans with Disabilities Act (ADA) requirements.

## EXISTING CONDITIONS

Sidewalks exist today on both the east and west sides of 9th Street and the north and south sides of Market Street. Sidewalks exist along the north side of Water Street and a separate project is proposing a continuous pedestrian connection along the south side with a portion being built by the Belmont Bridge Replacement project. The eastern sidewalk along 9th Street across the Belmont Bridge (between north of Graves Street and the Sprint Pavilion) has been closed to pedestrian use since April 2011 because of unsafe conditions. Crosswalks exist on all approaches at 9th Street & Market Street and at 9th Street/Avon Street & Levy Avenue intersection. The existing sidewalks alongside the roadways meet the required location, width, surface texture, and cross slope requirements of the Americans with Disability Act Accessibility Guidelines (ADAAG).

The running slope of the sidewalks along 9th Street matches the existing roadway slope, which is greater than 5%. In addition, the pedestrian path to the Downtown Mall adjacent to and south of the Pavilion exceeds the maximum running slope from the bridge to the Downtown Mall and thus is not an ADA accessible route today. There is currently no direct ADA accessible route to Water Street or the Downtown Mall from 9th Street.

## PROPOSED CONDITIONS

The proposed design includes removal of the existing 6' wide sidewalk and its replacement with 10' wide sidewalks along the east and west sides of 9th Street, proposed stairs from 9th Street to Old Avon Street (south of the bridge), proposed stairs on the east and west of 9th Street to and from Water Street and accessible curb ramps at each intersection or entrance. The proposed design generally includes contiguous reconstructed sidewalks (minimum of 4' wide or wider) along South Street, Old Avon Street, Water Street, Monticello Road (private with public access easement) and Graves Street. The design also includes the reconstruction of the existing pedestrian accessway along the southside of the Sprint Pavilion, which will provide a minimum 10' wide sidewalk from 9<sup>th</sup> Street to the Downtown Mall.

The project will comply with federal requirements under the ADAAG specifically as detailed in the current edition of VDOT guidance including the Americans with Disabilities Act Compliance document (TEM-377.0) and Guidelines for the Placement of Curb Ramps and Pedestrian Access Routes (LD-55.16), which pertain specifically to curb ramps and pedestrian access routes on a transportation project. It should be noted that the current edition of the Public Right-Of-Way Accessibility Guidelines states "the grade of pedestrian access routes shall not exceed the general grade established for the adjacent street or highway." All curb ramps proposed by the design will conform to VDOT Road and Bridge Standards CG-12 Types A, B, or C.

Sidewalks included in the proposed design meet ADA requirements for cross slope, width, clearances and surface texture. Portions of the proposed sidewalk on the east and west sides of 9th Street will continue to exceed, as it does today, the ADAAG maximum running slope as it mirrors the slope of the adjacent roadway. The proposed running slope along sidewalks on 9<sup>th</sup> Street in the proposed design vary from approximately 1% to 5.38%. For design assumptions and analysis associated with the proposed vertical alignment along 9<sup>th</sup> Street, please see the project's Basis of Design Report dated March 28, 2018. The proposed running slopes on Old Avon Street, Monticello Road (public and private), Graves Street, South Street and Water Street vary from approximately 1% to 7.18%. As stated previously, since the sidewalk on these routes is parallel to a roadway, the maximum running slope requirement does not apply per the current edition of the Public Right-Of-Way Accessibility Guidelines. The reconstruction of the existing pedestrian accessway along the southside of the Sprint Pavilion will provide a maximum 5% running slope accessible route from 9<sup>th</sup> Street to the Downtown Mall. It should be noted that the proposed improvements to this pedestrian accessway will convert an existing non-accessible route to an accessible route by correcting the running slope.

## ACCESSIBLE ROUTES

The proposed design includes new or upgraded pedestrian connections and accessible paths, where feasible, within the project limits. **Figure 1** depicts proposed pedestrian routes and the ADA accessible routes for the proposed design. The red circles and red lines on **Figure 1** depict stairways and/or routes that do not meet ADA accessibility requirements. The black lines depict pedestrian routes that meet ADA accessibility requirements.

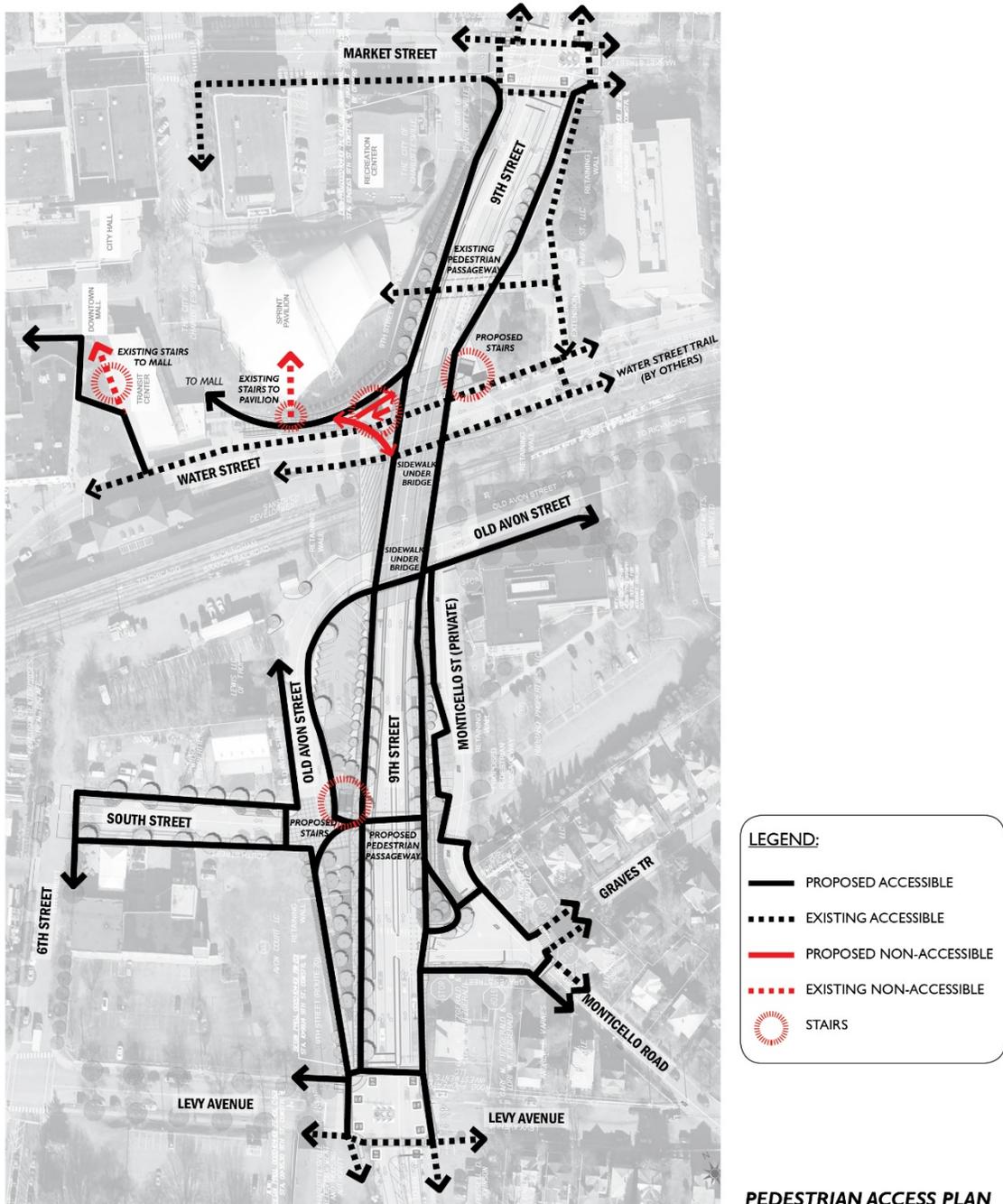
The conceptual design process included analysis of several alternatives to try and achieve new accessible routes in key locations. Existing accessible routes will be maintained in the proposed condition. Some new accessible routes are not included in the design based on studies for each specific location as summarized below.

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Figure 1 - Proposed Pedestrian Routes



## Accessible Connection to Old Avon Street

The proposed design provides accessible routes from 9th Street to Old Avon Street as follows:

- Sidewalks along the east and west sides of 9th Street
- A sidewalk within the footprint of Old Avon Street
- An accessible pedestrian underpass beneath 9th Street

The design team evaluated a series of ramps in combination with the proposed stairs to Old Avon Street (south of the proposed pedestrian underpass) as an alternative route. The proposed length of the alternative switchback ramp to replace or supplement the proposed stairs to Old Avon Street was estimated at 350 LF along the centerline of the ramp versus the 400 LF along the proposed pedestrian plaza replacing the portion of Old Avon Street (between Levy Avenue and South Street). The proposed pedestrian plaza will provide an ADA accessible route to Levy Avenue and 9<sup>th</sup> Street with a maximum running slope of 5% as shown in **Figure 1**. Considering the overall length and required switchbacks, an accessible ramp at this location was determined to be no more direct than the proposed accessible sidewalk located within the footprint of Old Avon Street removed by the project (see **Figure 1**).

## Removal of At-Grade Crossing at Graves Street

The proposed design removes the at-grade crossing at Graves Street due to the following concerns:

- The proposed location of the at-grade crossing is less than 300 feet from another marked and signalized crosswalk across 9th Street at the intersection of 9th Street/Avon Street and Levy Avenue. It does not meet state or federal guidance for the location of a crosswalk and does not meet the City's own Streets that Work guidelines.
- In the past five years (2012 to 2016) 10 total crashes occurred near the at-grade crossing at Graves Street. Two of the 10 crashes involved pedestrians and resulted in minor/possible injury. Eight of the 10 crashes were property damage only with rear-ends as the predominant crash type.
- While the mid-block at-grade crossing location does provide unrestricted views of the entire length of the crosswalk for vehicles traveling in the northbound and southbound directions, the crosswalk is located on or near a 6% gradient. This 6% gradient will lead to longer stopping/braking distances for vehicles should a pedestrian enter the crosswalk unexpectedly.
- The City Attorney's office has issued an opinion that the City would be potentially at risk for increased liability should an incident occur.

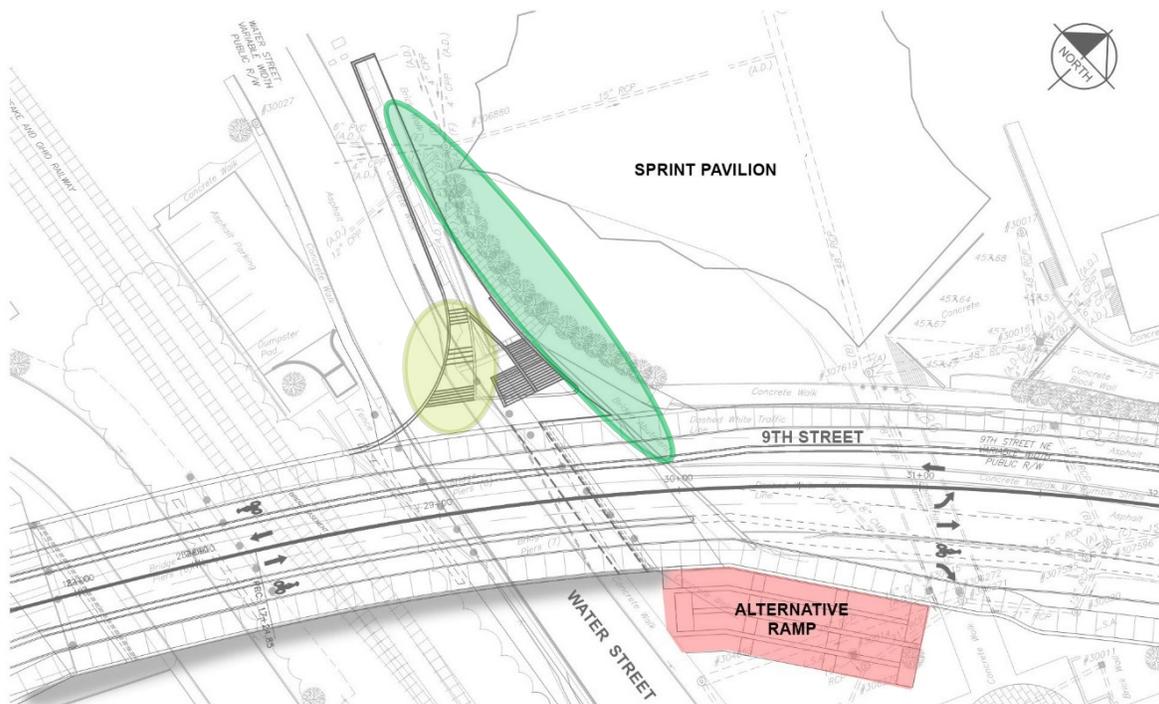
Pedestrian crossings within a crosswalk can be facilitated by utilizing the existing and proposed signalized crossings at the 9th Street/Avon Street and Levy Avenue intersection, which is located approximately 190 LF south of Graves Street. It is noted that pedestrians will have to utilize a longer route to use a crosswalk, but the inconvenience is deemed to be secondary to the potential safety concerns presented by the pedestrian crash pattern, the proximity to the marked and signalized pedestrian crossing to the south and conflicts with vehicles exiting from Graves Street onto 9th Street NB.

## Accessible Connection to Water Street & the Downtown Mall

Under existing conditions there is no direct pedestrian route to Water Street from 9th Street. There are accessible routes meeting ADA requirements to both Water Street and the Downtown Mall today outside of the project limits (see **Figure 1**). The proposed design provides for new pedestrian routes via stairs on both the east and west sides of 9th Street and maintains the pedestrian route to the Downtown Mall adjacent to the Pavilion.

A ramp or series of ramps on both the west and east sides of 9th Street were evaluated for a possible new accessible route to Water Street. Alternative ramp designs from the west side of 9th Street to Water Street were eliminated as being technically infeasible due to insufficient space available between the existing retaining wall and the north side of Water Street, and space conflicts with the proximity to the transit center, bus loading and unloading areas and limited sidewalk widths along Water Street. The design team also evaluated alternatives for a ramp to Water Street from the east side of 9th Street. An example of one of the alternatives considered for this ramp is shown in red below in **Figure 2**. The results of this analysis showed that the level of utility was negligible when the centerline distance along the length of the ramp was compared to the existing route north to Market Street. The proposed length of the alternative ramp in red below in **Figure 2** was estimated at 450 LF with up to four switchbacks versus the 800 LF along 9th Street to E. Market Street and along the existing accessible route outside the project limits in **Figure 1**. Public input and guidance from the project's Steering Committee concluded that the longer accessible route was acceptable provided signing was provided as part of the project for aesthetic, engineering and functional reasons. Further, this alternative ramp design would compete for limited real estate available to construct the ramp and required storm water management necessary for the outfall at Water Street. Elevators were also considered, however, finding enough space to place an elevator on both the bridge and on Water Street without conflicting with the sidewalks/roadway posed a technical challenge. Public comment received regarding elevators focused on safety concerns of being placed in an enclosed public space as well as issues of maintenance to ensure the pedestrian connection would not be broken due to a mechanical malfunction.

**Figure 2 - Example of Accessible Ramp to Water Street and Proposed Accessible Route to the Downtown Mall and Transit Center**



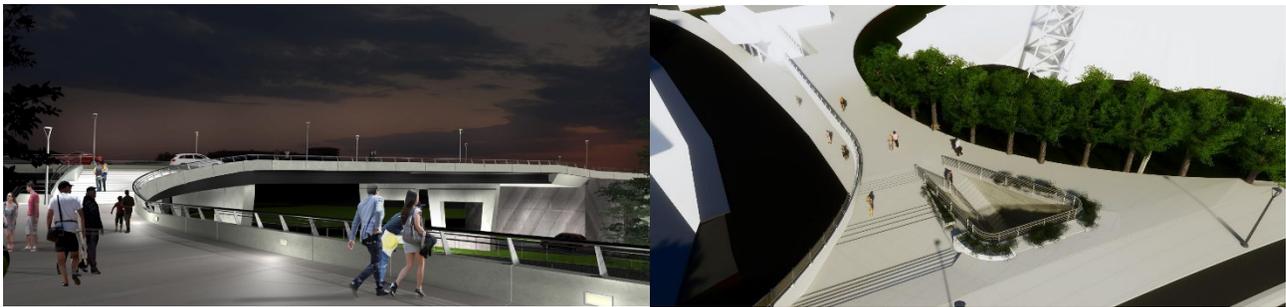
The proposed design includes improvements to the existing non-accessible pedestrian accessway from 9th Street to the Downtown Mall (behind the Sprint Pavilion) shown above in green on **Figure 2**. The proposed design corrects the excessive and non-ADA compliant running slope on this accessway to comply with the

Public Right-Of-Way Accessibility Guidelines. The proposed improvements will provide an ADA compliant accessible route to the Downtown Mall and the Transit Center. Further, the existing circuitous ADA accessible route from 9th Street to the Downtown will remain along 9th Street to Market Street and down 7th Street as in the existing condition. This route provides a secondary ADA accessible route to the Downtown Mall and the Transit Center, which will be useful during staged construction of the bridge and roadway improvements as well as during ticketed events held at the Sprint Pavilion.

The proposed 'knuckle' pedestrian structure and the reconstructed ADA accessible pedestrian passageway will provide an inaccessible as well as ADA accessible route for pedestrians along the west side of 9th Street to the Downtown Mall and the transit center. A proposed portion of the 'knuckle' structure will either include a set of steps or a running slope of approximately 10% (see yellow area in **Figure 2**). Proposed signage will be included along 9th Street and the reconstructed ADA accessible pedestrian accessway behind the Sprint Pavilion to guide a disabled pedestrian to the accessible route. Kimley-Horn will investigate the use of tactile surfaces on the proposed stairs or slope of the 'proposed' knuckle bridge to guide the visually disabled pedestrian. Based on design to date including 3D modeling, it is unlikely that the topography will surprise a pedestrian seeking the accessible route. Please see **Figure 3 and 4** below for an example.

**Figure 3 - 'Knuckle' Structure Looking East**

**Figure 4 - 'Knuckle' Structure Looking West**



The proposed design maintains and/or enhances connections to existing off-site ADA accessible routes (see **Figure 1**). Neither the ADA Standards for Accessible Design (ASAD), nor the ADAAG contain statements or requirements regarding the need for direct ADA accessible routes to and from a roadway bridge or the overpass streets (in this case Old Avon Street and Water Street) or destinations. Due to the variances in height (spanning roughly 30'), the required running slope and landings of the ADAAG and space constraints of the built urban environment, alternatives explored were found to be technically infeasible or of negligible utility compared to existing or proposed ADA accessible routes. The completion of the Belmont Bridge Replacement project does not reduce or eliminate any existing accessible routes. The Belmont Bridge project, when complete, will provide new or enhanced access to ADA accessible routes to Old Avon Street, Water Street, South Street, Graves Street, Monticello Road (private) and the Downtown Mall that are reasonably convenient when compared to alternative direct accessible routes evaluated during design.