City of Madison

DEPARTMENT OF

TRANSPORTATION

Addendum
Wilson Street Interim Recommendation

June 26, 2019

A.1 Background

On April 5, Madison Department of Transportation issued an Interim Recommendation for the Wilson Street Corridor. Key recommendations included:

- Constructing a raised cycle track on the east side of Broom Street from John Nolen Drive to Doty Street
- Marking an at-grade cycle track on the east side of Broom Street from Doty Street to Main Street (a bicycle boulevard).
- Reducing eastbound West Wilson Street from two to one lanes on the 300 block, except for the 200 feet approaching Hamilton Street
- Maintaining the capability to mark either a two-way separated cycle track or one-way buffered bike lanes on the 300 block of West Wilson.
- Modifications to the Broom St/Wilson St intersection. (Note figures showed elimination of the channelized right turn, but the report narrative also discussed maintaining channelized right turn lane with a table top pedestrian crossing to reduce speeds.)

A resolution adopting the recommendation was introduced at the April 16 Common Council meeting and referred to the Transportation Commission and Board of Public Works.

At their April 24 meeting the Transportation Commission made a resolution to recommend adoption by the common council, with some modifications. The resulting resolution narrative stated the following:

> *THEREFORE, BE IT RESOLVED, that the City adopt the Interim Recommendations for South Broom Street and the 300 block of West Wilson Street, contingent on a successful pilot in the spring of 2019; and,*
>
> *BE IT FURTHER RESOLVED, that City Engineering prepare plans and specifications in accordance with those recommendations, in order for the reconstruction to occur in the 2019 construction season[sic]; and,*
>
> *BE IT FURTHER RESOLVED, that City Engineering pursue small design modifications that preserve trees or minimize impacts; and, BE IT FINALLY RESOLVED, that the Department of Transportation continue to study the Wilson Street corridor to better accommodate all modes of transportation.*

The recommendation was presented at the Board of Public Works at their May 8 meeting approving plans, specifications, and assessments. The resolution was subsequently re-referred to the Transportation Planning and Policy Board by the common council at their June 11 meeting.

A.2 Results of the Pilot

In mid-May Traffic Engineering performed a pilot on both northbound Broom Street and on Wilson Street.

Broom Street

Currently there are two northbound lanes on Broom Street as it approaches Wilson Street. The right most lane has the option to continue traveling north, or to turn right onto Wilson Street. The traffic pilot eliminated the option to travel through for the northbound right lane – instead all vehicles in the right most lane would have to turn right onto Wilson.

Wilson Street

Currently there are two eastbound lanes and one westbound lane on the 300 block of West Wilson. The pilot reduced the number of eastbound lanes on West Wilson from two to one, with the exception of 200 feet approaching the Hamilton Street intersection. Figure A.2-1 schematically illustrates the test.

Increases in motor-vehicle driver delay were anticipated. Of critical concern was whether the reduction in lanes would affect the operation of multiple intersections. The John Nolen Drive/Broom Street intersection is one of the most congested intersections in the city. For the eastbound dual left turn from John Nolen Drive to satisfactorily operate, queues on Broom Street from the Wilson Street intersection must be cleared so that Broom Street can accept the left turning movement. Additionally, it is desirable to not store vehicles on the railroad tracks.

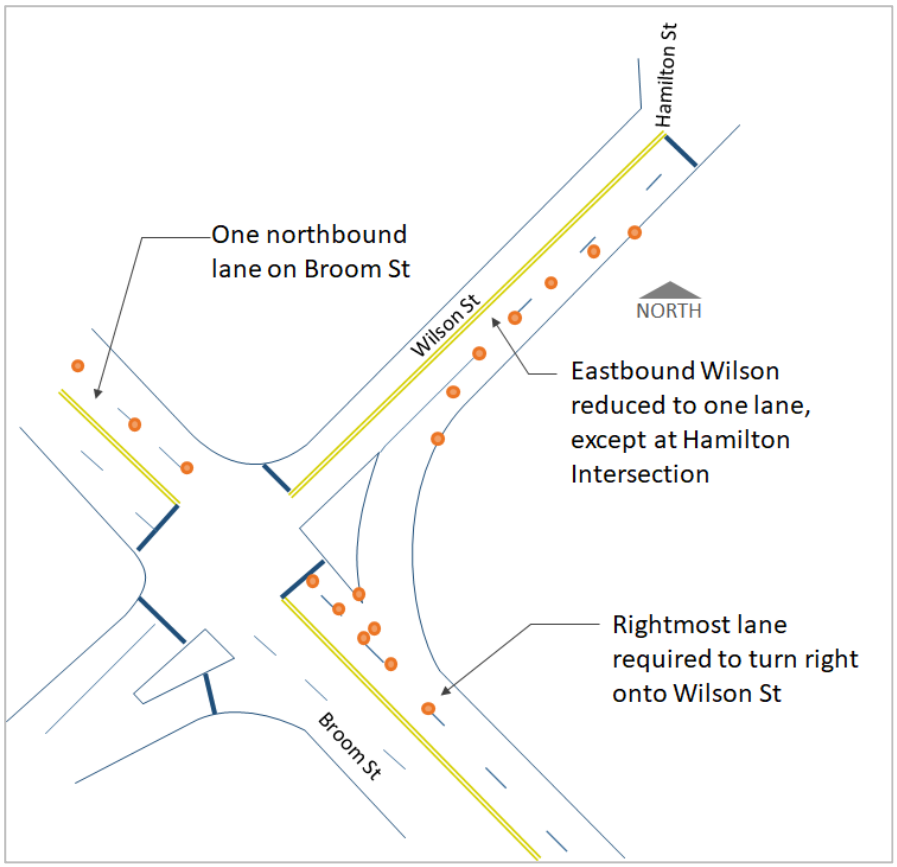


Figure A.2-1 Traffic Pilot Test

Conclusions from the Pilot

- For all but the peak 10 to 15 minutes in the morning rush hour, queues on Broom Street did not inhibit the eastbound left turn movement from John Nolen Drive.
- Queues and delays on eastbound Wilson Street did grow longer. From 7:50 to 8:05 they would extend beyond the Wilson/Broom Street intersection and onto Broom Street.

The following photographs illustrate queuing during the pilot traffic test.

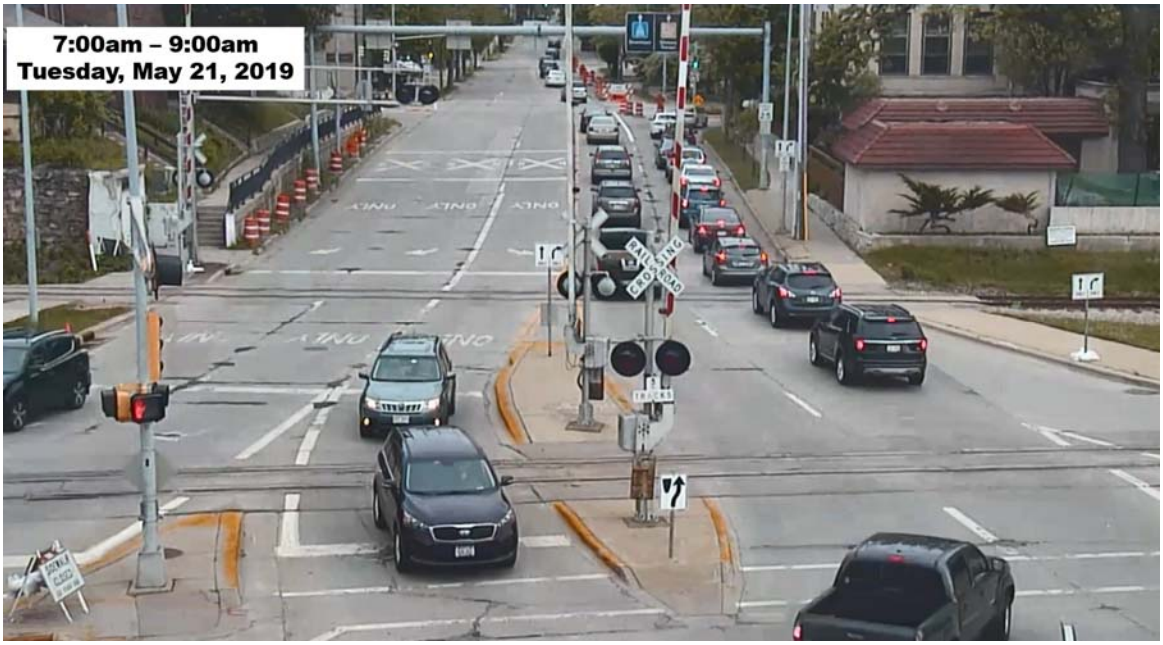


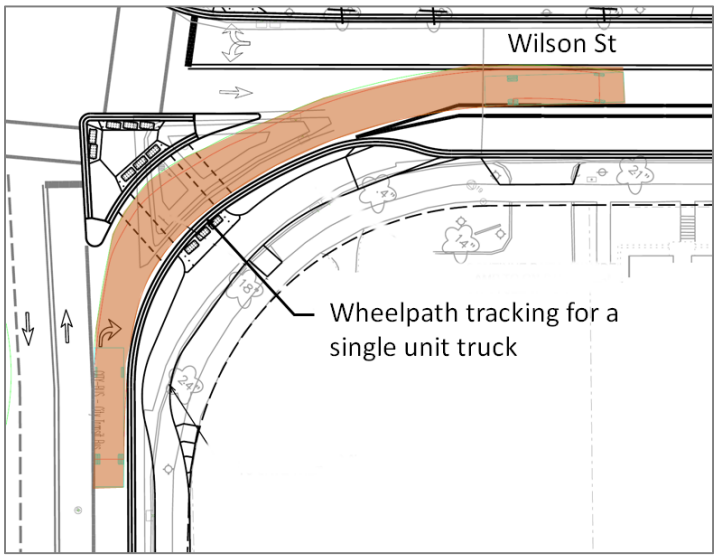
Figure A.2-2 Queuing on Broom Street During Pilot Traffic Test

Figure A.2-3 Queuing on Broom Street During Pilot Traffic Test

Conclusions:

- The pilot showed substantial queuing for a portion of the morning peak period, however the queue did not interfere with traffic operations on John Nolen Drive.
- Removing one travel lane from northbound Broom St and eastbound Wilson St provides the opportunity for substantial benefits to walking and bike accommodations, which could outweigh extra delay experienced by motor vehicles.
- The channelized right turn allows a pedestrian to cross the northbound to eastbound movement separately from the main portion of the intersection. This reduces the amount of time needed for each signal sequence, reducing vehicle queuing. Because of the queuing added with the lane reductions, maintaining the channelized right turn lane helps to minimize greater queuing.

Truck turning radii is also a consideration with this intersection. Wilson Street serves as the entrance to the Capitol area from the south, and must accommodate single unit trucks as well as buses. These turning radii are more challenging since they are traveling from the far right lane near the curb without the benefit of an offset or parking lane. By the time turning radii are provided for these vehicles, a defacto pork chop island will already exist. Figure A.2-4 illustrates the turn radii challenges associated with a single unit vehicle.



A.2-4 Single Unit Truck Turning Radii

A.3 Preservation of Tree Canopy

Since the release of the interim recommendation, City Forestry completed their survey of trees on Wilson Street. Many of the trees were Ash, and were not eligible for treating. Therefore City Forestry programmed a significant number of them for removal, mostly on the north side of the street. Figure A.3-1 illustrates the Ash trees programmed for removal.

Figure A.3-1 Planned Ash Tree Removals

Because of the extensive loss of tree canopy on the north side, reducing the terrace for turn lanes on the north side has fewer tree impacts than reducing the terrace on the south side.

A.4 Summary of Improvements and Refinements to Broom Street

Figure A.4-1 illustrates the refinements made to Broom Street since the issuance of the Interim Recommendation Report. The reduction in one northbound lane north of Wilson Street generally improves accommodations for cyclists and pedestrians by allowing separated facilities for both pedestrians and cyclists.

Figure A.4-2 to 4 show typical sections of Broom Street between John Nolen Drive and Wilson, Wilson and Doty Street, and Doty and Main Street.

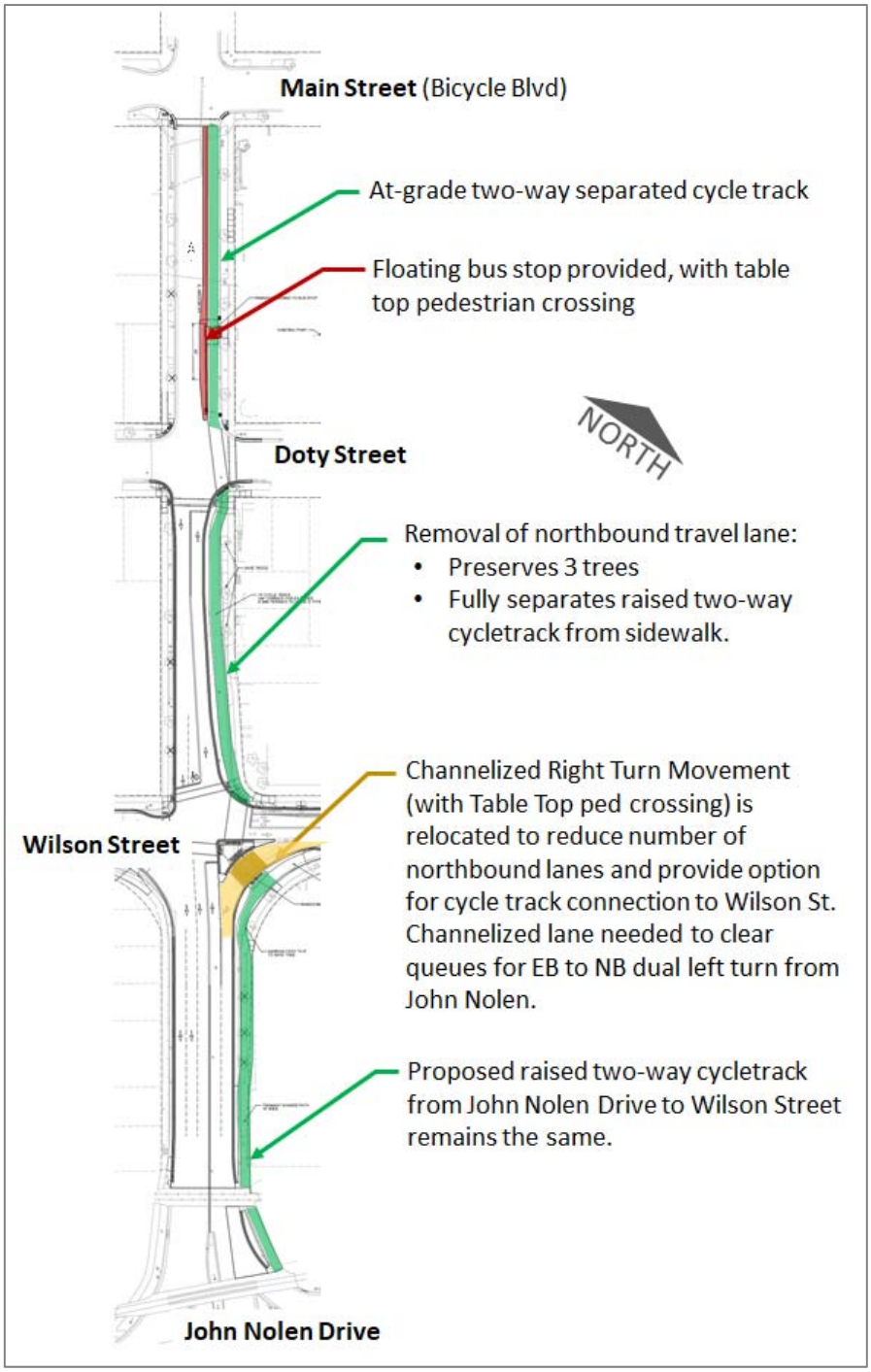


Figure A.4-1 Summary of Broom Street Refinements

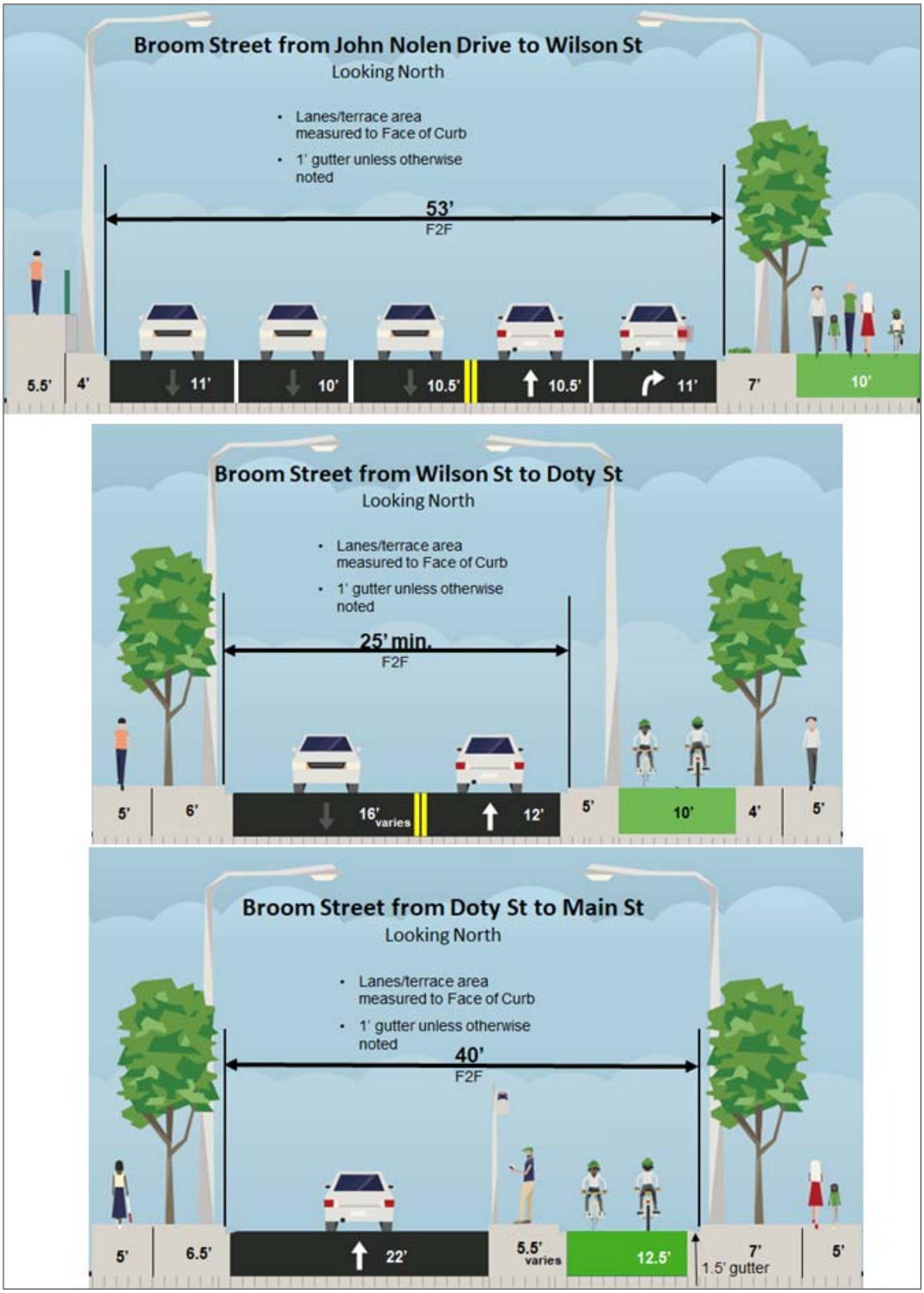


Figure A.4-2 Broom Street Typical Sections

A.5 Summary of Refinements Recommended for the 300 Block of Wilson St

The Interim Recommendation Report did not provide a recommendation for Wilson Street, but instead stated that either a two-way protected cycle track, or buffered bike lanes, could be accommodated within the curb faces. In public meetings city staff verbally indicated that buffered bike lanes would be marked until the Wilson Street Corridor Study determines a treatment from Broom Street to Martin Luther King Blvd – a logical termini. Unresolved issues for determining the appropriate treatment for West Wilson include:

- How to manage loading and unloading for disabled workers in the City-County building during the evening rush hour.
- Interaction with county and city law enforcement regarding their egress from parking in the City-County building.
- Interaction with the State of Wisconsin regarding patron parking in front of 1 West Wilson.
- Loading for buildings/restaurant in the 100 block of West Wilson.

Since the issuance of the Interim Recommendation Report, several refinements were made to the design of the 300 block of West Wilson. Near the Hamilton Street intersection, the terrace was reduced on the north side of Wilson Street since most of the Ash trees will be removed. Additional terrace narrowing on the south side (requiring one tree) provides enough room for 5-foot bike lanes at the intersection approach. Figure A.5-1 illustrates these changes.

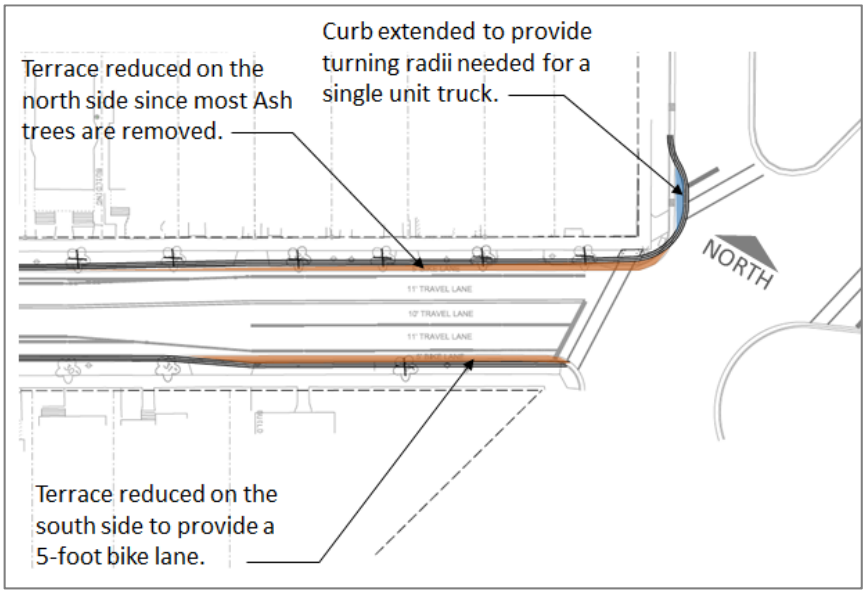


Figure A.5-1 Refinements for Interim Recommendation at Wilson and Hamilton Street Intersection

Some of the refinements included modifying intersection geometry to preserve options for both buffered bike lanes and a cycle track. The following figures illustrate how the curb faces have been changed and accommodate both types of accommodations for bicycles. Figure A.5-1 shows where the typical section of Wilson Street is expanded at the intersection. Figure A.5-2 illustrates the lane configuration for Wilson Street using both bike lanes and a two-way cycle track. Bike lanes would initially be marked until completion of the corridor study.

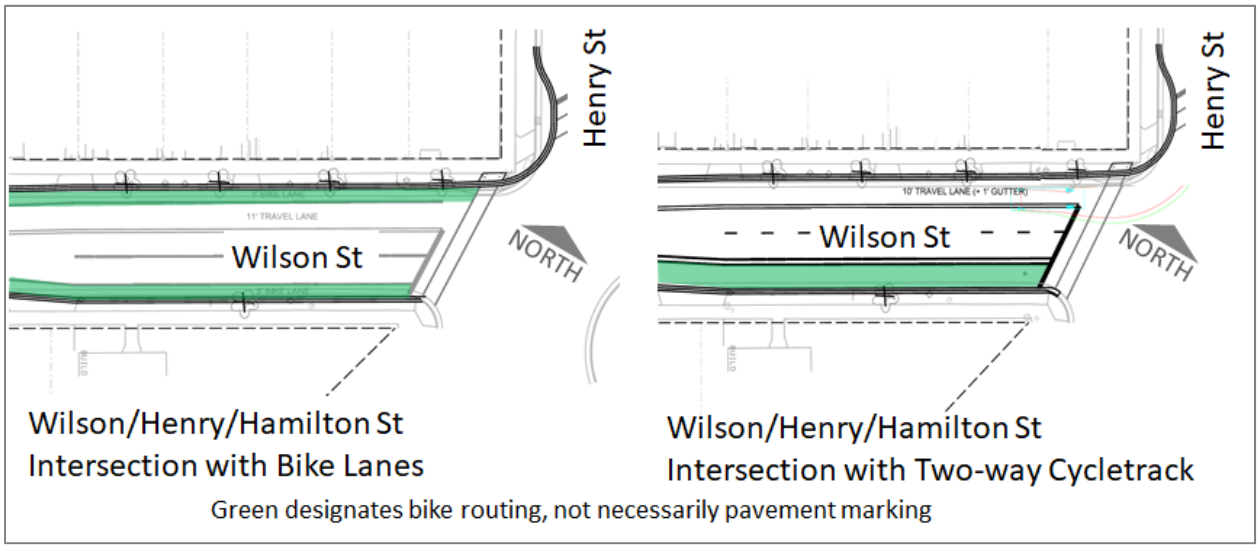


Figure A.5-2 Wilson Street/Henry/Hamilton St Intersection with Both Bike Lanes, and Cycletrack

At the Broom Street/Wilson Street corridor, the following configuration was developed which accommodates buffered bike lanes or a cycletrack. The cycletrack on Broom Street approaching the intersection narrows to 8-feet for a small distance in order to preserve one of the few trees that is not being removed.

Figure A.5-3 Wilson/Broom Street Intersection with Bike Lanes and Two-way Cycletrack

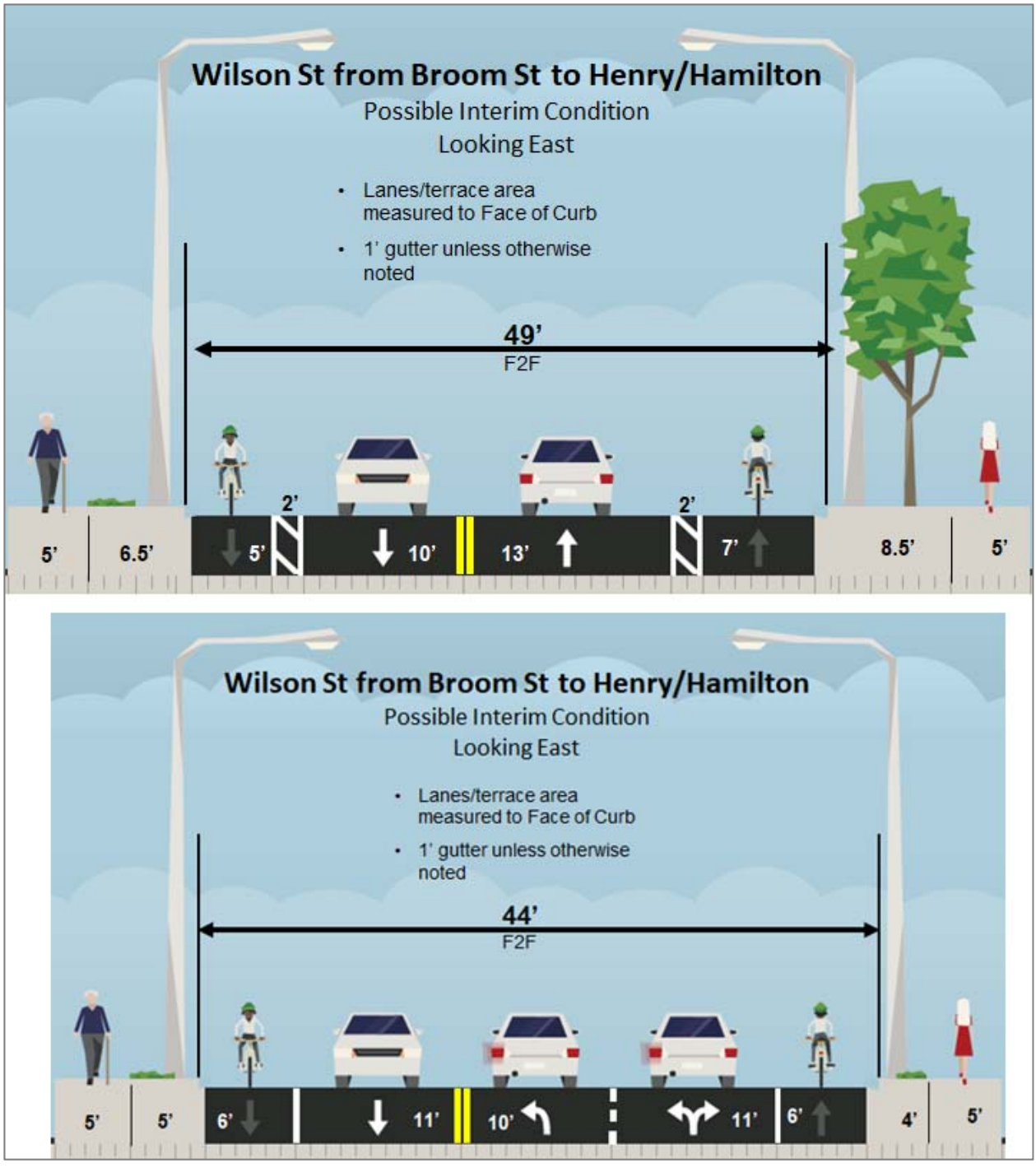
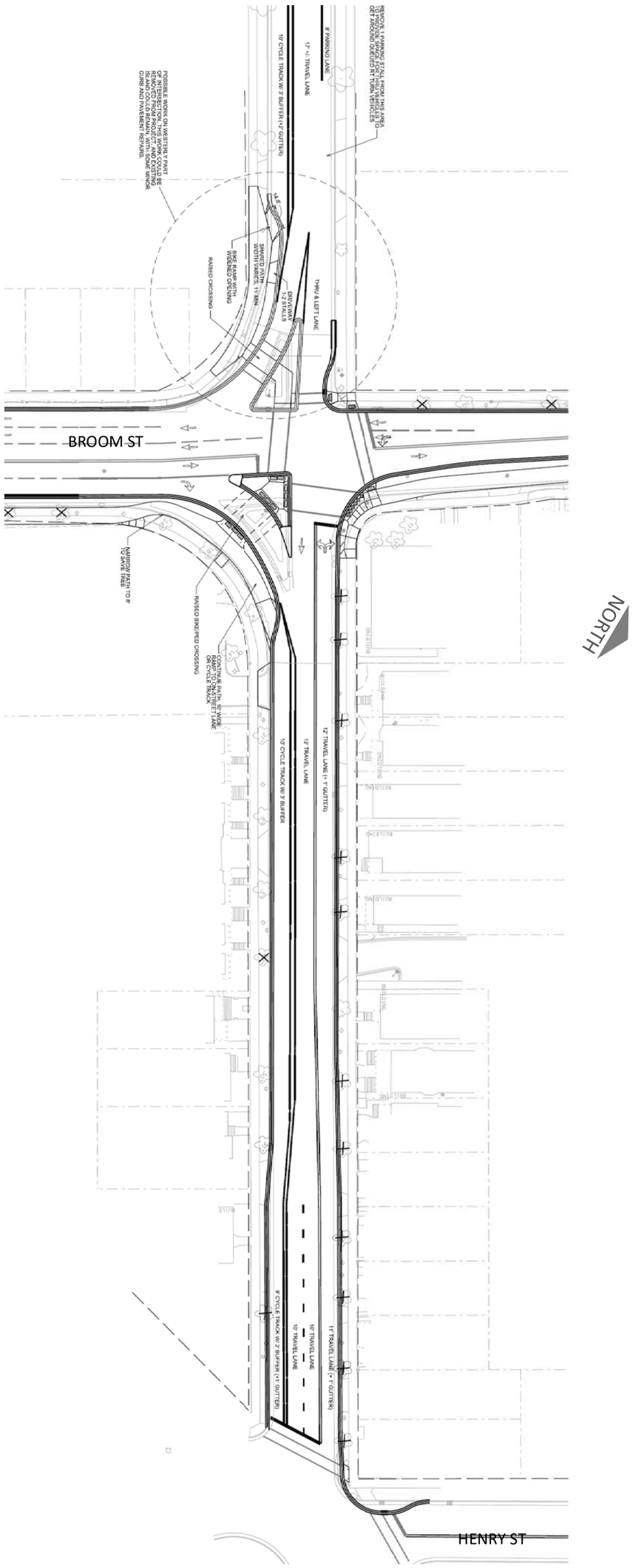
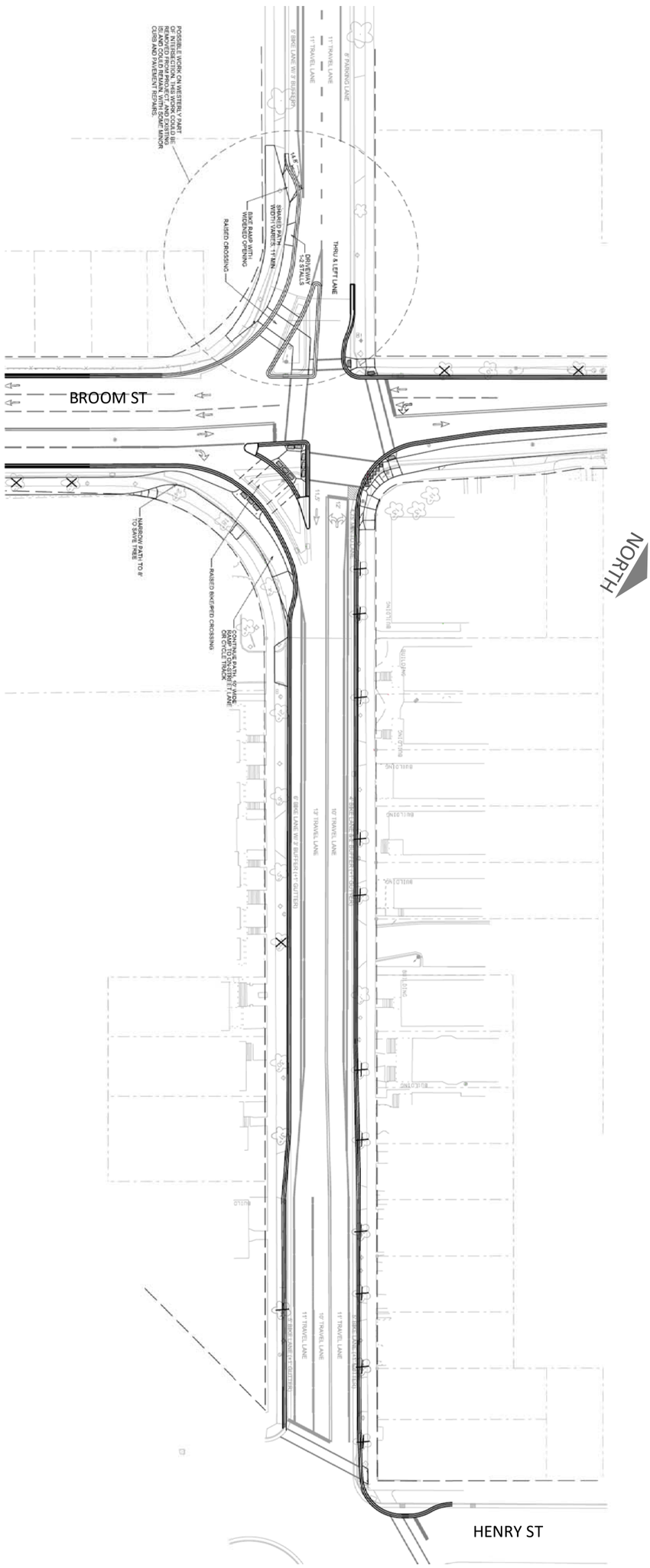


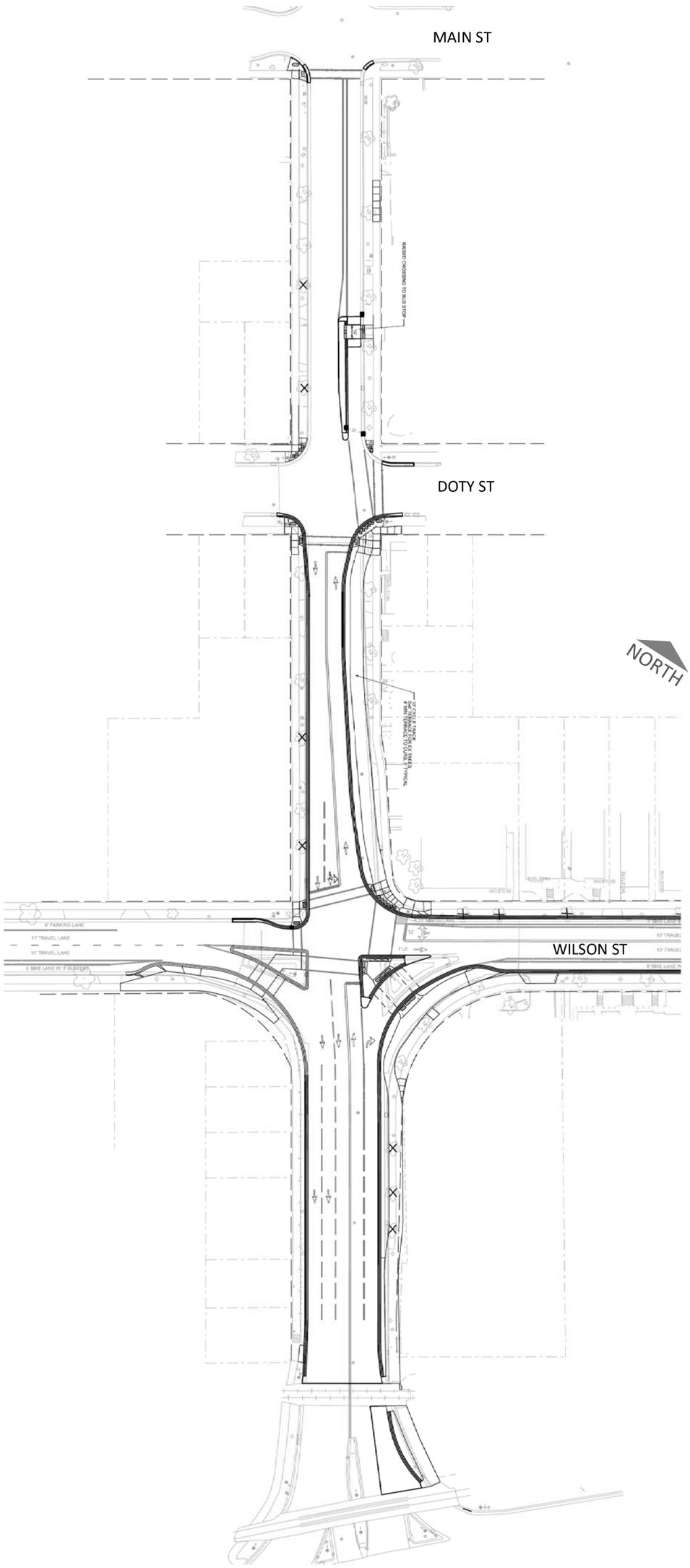
Figure A.5-4 Wilson Street Typical Sections



300 BLOCK WEST WILSON – CYCLETRACK OPTION



300 BLOCK WEST WILSON – BIKE LANE OPTION



BROOM STREET