Complete Streets

Applications in Diverse Environment

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Complete Streets

"Complete Streets are streets designed and operated to enable safe use and support mobility for all users. Those include **people of all ages and abilities**, regardless of whether they are travelling as drivers, pedestrians, bicyclists, or public transportation riders."

Source: US DOT

"Complete Streets are streets for everyone. Complete Streets is an approach to planning, designing, building, operating, and maintaining streets that **enables safe access for all people** who need to use them, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities."

Source: SMART GROWTH AMERICA

"Streets to be planned, designed, operated, and maintained to enable safe, convenient and comfortable travel and **access for users "of all ages and abilities"** regardless of their mode of transportation. Complete Streets allow for safe travel by those walking, cycling, driving automobiles, riding public transportation, or delivering goods."

Source: VDOT

Source: FHWA

Complete Streets

What Are Key Factors?

- Safety
- Connectivity
- Efficiency
- Quality of Life

Who are Users?

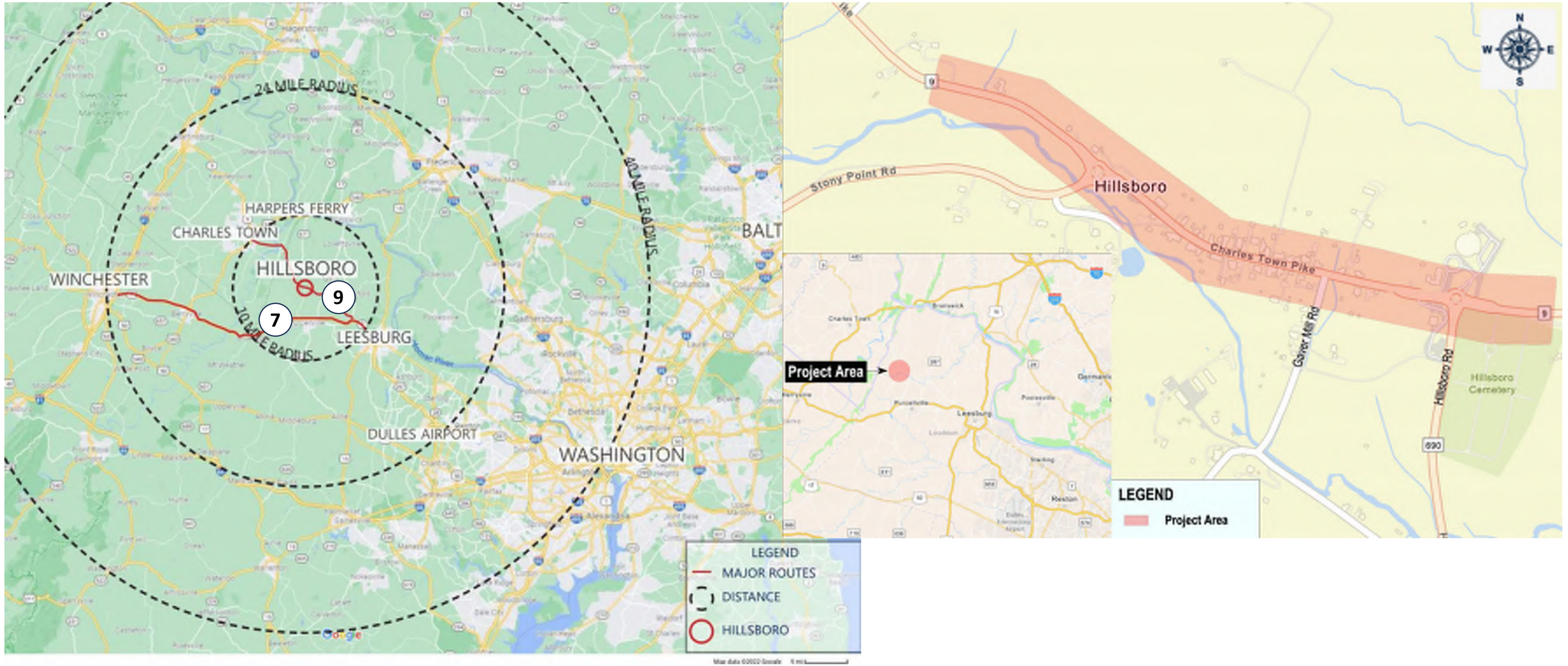
- Motorists
- Pedestrians
- Bicyclists
- Transit Riders
- Micro-mobility Users
- Shared-ride services

Who Wants it?

EVERYBODY

Project: Route 9 Traffic Calming & Pedestrian Safety

Project Location



Project History

Timeline

- Town formally established in 1803
- Thriving town throughout the 19th and early 20th centuries
- Mills closed in the 1940s & its role as a commercial center declined
- Route 9 became a primary highway and a major regional commuter route
- Growing traffic volume and speeds led to citizen requests for action
- Proposals for a bypass in 1990s rejected by community
- 17,000 ADT, Minor Arterial
- Speeding Issues
- Crashes
- Zero non-motorized modes

Project Objective

Project Features

- Historic Context
- Complete Streets Approach
- Two Roundabouts and Three Raised Crosswalks
- Sidewalks (ADA compliant)
- Multimobility / Walkable Town
- On-street Parking
- Pedestrian LED/Bluetooth enabled Lighting
- Underground All Overhead Powerlines/Telecom
- Quality of life for community

Project Schedule

VDOT Scoping	July 8, 2008
VDOT Design Approval	November 7, 2013
SMART SCALE	March 2017
RFP for Design	May 19,2017
County Funding $4.8M	July 1, 2017
NTP for Volkert design	**September 7, 2017**
Early Coordination Meeting (VDOT, Utilities, County)	October,2017
TAP Grant Application (Stony Point, Gaver Mill)	October 7, 2017
Citizens Meeting	November 2, 2017
Right of Way 75% Plans	January 19,2018
100% Plans	April 25, 2018
NVTA Funding Approved ($12.2M)	June 15,2018
100% Plans Resubmission (Western Roundabout)	September 19,2018
Right of Way Acquisition Began	October 1, 2018
VDOT Approval	**April 3, 2019**
County CPAP Approval	April 19, 2019
Right of Way Acquisition Complete	May 14,2019 (8 Months)
Advertised for Construction	May 21,2019 (18 Months)
Bid Received	**July 25, 2019**
Re-Advertise	**September 2019**
Construction Completed	May 2021

Existing Conditions and Issues (Before)

Frequent heavy traffic and congestion

Inadequate parking and poor pedestrian spaces

Existing Conditions and Issues (Before)

Inadequate infrastructure and challenging topography

Offset signalized intersection/delays/accidents

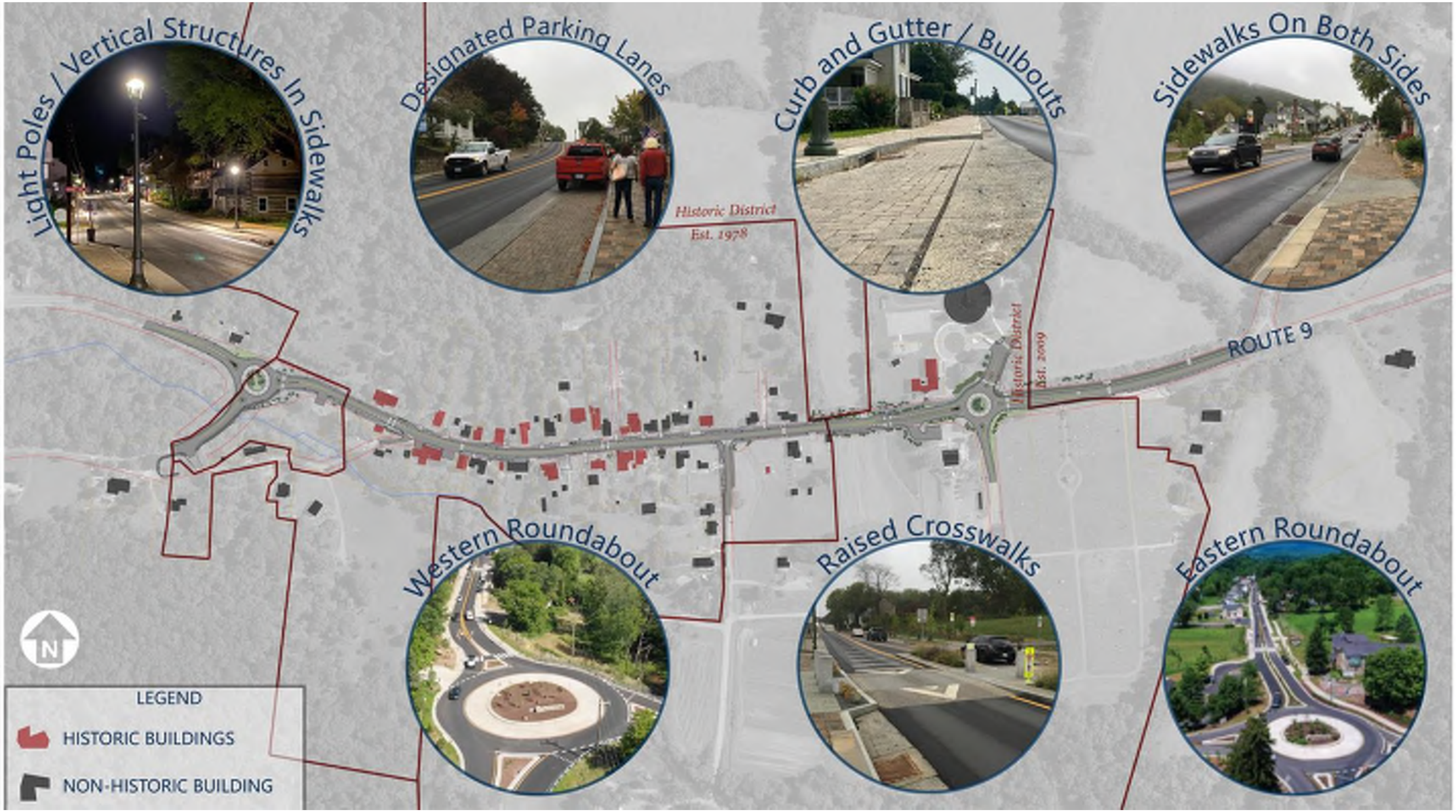
Effectively Communicate How the Corridor Can Change

Collaborative Design Approach

- Effective teamwork and collaboration among all stakeholders facilitated the execution of the project:
  - VDOT NOVA Staunton
  - Loudoun/Clarke County
  - WVDOT, MDSHA
  - EMS
  - County School Board
  - Utilities
  - Citizens
- Support from VDOT, citizens and the County Board of Directors for Volkert's proposed solutions enabled completion within schedule.

Evaluation of Multiple Design Schemes

Comprehensive Traffic Calming Solutions



Built Photos

Create a Complete Street with a narrower roadway, new curb and gutter, parking lane, and sidewalks on both sides.

Provide accessibility with new structures that blend in with surrounding context.

Built Photos

Pedestrian accommodations are incorporated for people to cross the road safely and reach destinations by foot comfortably.

Built Photos

Roundabouts replace a traffic signal and a STOP-control.

New lighting provides safety at night. Full cut off LED lights with side shields.

Before / After Photos

Wide roadway, lack of sidewalks, poor drainage and service with overhead wires; no separation, accessibility nor connectivity.

The Complete Streets approach with bulbouts, parking lanes, furnishings, sidewalks on both sides with curb and gutter.

Before / After Photos

2019 - During Construction

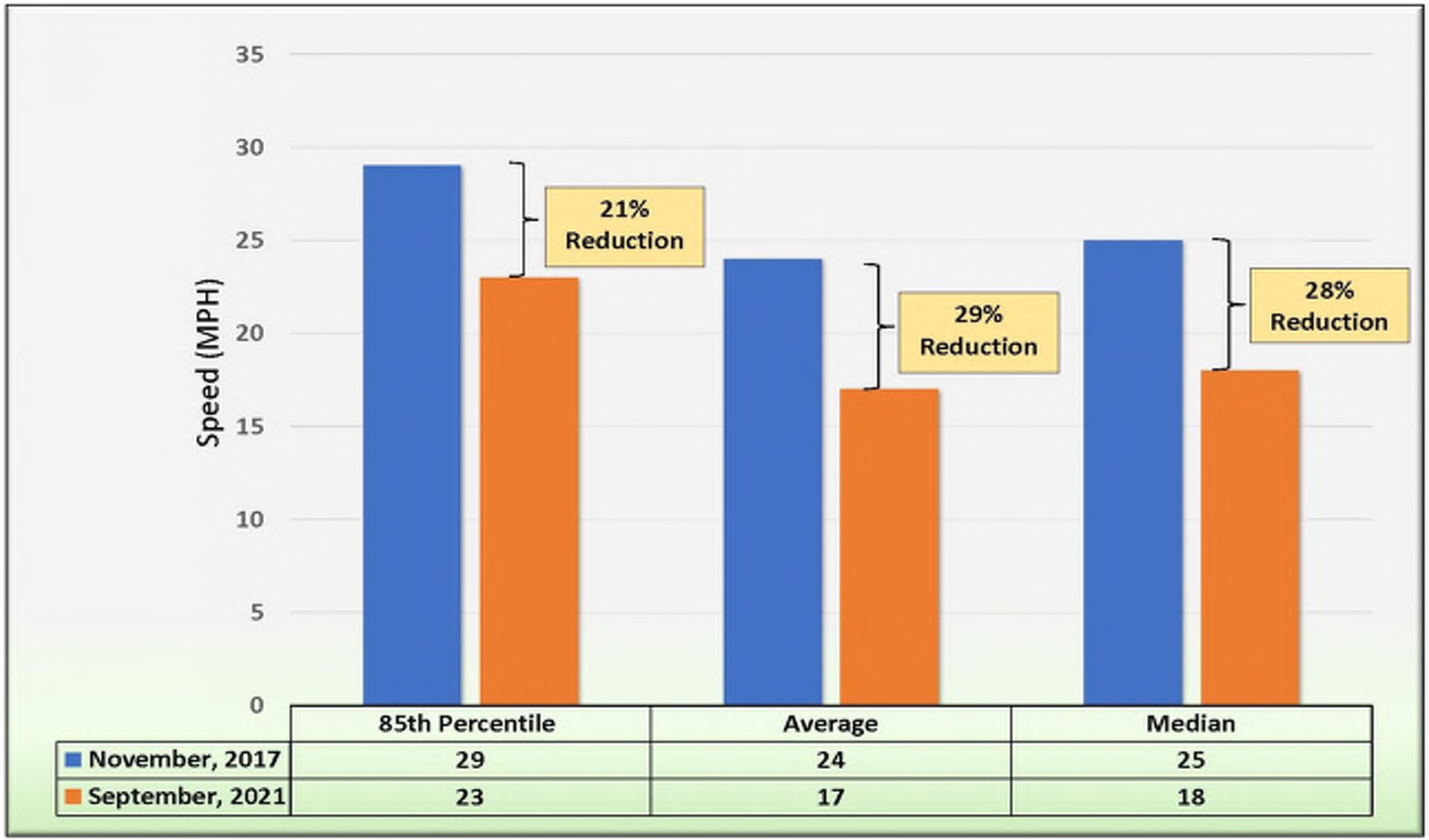
Asphalt roadway one side to the other.

June 2021 – Opening Day

A small rural community with mobility options.

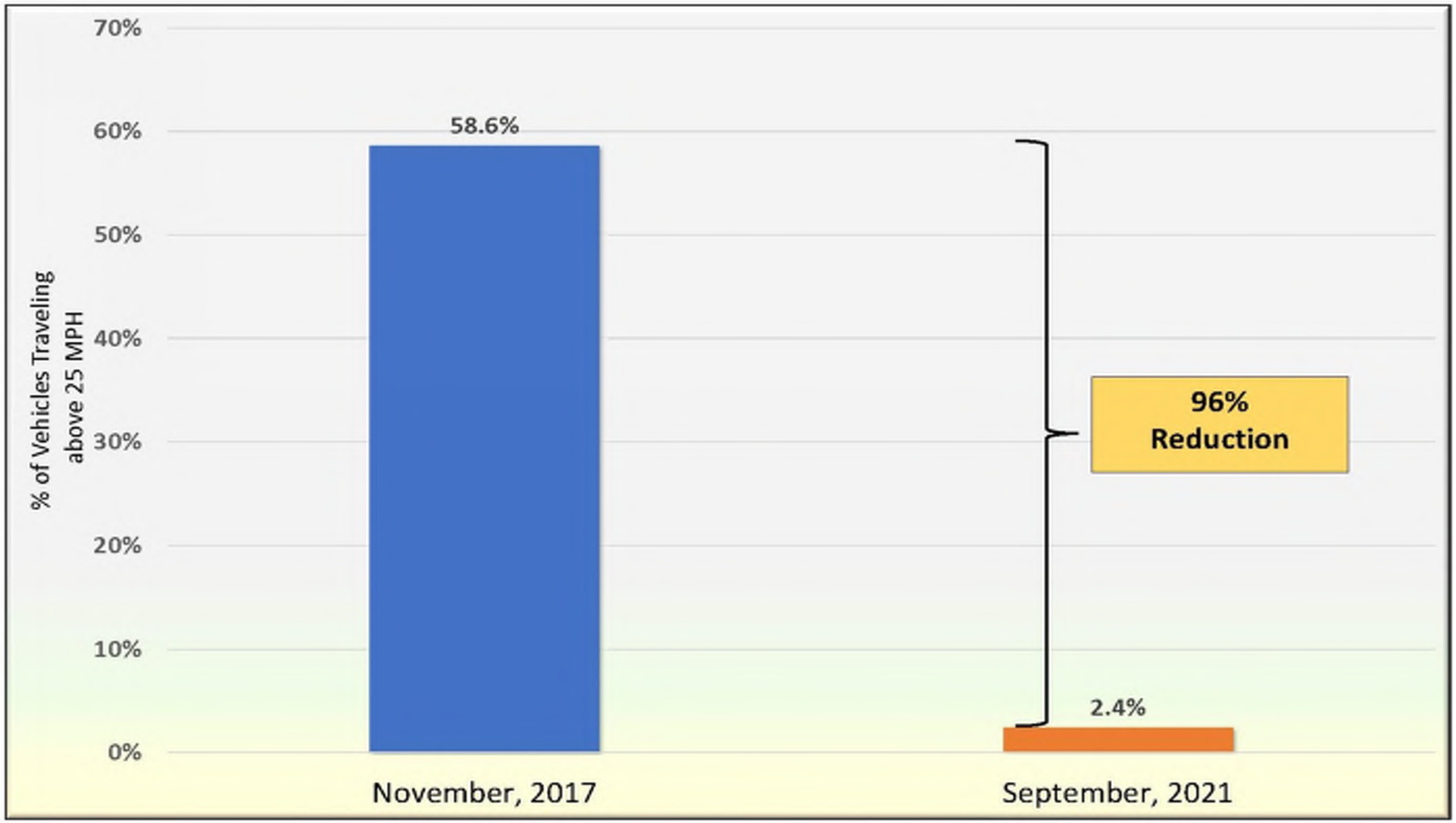
Traffic Analysis: Before/After Comparison

Speed Comparison Along Route 9 (Charles Town Pike)



Traffic Analysis: Before/After Comparison

Vehicle Traveling Above 25 MPH Along Route 9



Project Success

"It was hard to walk anywhere before. It felt like all you could do is drive to your house, get in your car, get out of your car, get in your car and drive somewhere else. Now you can walk across the street to your neighbor. You can walk the dog up the street and run into people and sit and chat on the sidewalk, rather than on the side of a busy highway."
-Paul Hrebenak (Resident)

TRAFFIC CALMING	Speeding was a frequent problem as Hillsboro's "Main Street" became a commuter thoroughfare over time. Traffic calming devices and multi-modal options helped slow down traffic and improve residents' quality of life.
MULTIMOBILITY & SAFETY	A new sidewalk and bicycle network create a safe multi-modal environment. The composition of streetscape elements create a safe and attractive environment throughout the Town.
RAISED CROSSWALKS	Three raised crosswalks help reduce vehicular speed, increase pedestrian awareness, and create a sense of connectivity among the Town's residents.
ROUNDABOUTS	Roundabouts at either end of Route 9 replace one signalized intersection and one stop control intersection, improving safety and traffic operation.
INNOVATIVE LIGHTING	A new LED lighting system meeting International Dark Sky Standards illuminates the corridor safely and responsibly.
COMMUNITY	An extensive public engagement process resulted in overwhelming support for the project.
COST & SCHEDULE	Volkert worked diligently to meet all funding and schedule constraints, using practical engineering solutions.

Locals and tourists look for bargains on the new sidewalks in Hillsboro. (Michael S. Williamson/The Washington Post)

By Luz Lazo
July 23, 2021 at 6:00 a.m. EDT

The steamy heat didn't darken the mood of Hillsboro residents waiting expectantly for neighbors and other bargain-hunters to show up at their doorsteps. The residents of the small town in western Loudoun County had put out tables on a recent Saturday filled with books, plants and homeware, rolling out their first sidewalk sale.

Winner
2021 WDCSITE
Project of the Year

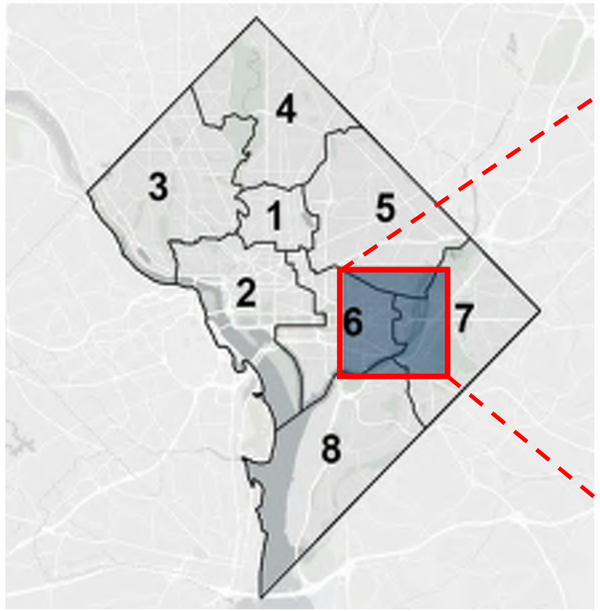
Winner
2021 VTCA Engineering Award
For Larger than $10M Other

Winner
2021-2022 Honor Award

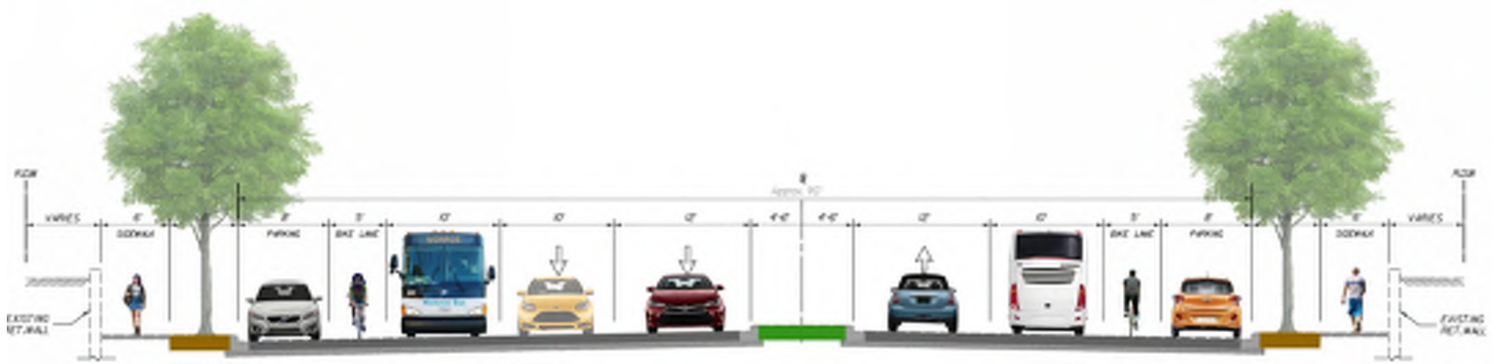
Winner
Virginia Municipal League's
2021 Innovation Awards
in Local Government
Economic Development

Project: Rehabilitation of C Street NE, Washington DC

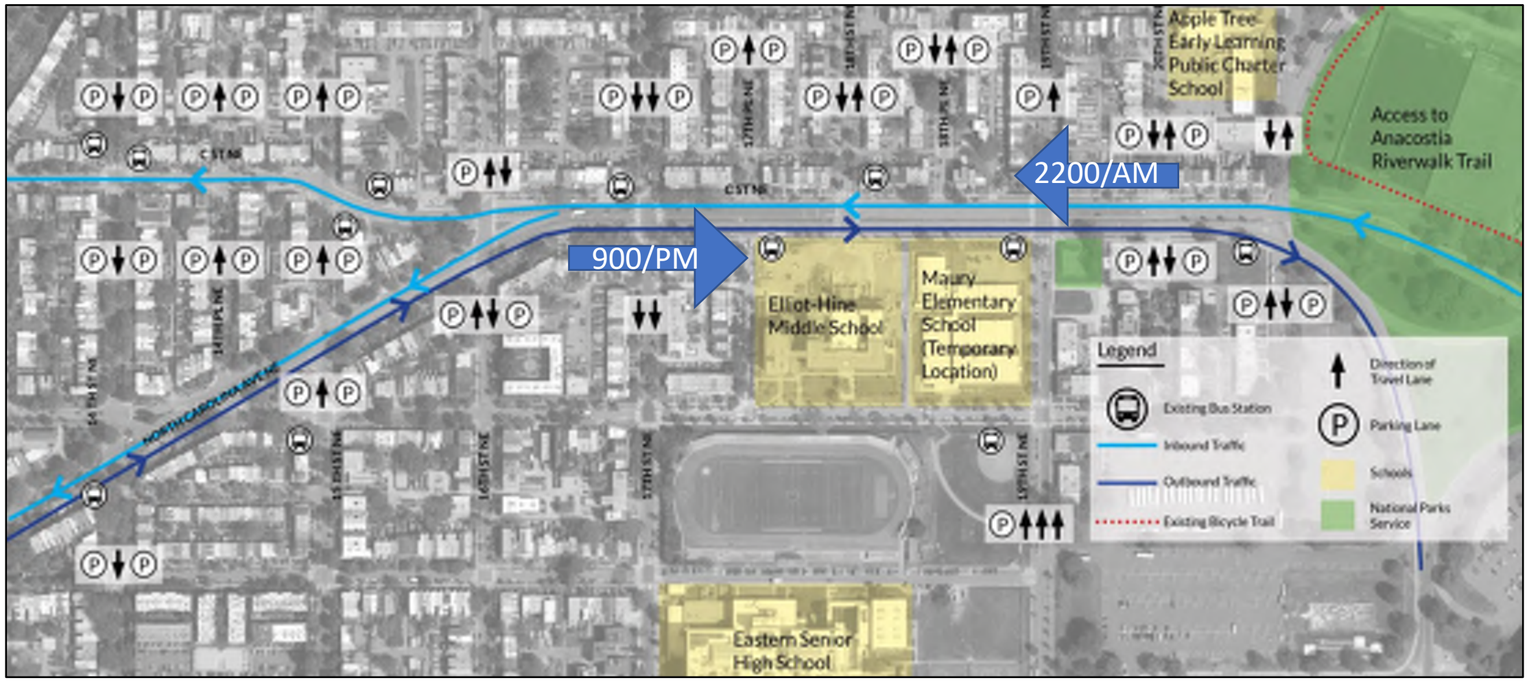
Location Map



Existing Conditions

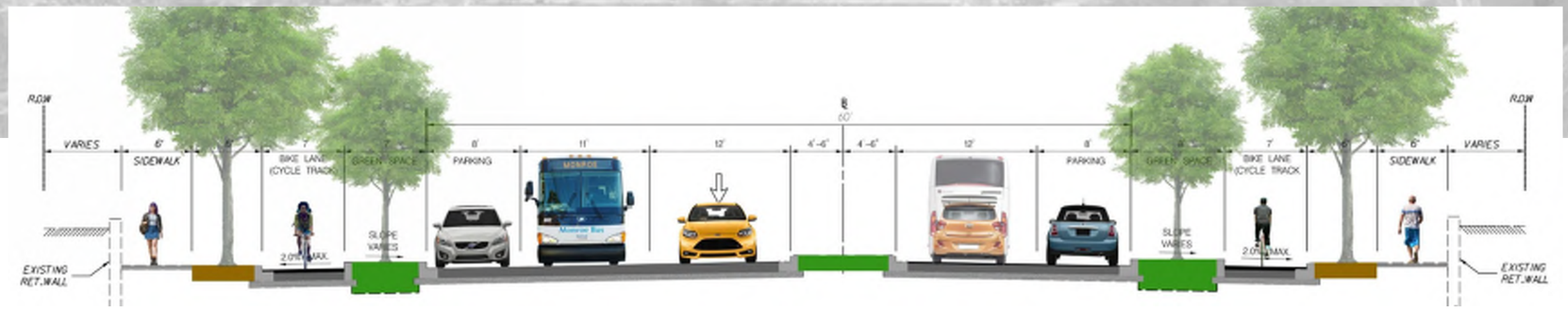


- 0.75-mile-long corridor
- 3 travel inbound lanes
- 2 travel outbound lanes
- Parking lane
- 5-foot-wide bike lanes
- 11 intersections
- 22,000 ADT



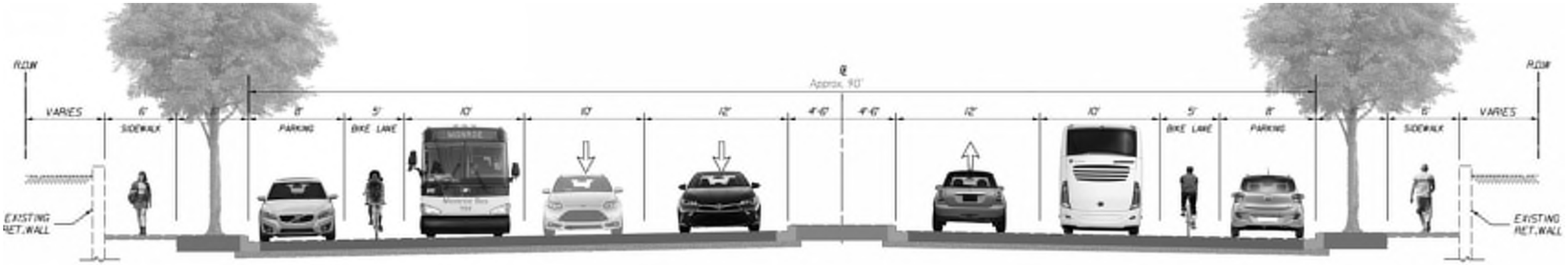
Proposed Conditions

A Complete Street – Balancing Multiple Needs

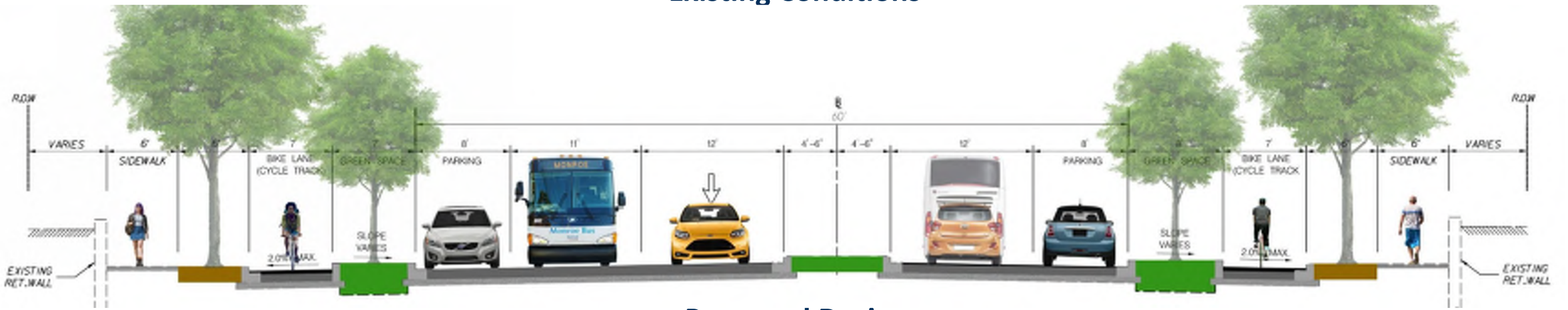


- Separated Cycle track
- Bulb-outs and Raised Crosswalks
- Traffic Calming/ADA Upgrades
- 2 HAWK Signals
- LID Facilities/ LED upgrades
- Bus Shelter Improvements

Typical Section

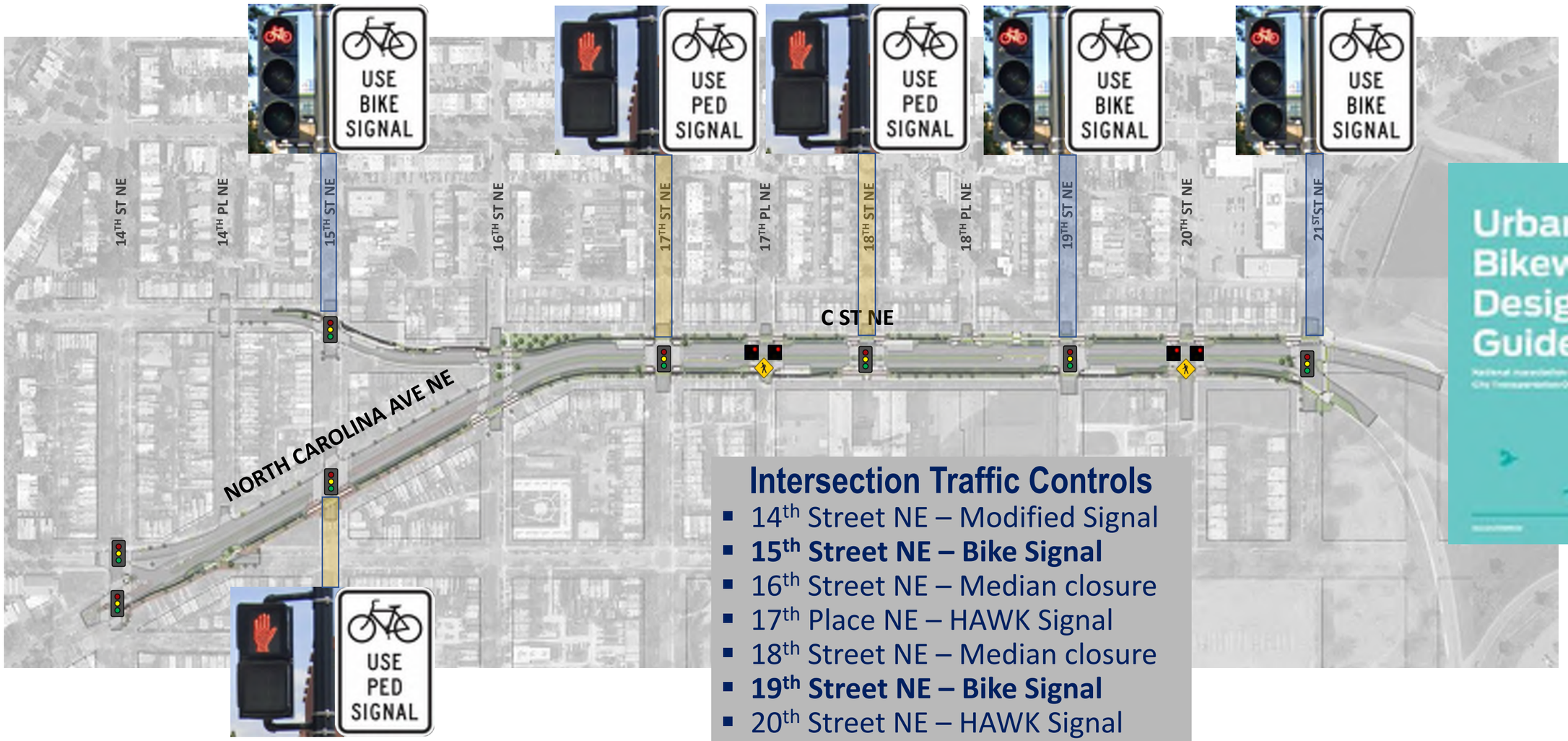


Existing Conditions



Proposed Design

Bike Signals & Safety

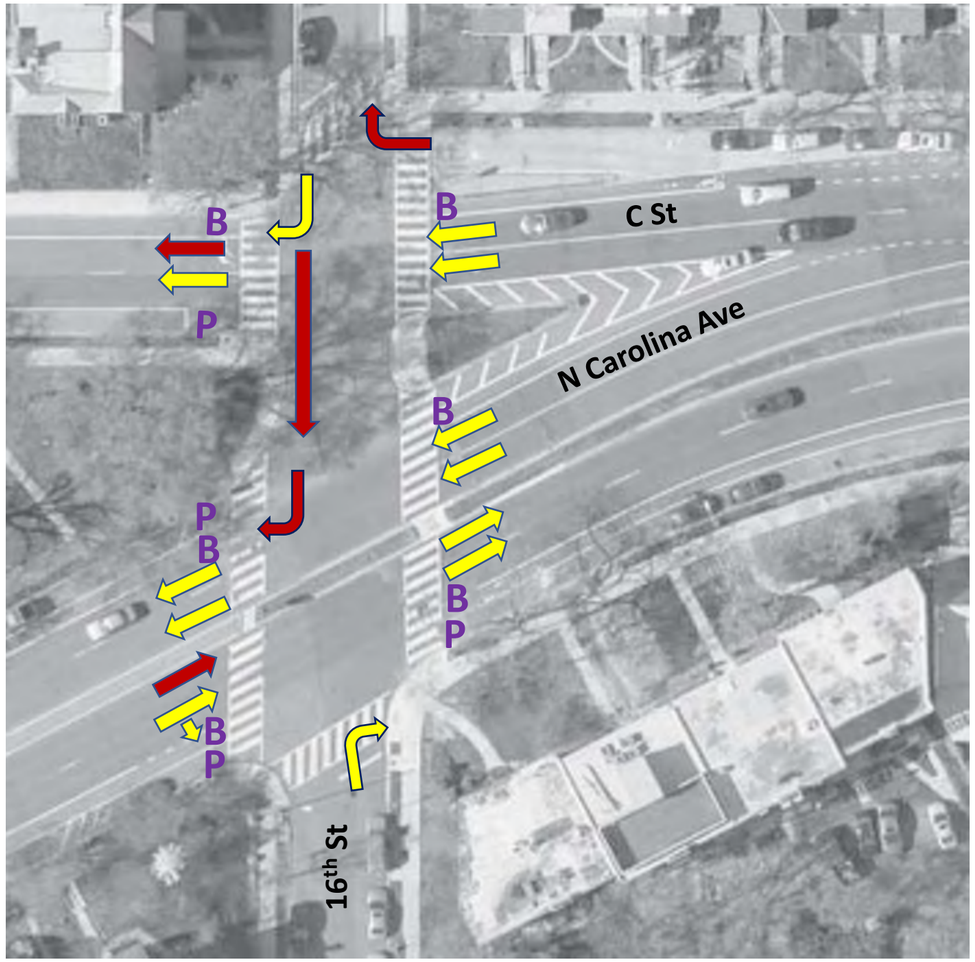


Intersection Traffic Controls

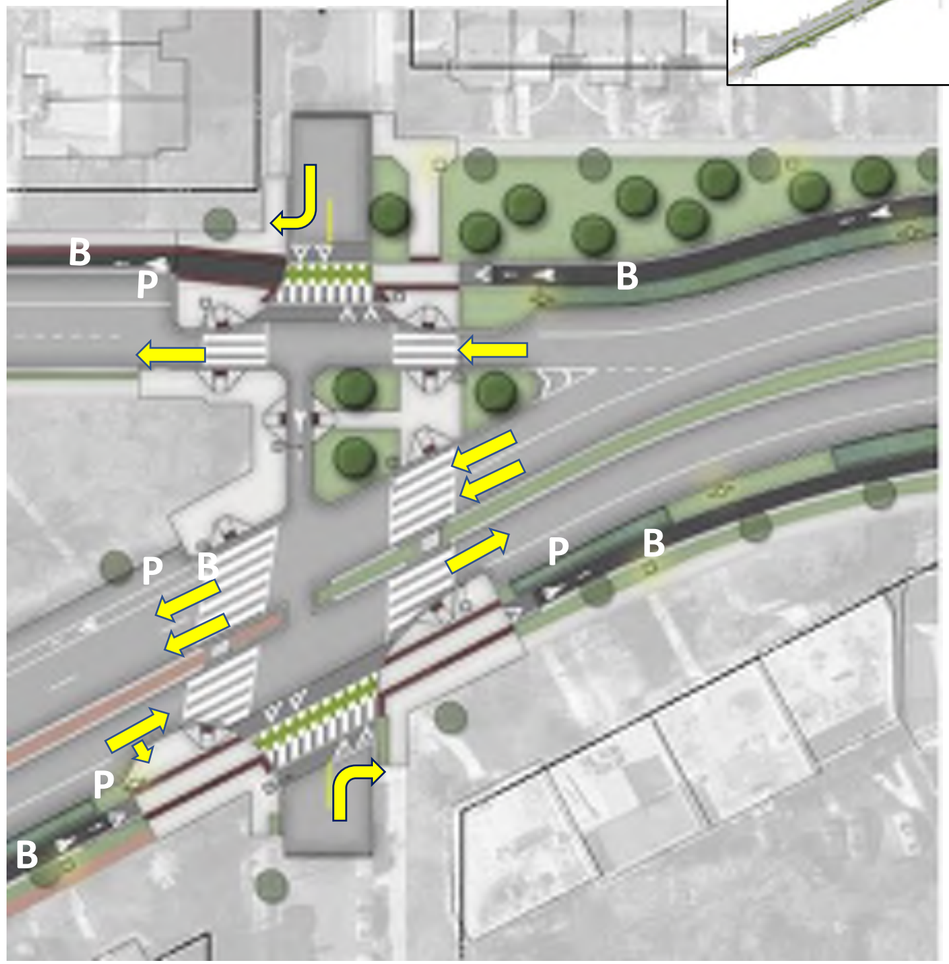
- 14th Street NE – Modified Signal
- **15th Street NE – Bike Signal**
- 16th Street NE – Median closure
- 17th Place NE – HAWK Signal
- 18th Street NE – Median closure
- **19th Street NE – Bike Signal**
- 20th Street NE – HAWK Signal
- **21st Street NE – Bike Signal**

Traffic Safety

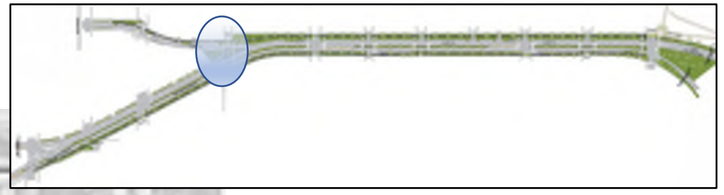
C St/N Carolina Ave/16th St NE (Unsignalized)



Existing

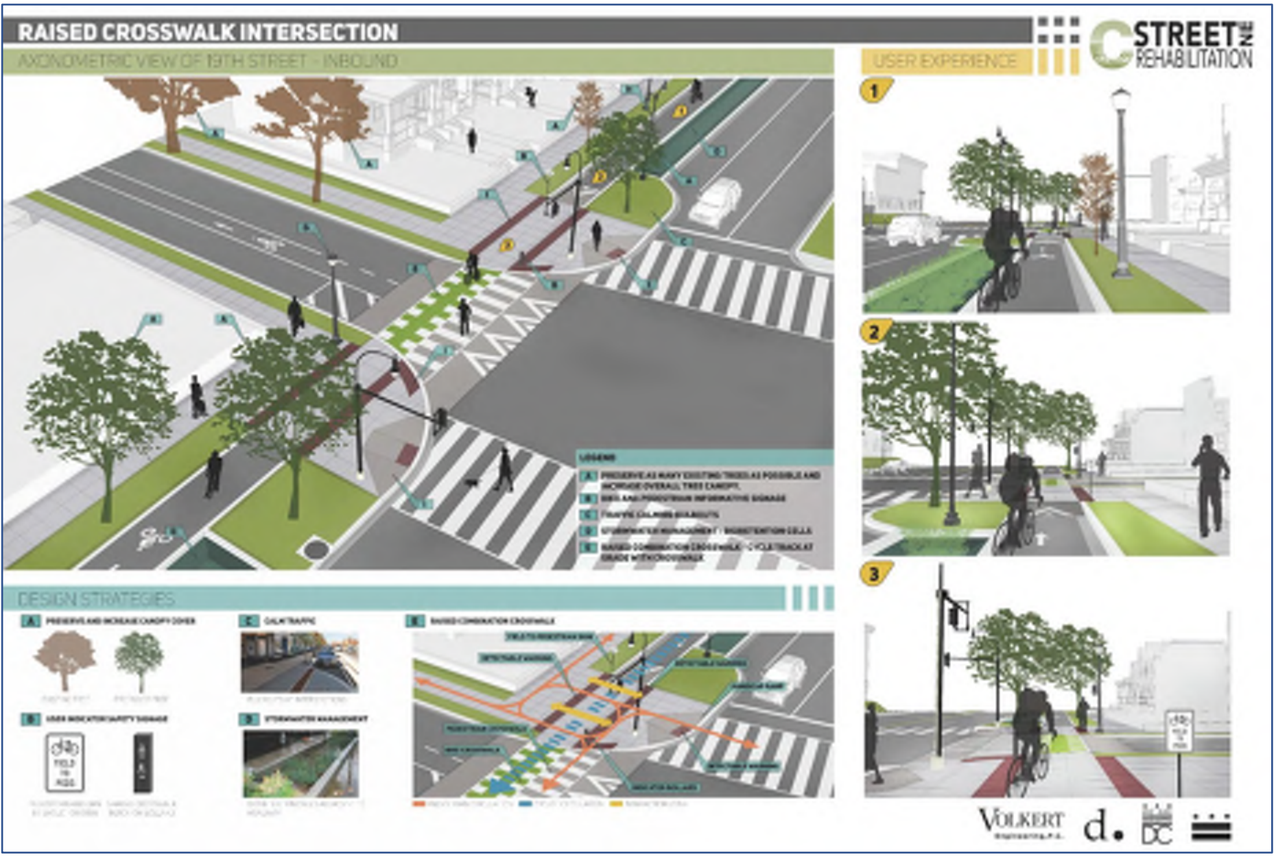


Proposed

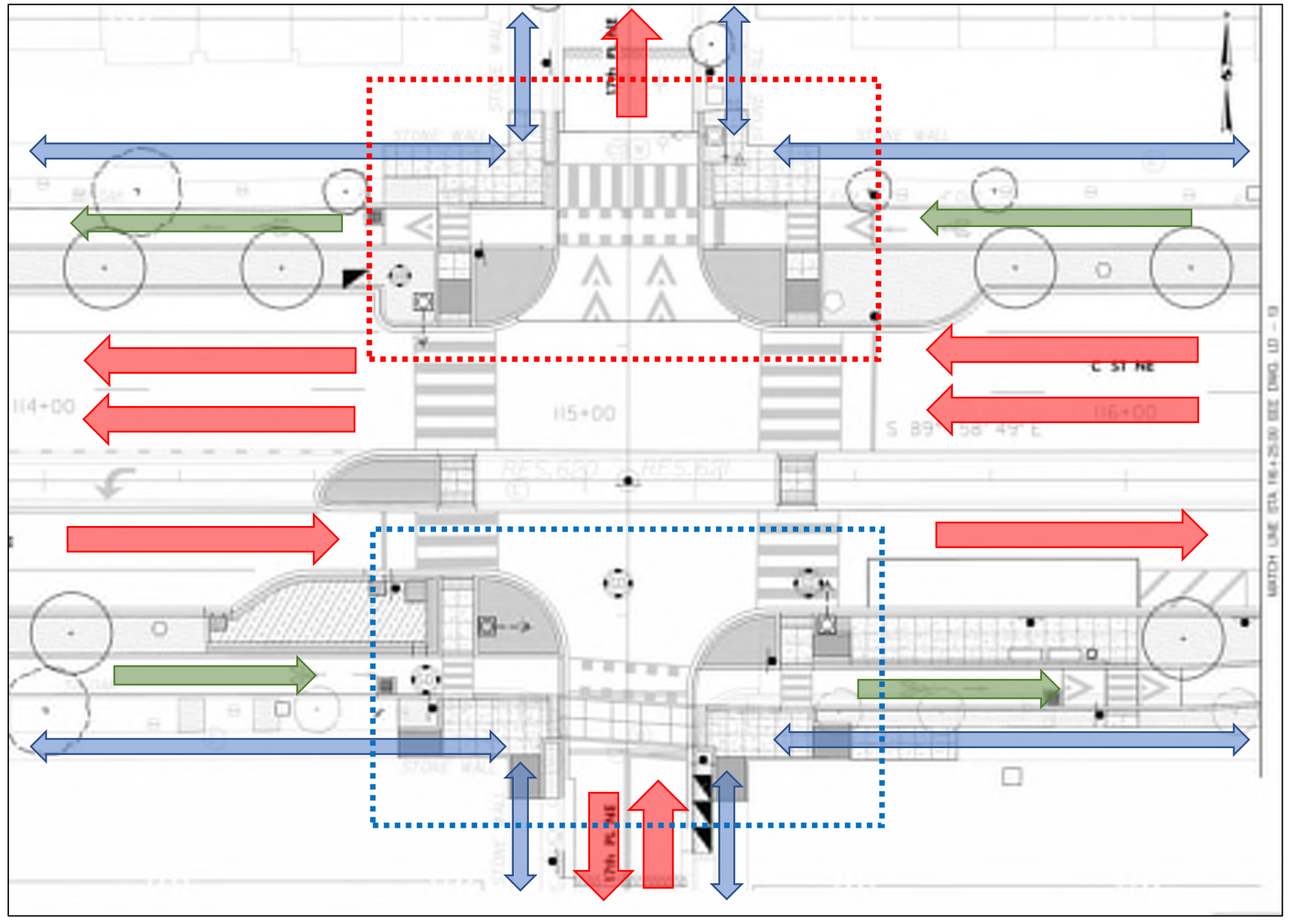


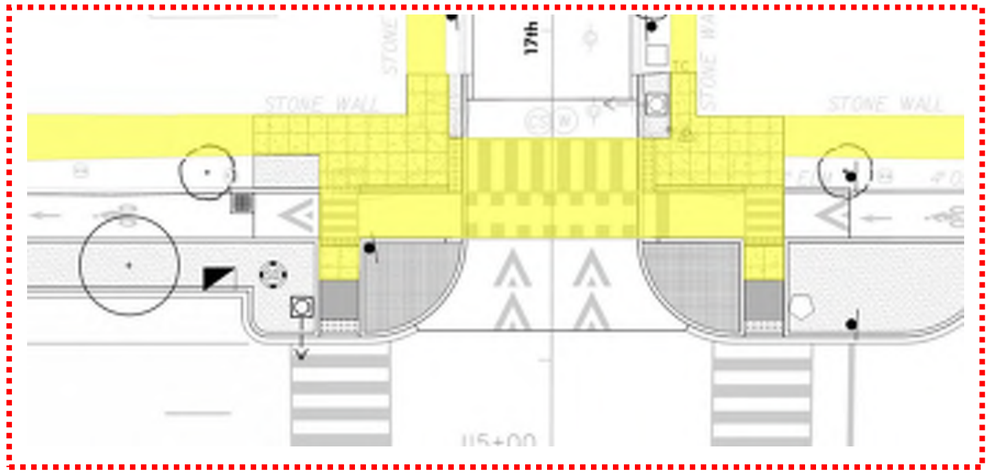
- Eliminate Conflicts
- Simplify Operation
- Reduced Crosswalk Distance
- Protected Bike Lanes
- Raised Crosswalks

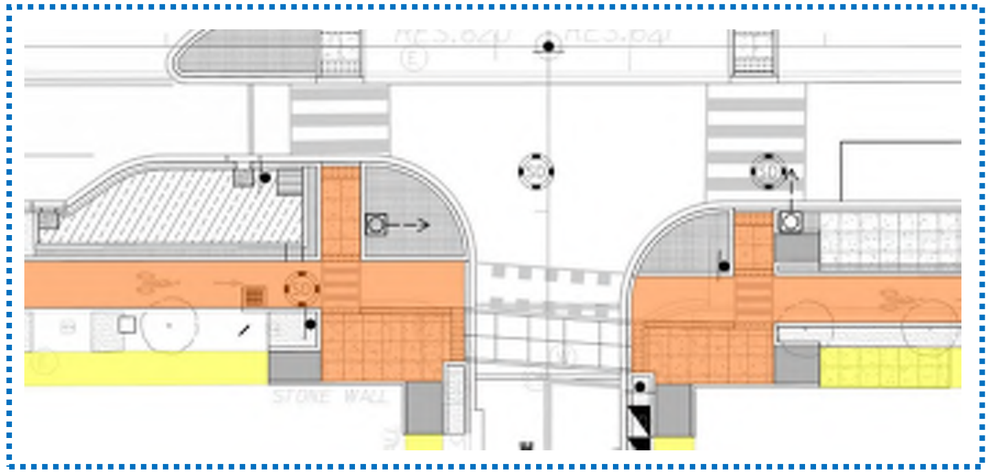
Raised Crosswalks vs. At-Grade Crosswalks



Provide Bicycle and Pedestrian Safety







Real Design Based on Guidelines

Guideline

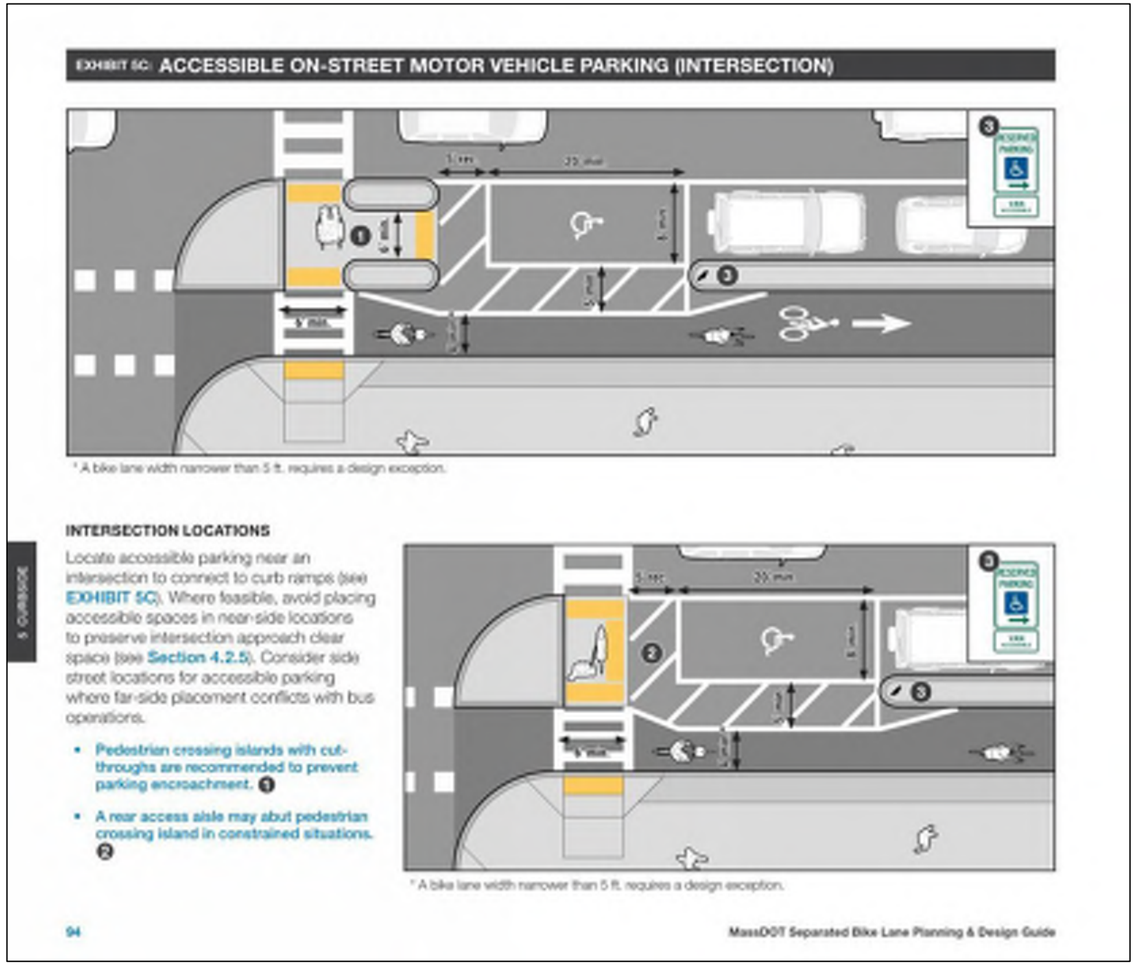


EXHIBIT 5C: ACCESSIBLE ON-STREET MOTOR VEHICLE PARKING (INTERSECTION)

* A bike lane width narrower than 5 ft. requires a design exception.

INTERSECTION LOCATIONS

Locate accessible parking near an intersection to connect to curb ramps (see EXHIBIT 5C). Where feasible, avoid placing accessible spaces in near-side locations to preserve intersection approach clear space (see Section 4.2.5). Consider side street locations for accessible parking where far-side placement conflicts with bus operations.

- Pedestrian crossing islands with cut-throughs are recommended to prevent parking encroachment. ❶
- A rear access aisle may abut pedestrian crossing island in constrained situations. ❷

* A bike lane width narrower than 5 ft. requires a design exception.

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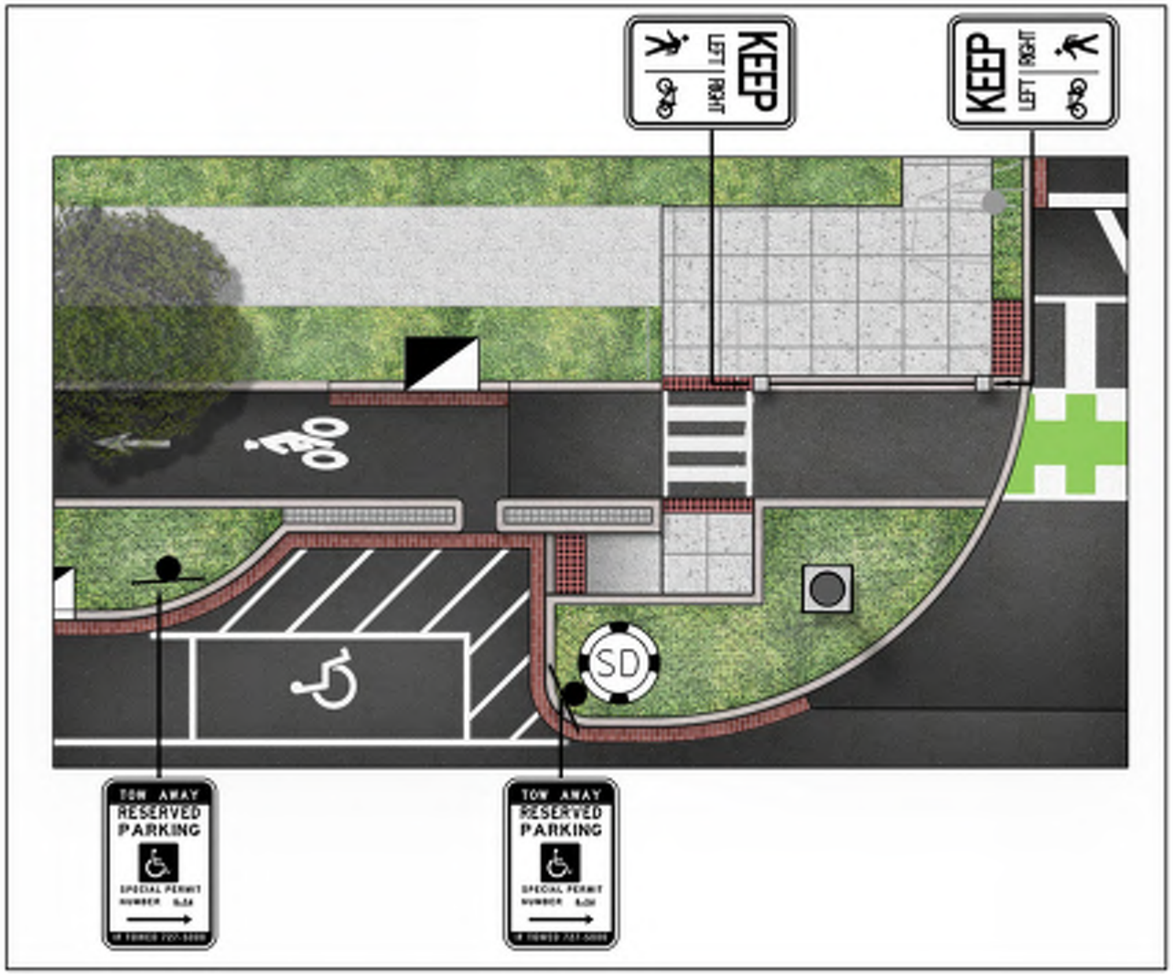
MassDOT Separated Bike Lane Planning & Design Guide

From: MassDOT Separated Bike Lane Planning and Design Guide

Real Design



Display for C Street NE Public Meeting

Integrate Accessibility in the Design

Create Barrier Free Environments

Source: World of Stone USA

Tactile Directional Pavers

Provide Safe and Effective Transportation Options

Before / After

Before / After

Thank you!

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