

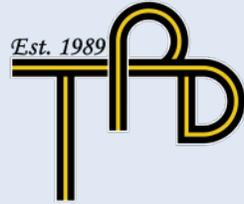


A Multimodal Charlotte Street From a Long-Anticipated Dream to a Quick Reality

Presented by: Rachael Bronson, AICP
SC Bike Walk Trails Summit
June 8, 2023

Est. 1989
TPD TRAFFIC PLANNING
AND DESIGN, INC.

MEET



TRAFFIC PLANNING
AND DESIGN, INC.



Rachael Bronson, AICP

Multimodal Transportation Specialist

rbronson@trafficpd.com

Traffic Planning & Design, Inc.

Based out of our Asheville, NC Office

Additional offices throughout the East Coast

Services We Offer

-  Highway Design
-  Bridge Design & Inspection
-  Traffic Signals & ITS
-  Transportation Planning
-  CM/CI
-  Multimodal Design
-  Municipal Design
-  Environmental
-  Expert Witness



OVERVIEW

CORRIDOR CONTEXT

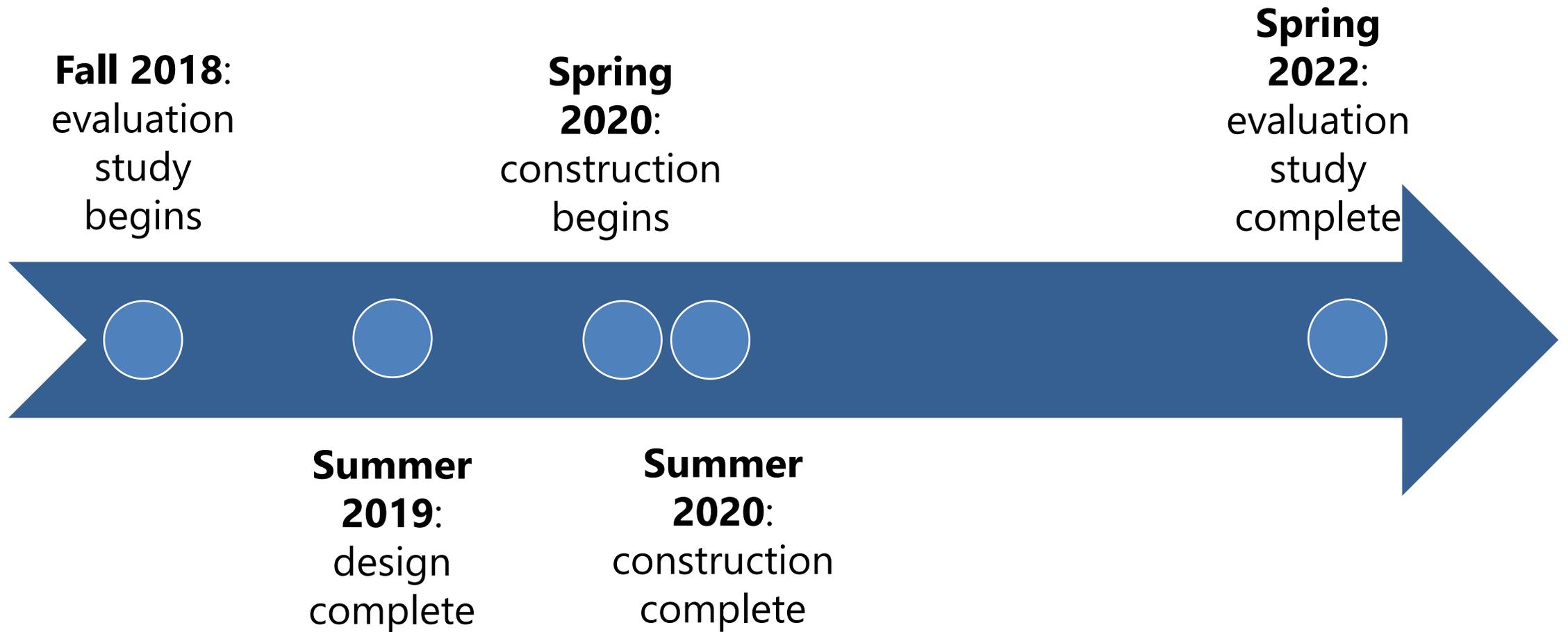
PROJECT DETAILS

**COMMUNITY ENGAGEMENT
HIGHLIGHTS**

BEFORE & AFTER STUDY

LESSONS LEARNED

TIMELINE



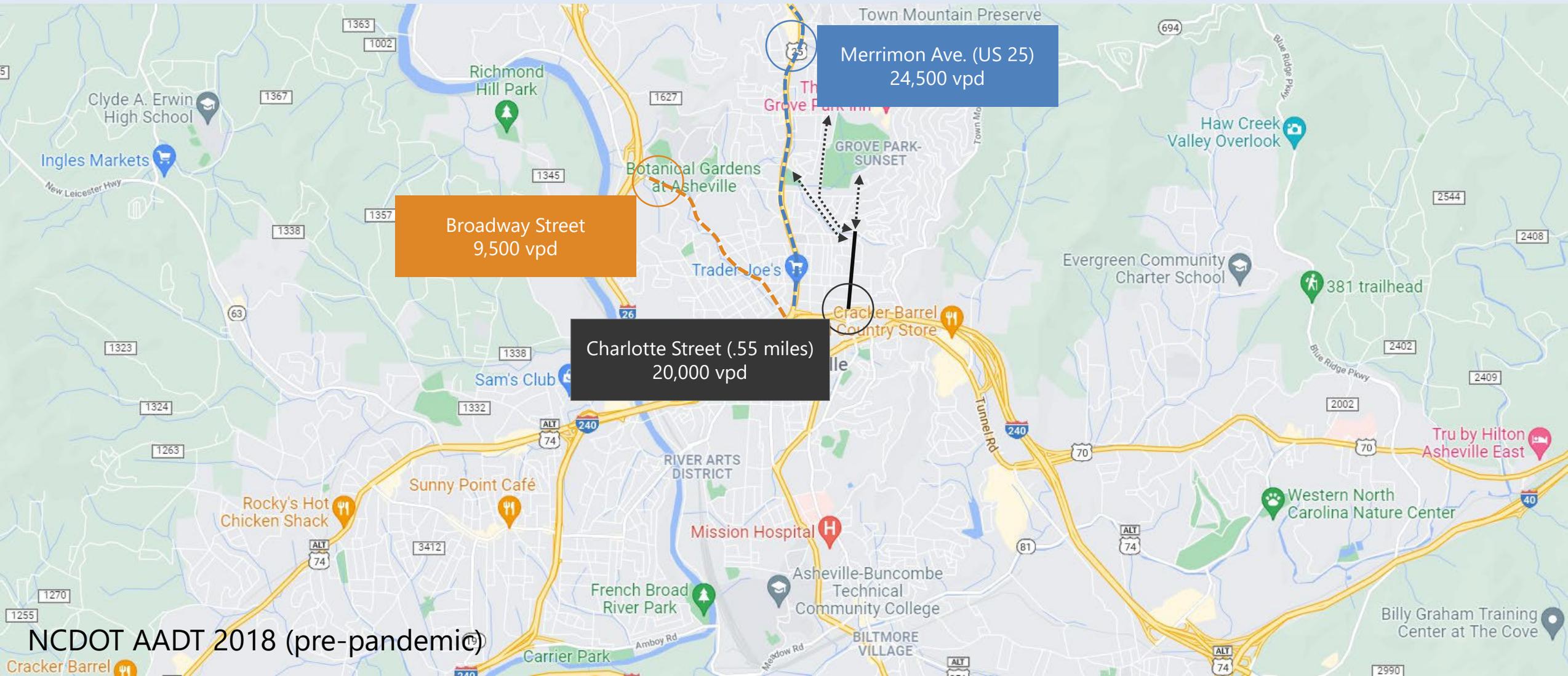
CORRIDOR CONTEXT



BEFORE: Charlotte St Near Clayton,
Looking North



TRANSPORTATION SYSTEM



Council Goal

"To implement a road diet with enhanced bicycle facilities **with pedestrian improvements including improved sidewalks and safer roadway crossings**, as recommended in the [City's Mobility] plan. Bike lanes between sidewalks and moving vehicles would create a more pedestrian-friendly environment."



Budget

\$ 990,000

Bond Funded Capital Improvement
Planning & Construction



Timeline

Begin: January 2019

Construction Bid: June 2019

Completion: Summer 2020



**BEFORE: Charlotte St
Near Lennox, Looking North**

Goals & Constraints



Implement Multimodal Vision



**Coordinate
Improvements With
Repaving Opportunity**



**Remain within the
Existing Right of Way**



No Utility Relocation



**BEFORE: Charlotte St at Baird St,
Looking South**

STUDY LIMITS



.55 miles

THE 4 TO 3 ROAD DIET



BEFORE: Charlotte St Near Chestnut St,
Looking South



AFTER: Charlotte St Near Blair St,
Looking North



$\leq 20,000$

VEHICLES PER DAY

CHARLOTTE STREET

12,000 – North of Chestnut

20,000 – South of Chestnut





MANY INTERSECTIONS ACCESS POINTS

CHARLOTTE STREET

13 Intersections + 27 Commercial
Access Points
(Many Very Wide)



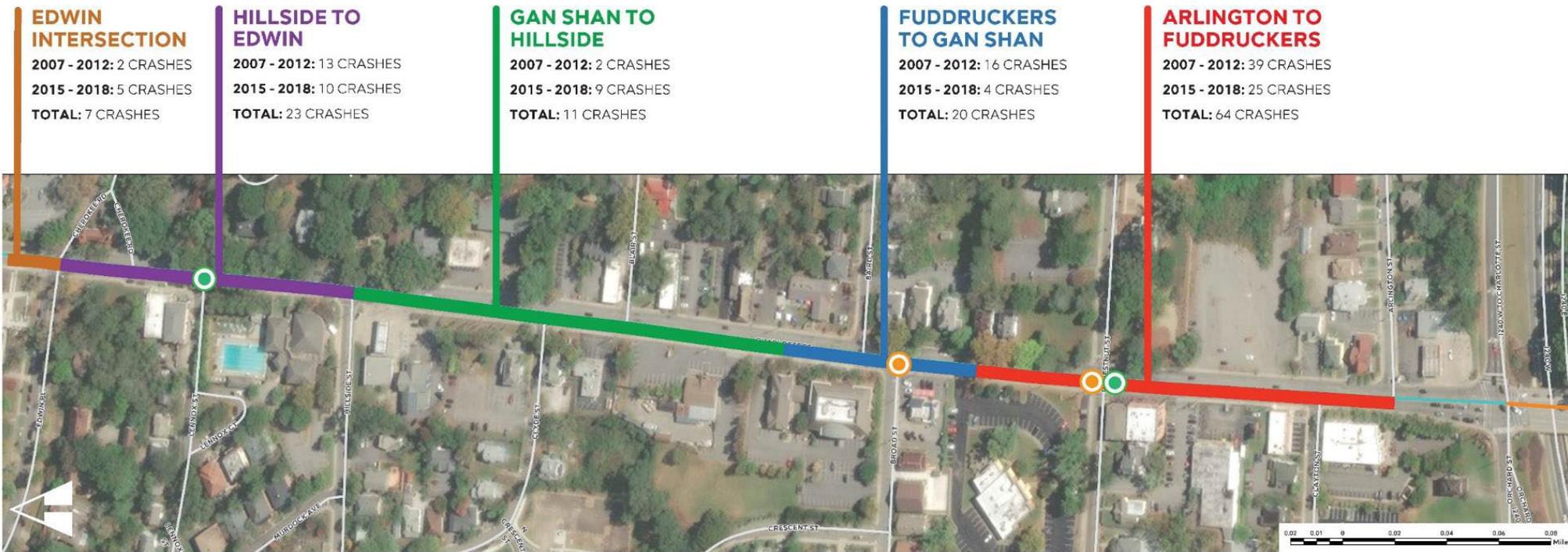
ADA CHALLENGES





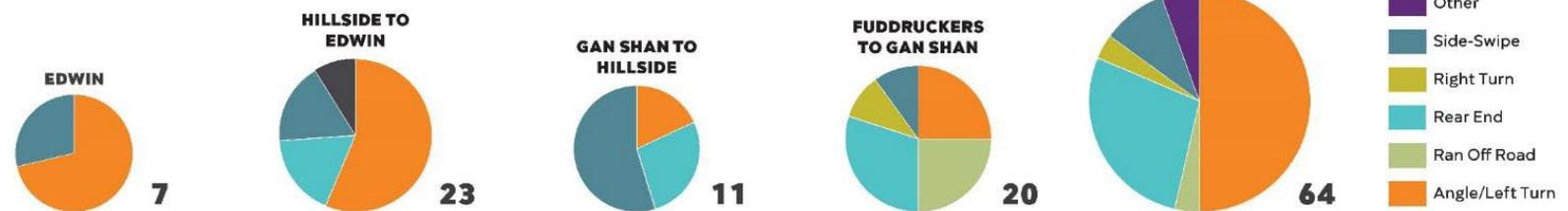
HIGH NUMBER OF CRASHES

CHARLOTTE STREET Angle/Left Turn Crashes Most Prevalent



- DOCUMENTED BICYCLE CRASH
- DOCUMENTED PEDESTRIAN CRASH

CUMULATIVE CRASH HISTORY
Previous Studies*
2007 - 2012: VHB Corridor Traffic Study Report
2015 - 2018: NCDOT Crash History Memo



- CRASH TYPES**
- Other
 - Side-Swipe
 - Right Turn
 - Rear End
 - Ran Off Road
 - Angle/Left Turn

COMMUNITY ENGAGEMENT HIGHLIGHTS



WE HATE IT!

WLOS.COM

I cracks me up that we are trying to make a throughfare into a pedestrian street. Our topography created the way to get from 240 to Beaverdam and narrowing the street won't change that.

Like · Reply · Share · 2y



Thank you [redacted] for pointing out the obvious. I am dumbfounded that people want to slow down Charlotte Street as if I have a choice to go to another road to get into town? Our side streets will become more backed up. Edwin already has a line up of cars a block long during many times of the day. I get stuck behind the slow moving Trolly's and at least I can pass them once we get to Charlotte Street Computers. There is going to be a huge back up in either direction. Taking a full lane in both directions out, will dramatically slow it down...so obvious. No one is allowed to use the middle floating lane for anything but turning. And then fire trucks and Emergency trying to get up to the GPI?

Like · Reply · Share · 2y



Sounds like we're risking worse side street traffic and major traffic jams.

Like · Reply · Share · 2y



WLOS.COM

Neighborhood association wants to pay for traffic study on Charlotte Street



WLOS.COM

Reality Check: Could a 'road diet' on Charlotte Street delay emergency responders?

ADMIT ONE

February 19, 2019

"DOG & PONY SHOW"

Sponsored by

**THE CITY OF ASHEVILLE
DEPARTMENT OF PLANNING & URBAN DESIGN**

A "Show & Tell" Presentation featuring

"The Already Done-Deal Charlotte Street 3-Lane Road Diet"

and

"A New Multi-Story Zoning Plan for the Charlotte St. Corridor"

All proceeds dedicated soley for the benefit of cyclists and developers

WE LOVE IT!

 shared a post. November 13, 2018 · 🌐

Thank you to everyone who responded to the call to action in support of Charlotte St road diet. While this project is not celebrated by all, I thank everyone for their participation in the process. There are so many people who care about our community. We don't agree on all the issues but we all want the best for our city. Together we roll forward.

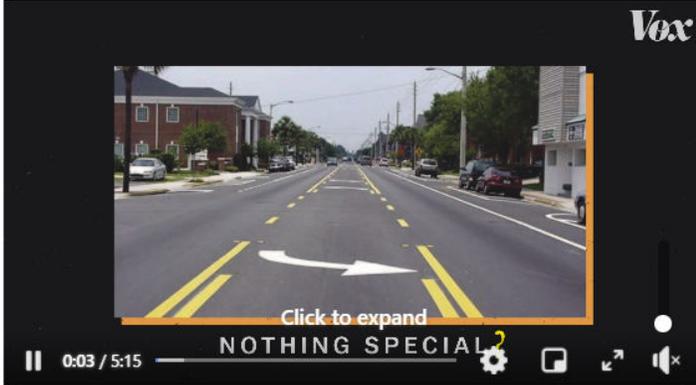
Write Council RE: Charlotte St Road Diet

November 9, 2018 by Asheville on Bikes



 shared a video. August 13, 2018 · 🌐

I wonder if people who are pushing back against the Charlotte St road diet might take a minute to watch this video?



Vox ✓
July 19, 2018 · 🌐

There's a way to make commutes safer and easier for both cyclists and drivers. And all it takes is a little paint.

FEBRUARY 2019



CHARLOTTE STREET ROAD DIET & SAFETY IMPROVEMENTS

ROAD DIET BASICS

WHY A 19 - 47% CRASH REDUCTION



SIDESWIPE

reduced last minute lane changes



HITTING OBSTACLES
greater distance from roadside obstacles



REAR END

reduced sudden stops in thru lanes



BICYCLE CRASHES
dedicated travel lane



CROSSING / ANGLE

50% reduction in distance crossing over thru traffic lanes



PEDESTRIAN CRASHES
reduced crossing distance, less exposure

bike lane acts as a pedestrian buffer from vehicles



LEFT TURN

reduced conflict due to dedicated left turn lane

¹SOURCE: FHWA

ROAD DIET MYTHS & FACTS



MYTH: DRIVERS WILL BE DIVERTED FROM THE AREA

False. For the majority of 4- to 3-lane conversions, traffic volumes remain about the same through the corridor. In addition, 3-lane roads are generally more efficient than 4-lane roads because vehicles no longer need to stop in the thru lane to make left turns.

MYTH: TRAFFIC WILL BACK UP

False. Studies have consistently shown that, for roads with less than 20,000 vehicles per day, 4- to 3-lane conversions will not worsen congestion. In fact, operations and safety improve on a 3-lane road because left turns are shifted into the center turn lane, allowing traffic to flow more freely in the thru lanes.

MYTH: ECONOMIC DEVELOPMENT WILL BE STIFLED

False. Converting to a 3-lane road can positively impact property values and businesses. When converting a 4-lane road to a 3-lane road, additional features can be added in the unused space, such as parking and/or bicycle lanes. These features can improve livability and transform the corridor into one people want to drive on versus drive through. Additional parking can provide a benefit to businesses and the center left turn lane improves access.

MYTH: EMERGENCY RESPONSE TIMES WILL INCREASE

False. Contrary to beliefs, a 4- to 3-lane conversion does not increase emergency response times. In fact, response times usually improve because emergency vehicles can utilize the center turn lane when responding to an incident. This avoids bottlenecks that can occur on 4-lane roads when drivers in the middle lanes try to move over for the emergency vehicle, but can't.

²SOURCE: Iowa Department of Transportation, Office of Traffic Safety

IN PERSON OUTREACH



MAY 2019



CHARLOTTE STREET ROAD DIET & SAFETY IMPROVEMENTS

CHARLOTTE STREET AT LENNOX, LOOKING NORTH

WHAT YOU CAN EXPECT:

- 1 Pedestrian Refuge Islands with Yield Signs, Stamped "Brick" Asphalt (Not Raised to Allow for Emergency Vehicle Passage)
- 2 End of Northbound Bike Lane, Transition to Sharrows Approaching Edwin Place
- 3 "Yield" Pavement Markings for Enhanced Pedestrian Crossing Visibility
- 4 High Visibility Crosswalk Across Lennox
- 5 Curb Extension (Bump-out) to Shorten Charlotte Crossing Distances, Improve Sight Distance, and Improve ADA Ramps



CHARLOTTE STREET ROAD DIET & SAFETY IMPROVEMENTS

THE WEST SIDE WALK

WE HEAR YOU!

One thing is certain - Charlotte Street neighbors, businesses, and visitors want an **improved pedestrian experience**.

Most of us know that **sidewalk construction is expensive**. It involves utilities, private property negotiation, and a host of other considerations.

The Charlotte Street Road Diet has a limited budget, and the City is committed to keeping the project within the right-of-way. Constructing **new sidewalks along Charlotte Street is nearly impossible** given these constraints. But that doesn't mean we can't **make walking on Charlotte better!**

The planning team identified a solution that works within the constraints. We've called it the **WEST SIDE WALK**.

Why the West Side? While there are many reasons to select the West Side, here are the two key factors:

- 1) We investigated the **visibility** lens to identify what can be fixed with **visibility**. The west side has **visibility** that can be fixed with **visibility**.
- 2) We identified significant **construction challenges** on the east side (private property, grades, historic walls, etc.).

WHAT WE INCORPORATED

THE WEST SIDE WALK



GOAL

Pedestrians of all abilities will have an accessible route from Chestnut Street to Edwin Place along the West Side of Charlotte Street.

KEY CONSIDERATIONS

ACCESSIBILITY (ADA)

INTERSECTION IMPROVEMENTS

TRANSIT ACCESS

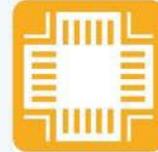
UNSIGNALIZED CROSSINGS

UTILITY OBSTACLES



IMPLEMENTATION TOOLS

UPDATED CURB RAMPS, DRIVEWAY APRON UPGRADES



ENHANCED PED CROSSINGS, PED SIGNALS, IMPROVED SIGNAGE



LOCATE CROSSINGS NEAR TRANSIT STOPS



ENHANCED PED CROSSINGS, UPGRADED SIGNAGE, ONE FLASHER UPGRADE, EVEN SPACING THROUGH CORRIDOR



SIDEWALK ADJUSTMENTS AROUND UTILITY POLES



Improve pedestrian passage around utility poles.



Improve pedestrian access near constrained driveways.



Replace challenging sidewalk ramps.



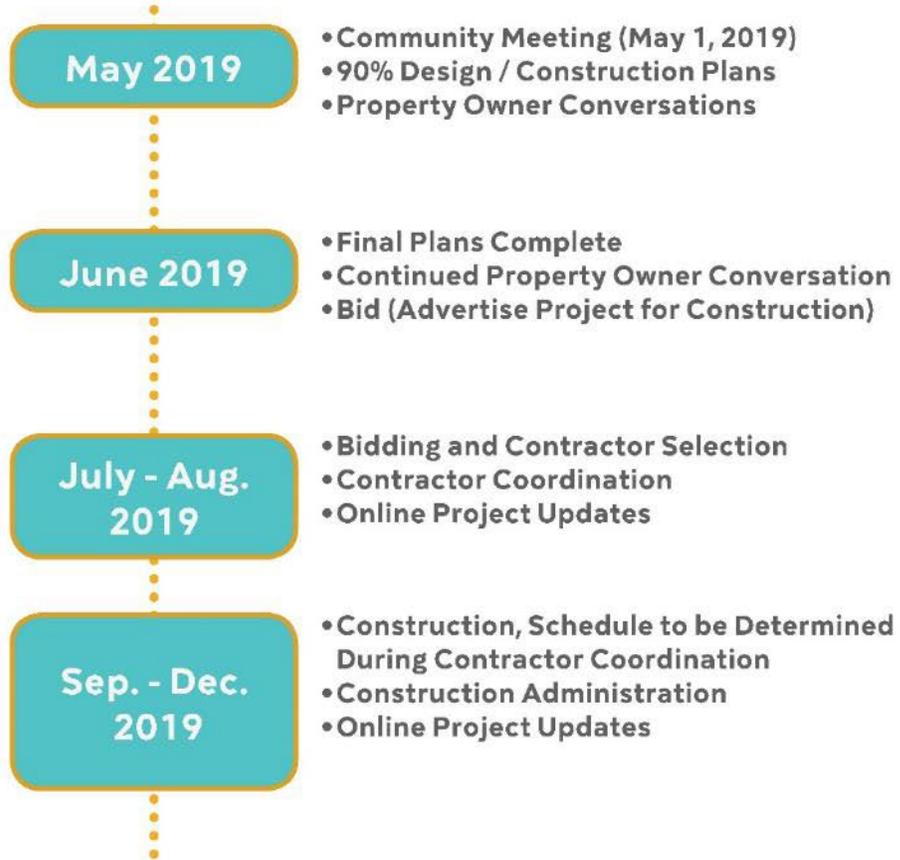
Fix trip hazards.

CHARLOTTE STREET ROAD DIET & SAFETY IMPROVEMENTS

WHAT NEXT? - PROJECT STEPS & FUTURE PLANNING / PROJECTS

PROJECT STEPS

Here's what you can expect in the coming months:



FUTURE AREA PLANNING & PROJECTS

Given the project budget - \$990,000 for roadway improvements, we can't address each of the community's mobility concerns at this time. The City and its public and private partners will need to complete future planning studies and projects as budgets allow. Private property redevelopment is an prime opportunity for public improvements.

CAN'T FIX



STORMWATER



EAST SIDE SIDEWALK IMPROVEMENTS



UTILITY POLE REMOVAL / RELOCATE UTILITIES



STREETSCAPE IMPROVEMENTS



IMPROVEMENTS BEYOND STUDY AREA



SIDE STREET ENHANCEMENT

EXIT SURVEY

Before Learning About the Roadway Design, How Supportive of the CSRD Were You?

6.8 / 10

After Learning About the Roadway Design, How Supportive of the CSRD Are You?

7.9 / 10



BEFORE

- 4 Travel Lanes
- No Bicycle Facilities
- Poor Pedestrian Facilities



BEFORE: Charlotte St Near Chestnut St, Looking South

AFTER

- 3 Lanes
- Bicycle Lanes
- Pedestrian Upgrades



AFTER: Charlotte St Near Blair St, Looking North

PEDESTRIAN IMPROVEMENTS



BICYCLE IMPROVEMENTS



BEFORE & AFTER STUDY



DATA COLLECTION PHASES

PHASE I

Pre-Implementation:
10/20/18 and 11/4/19 - 11/11/19

PHASE II

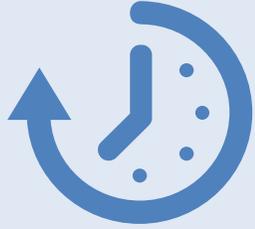
Post-Implementation Round 1 (3-6 months):
10/27/20 - 11/2/20

PHASE III

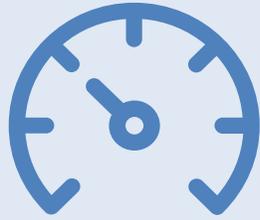
Post-Implementation Round 2 (15-18 months):
10/26/21 - 11/7/21 and
12/5/21 - 12/11/21



METRICS EVALUATED



**TRAVEL
TIME**



**TRAFFIC
SPEEDS**



**BICYCLE
VOLUMES**

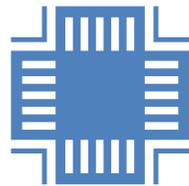


**CUT-THROUGH
TRAFFIC**

FUTURE EVALUATIONS



**CRASH
DATA**

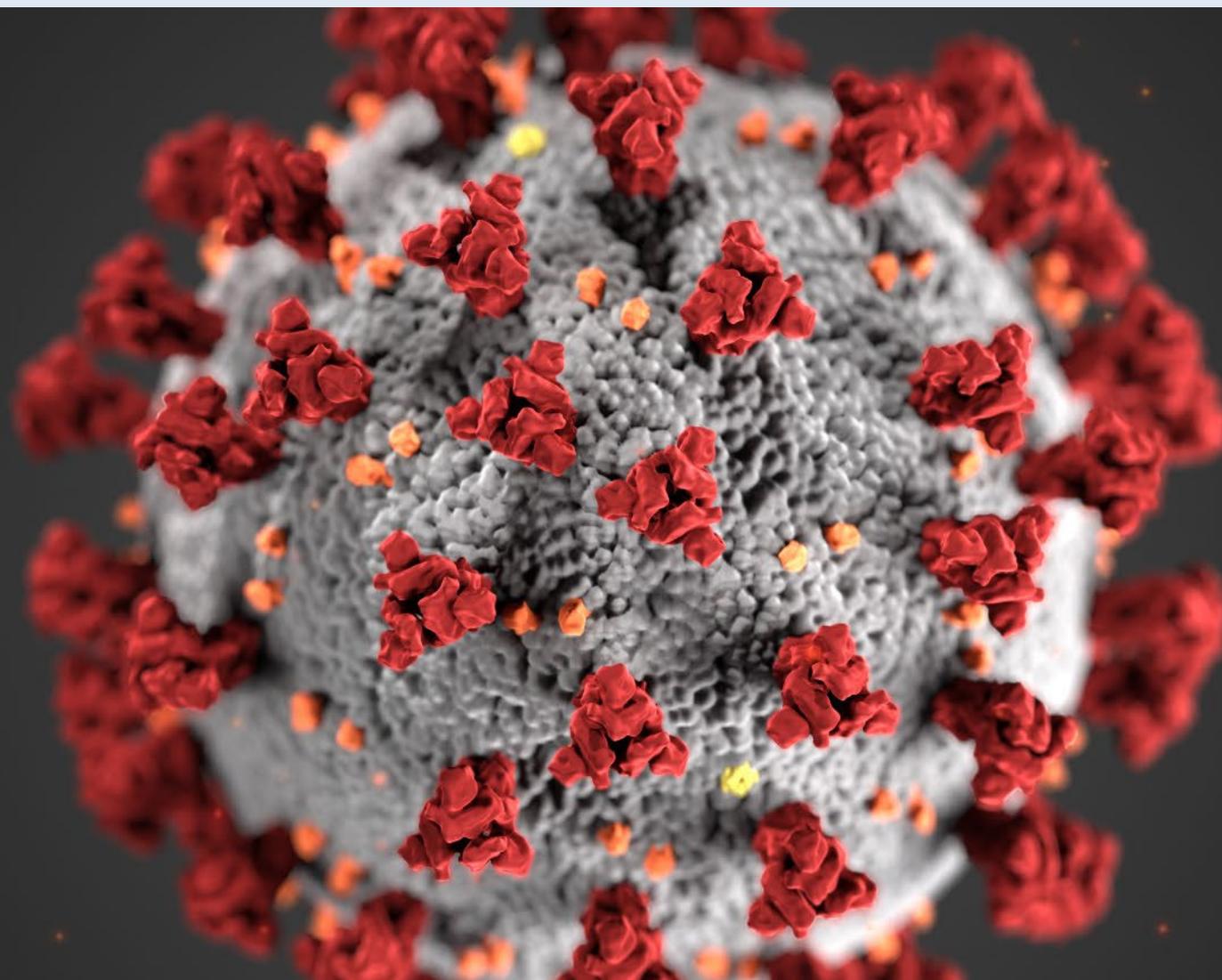


**PEDESTRIAN
DATA**



**TRANSIT
ACTIVITY**

COVID IMPLICATIONS



BEFORE & AFTER SUMMARY



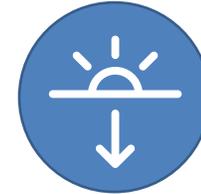
SPEED
Reduced Speeds



AM PEAK
*Down Overall, Need
More Study*



ADT-ALL
Down Overall



PM PEAK
*Down Overall, Need
More Study*



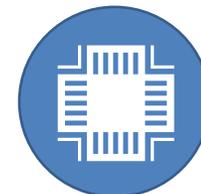
ADT-BIKES
Increase Overall



TRAVEL TIME
*Down (Peak Commuter
Travel Time)*



CUT-THROUGH
Down Overall



FUTURE STUDY

"AFTER" FEEDBACK

"The left lane turning lane is so much safer than before. She now enjoys driving on Charlotte Street due to the new traffic flow."

"...we can officially feel safe walking around our own neighborhood. Everyone is safer — whether you're in a car, on a bike, on foot or in a wheelchair."

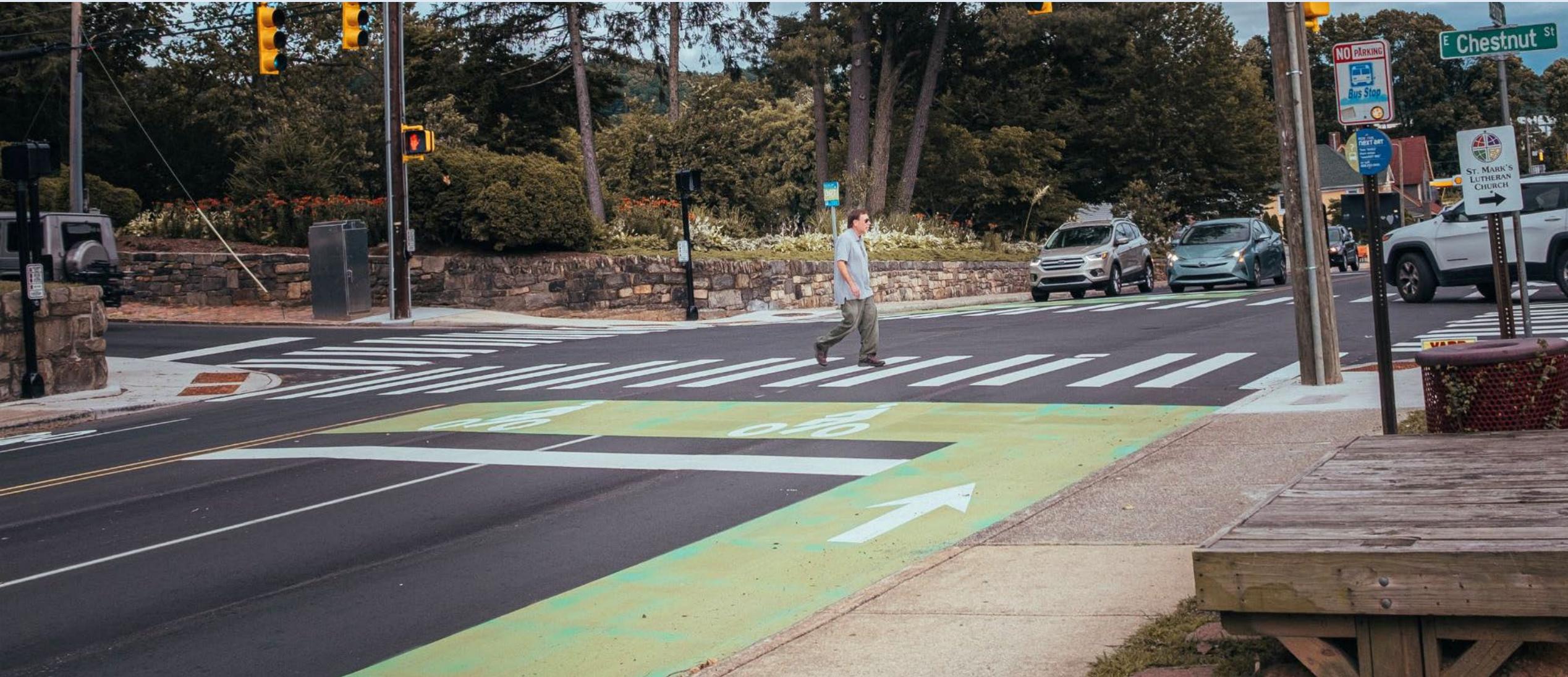
"I just wanted to offer a heartfelt thank you to each of you and all who were involved in making that stretch of Charlotte St safer and more accessible. I know you weren't able to do all that you planned to do but it's still a vast improvement. It's especially freeing to have access to sidewalks and be able to explore areas outside during a time like this."

I find now that the traffic runs much smoother, and feels and seem much safer to me. I'm sure that the data will prove that it is safer.

"...first time since moving here I feel safe walking on Charlotte Street."



LESSONS LEARNED



CLEAR LEADERSHIP VISION

Clear council vision

Council stuck to vision while under pressure

Messaging: Multimodal is Asheville's future

COUNCIL VISION

People talk to us about:

"our city is changing"

"it does not feel as livable"

"it's not the place I remember"

What cities are trying to do in reaction to this pressure of growth is reclaim their urban vibrancy to make sure Asheville remains a place where you can walk, or you can ride a bike, or you can ride a bus or you can feel comfortable experiencing the urban portions of your city.

**MAYOR
ESTHER
MANHEIMER**

**NOVEMBER 2018
Charlotte Street
Road Diet Vote**

I know that it seems counterintuitive that we don't continue to widen road because that is what we've been taught. **There is a new way of thinking in terms of managing the future of urban growth, not just in Asheville but everywhere.**

I think that if we want to preserve what makes Asheville special, **we have to make sure that we allow people to experience the City in all ways.**

This is not an entirely new concept and hopefully this is a step towards having our City to be experienced by everyone in a more enjoyable way.

HONEST PUBLIC ENGAGEMENT

COMMUNICATE

- What project will / won't do.
- What projects need to come later.
- Help identify trade-offs.

Actively involve stakeholders (in the field when possible).



PRE-PLANNING IS ESSENTIAL

Do a feasibility study.

Scope for accurate design and construction cost estimates.

Plan for and with other systems (e.g. stormwater).



ADA LESSONS LEARNED

Don't skimp on ADA design.

Get right of way & temporary construction easements early.

Document technical infeasibility of ramp elements.

Inspection oversight.



Thank you!



Rachael Bronson, AICP

Multimodal Transportation Specialist

rbronson@trafficpd.com



Questions?



DATA POINTS

24-HOUR TUBE COUNTS

Vehicles & Bikes

VIDEO COUNTS

Pedestrians & Bikes

TRAVEL TIME

BlueMac Data

VEHICLE SPEED

85th Percentile Speed

CUT THROUGH TRAFFIC

Washington Road
Madison Avenue

Charlotte Street Road D... 🔍 ☰

Locations of data collection and
37 views ☆

SHARE

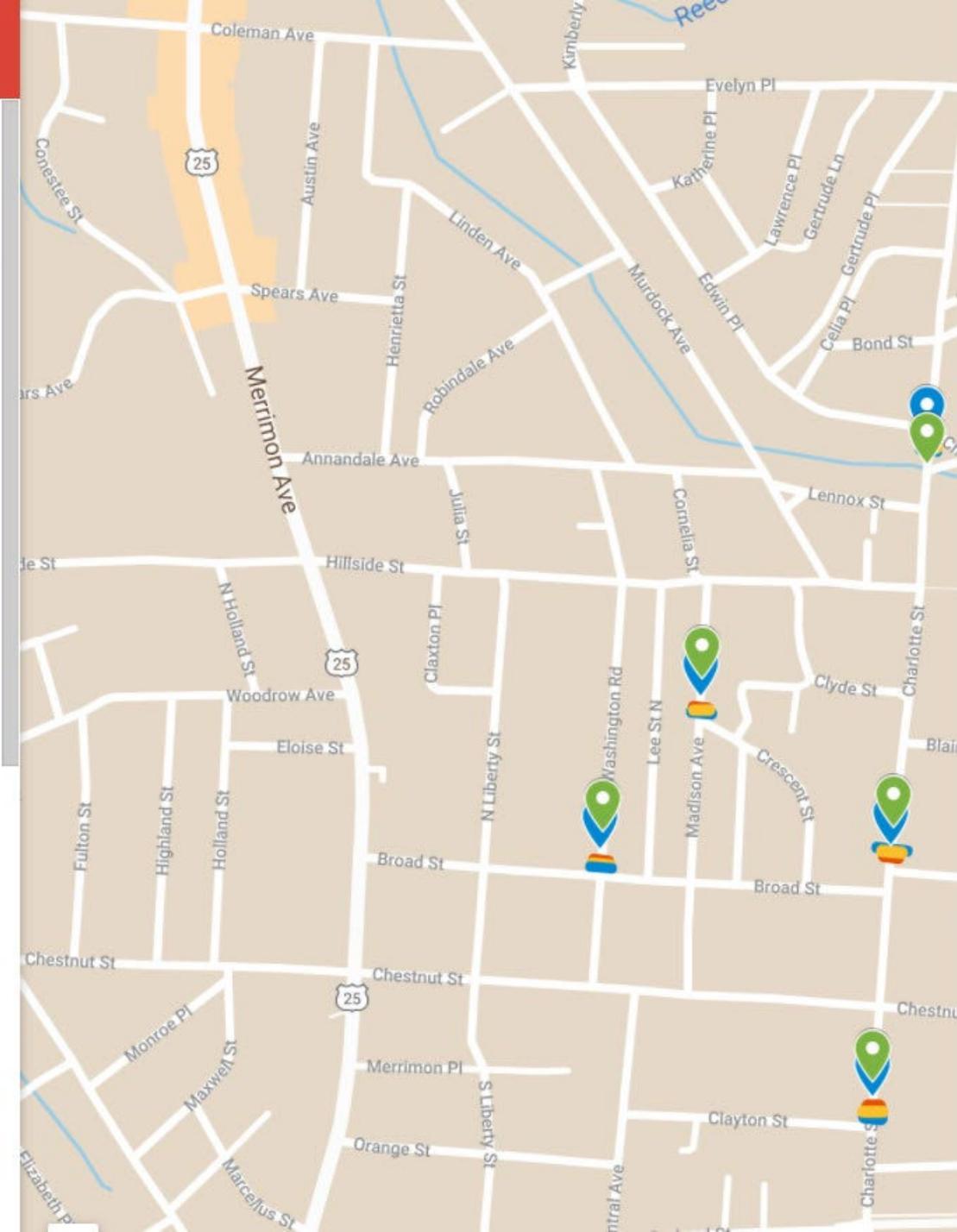
24-hr Counts

- 📍 North of Clayton
- 📍 South of Edwin
- 📍 North of Baird
- 📍 Madison, North of Crescent
- 📍 Washington, North of Broad
- 📍 Oct Washington

Speeds

- 📍 N of Clayton
- 📍 N of Baird
- 📍 S of Edwin
- 📍 Madison N of Crescent
- 📍 Washington N of Broad

Classification



ADT (ALL TRAFFIC)

2019 – 2021 COMPARISON

CLAYTON STREET

Down (-16%)

BAIRD STREET

Down (-5%)

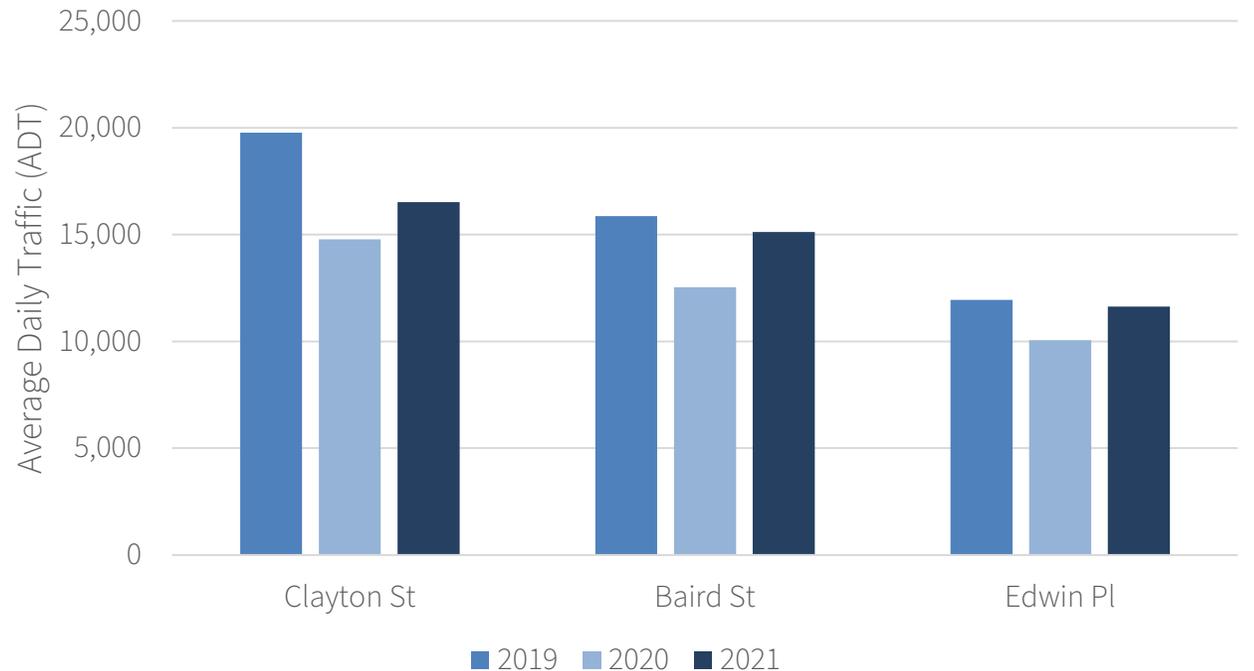
EDWIN PLACE

Down (-3%)

TAKEAWAY

Decrease in Daily Traffic, Most Notably near I-240 Interchange

Charlotte Street Average Daily Traffic (All), 2019-2021



AM PEAK HOUR (NB/SB COMBINED)

2019 – 2021 COMPARISON

CLAYTON STREET

Down (-16%)

BAIRD STREET

Down (-8%)

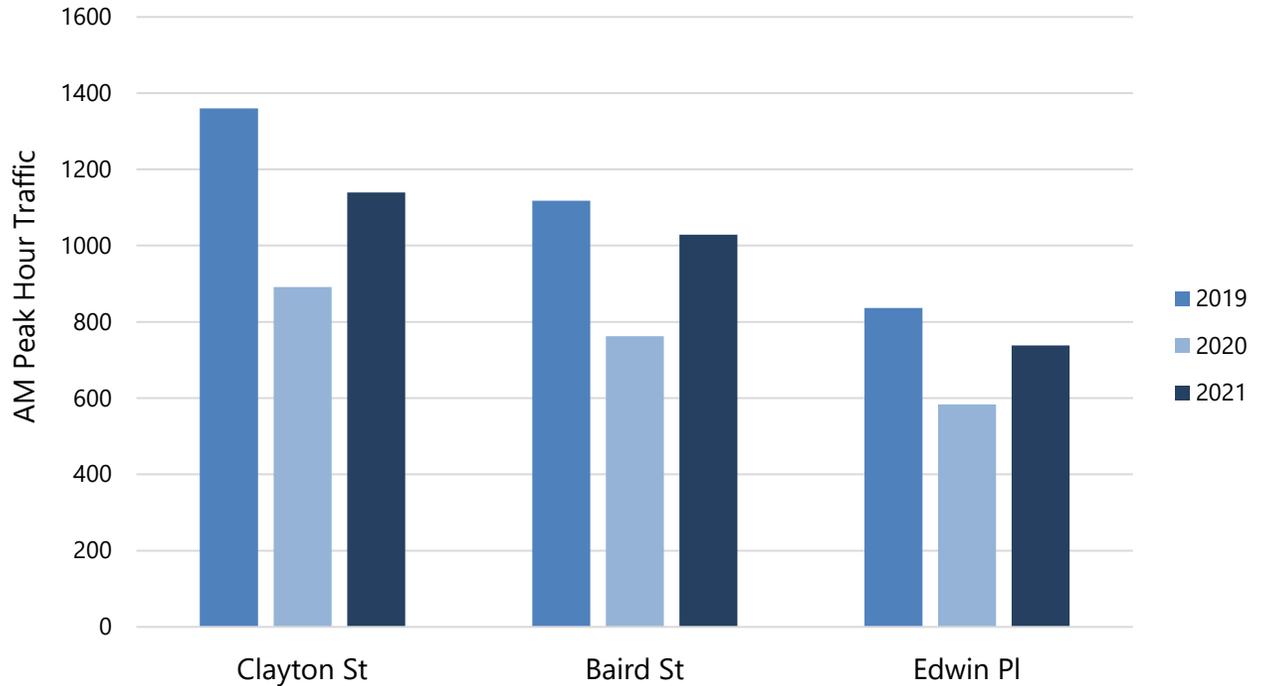
EDWIN PLACE

Down (-12%)

TAKEAWAY

*Decrease in AM Volumes, Most
Notably near I-240 Interchange*

Charlotte Street AM Peak Hour Traffic, 2019-2021



PM PEAK HOUR (NB/SB COMBINED)

2019 – 2021 COMPARISON

CLAYTON STREET

Down (-27%)

BAIRD STREET

Down (-7%)

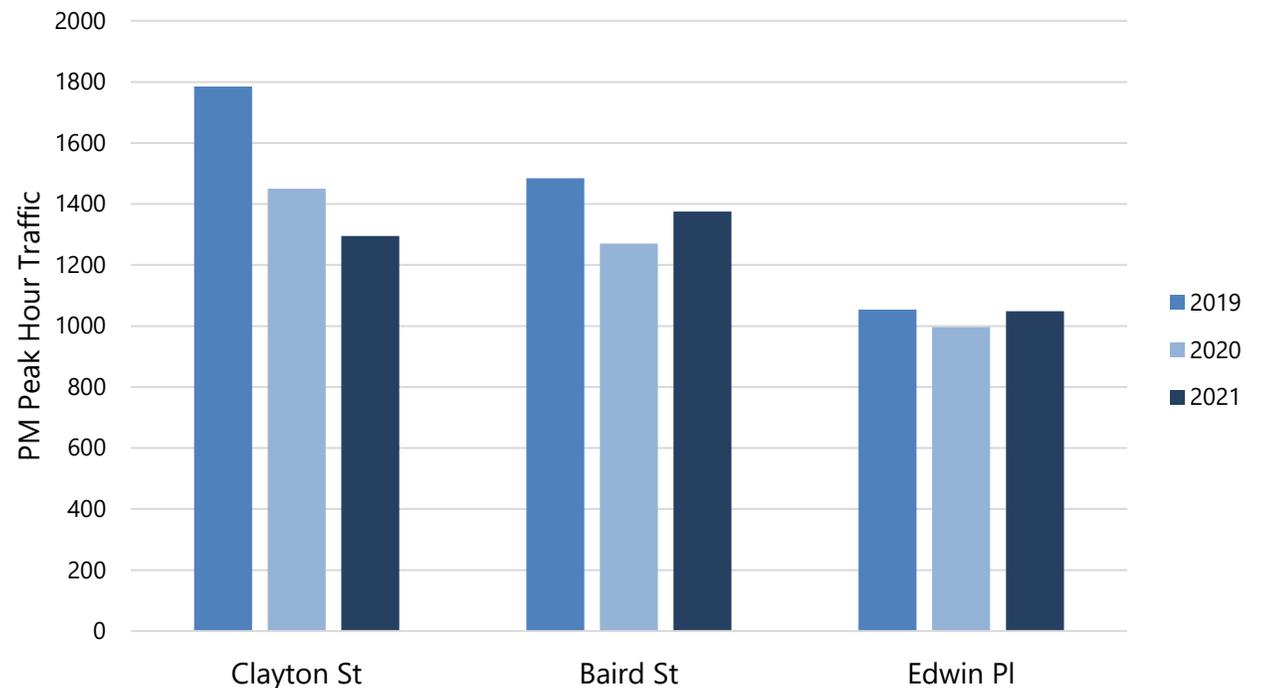
EDWIN PLACE

No Change

TAKEAWAY

*Decrease in PM Volumes, Most
Notably near I-240 Interchange*

Charlotte Street PM Peak Hour Traffic, 2019-2021



AM PEAK TRAVEL TIME

IN SECONDS

2019 – 2021 COMPARISON

Clayton to Baird

Down (-0.1s) (NB)

Down (-1.3s) (SB)

← Segment of
most interest

Baird to Edwin*

Up (+1.7s) (NB)

Up (+14.8s) (SB)

Full Corridor*

Up (+13.2s) (NB)

Up (+19.6s) (SB)

**Likely influenced by ped push button
issue at Hillside*

Takeaway

Insignificant Change in
Segment of Most Interest



PM PEAK TRAVEL TIME

IN SECONDS

2019 – 2021 COMPARISON

Clayton to Baird

Down (-1.9s) (NB)

Up (+5.4s) (SB)

← Segment of
most interest

Baird to Edwin*

Up (+0.8s) (NB)

Up (+18.7s) (SB)

Full Corridor*

Up (+3.8s) (NB)

Up (+30.7) (SB)

**Likely influenced by ped push button
issue at Hillside*

Takeaway

Insignificant Change in
Segment of Most Interest



SPEED RESULTS

2019 – 2021 COMPARISON

CLAYTON STREET

Down (-3%)

BAIRD STREET

Down (-3%)

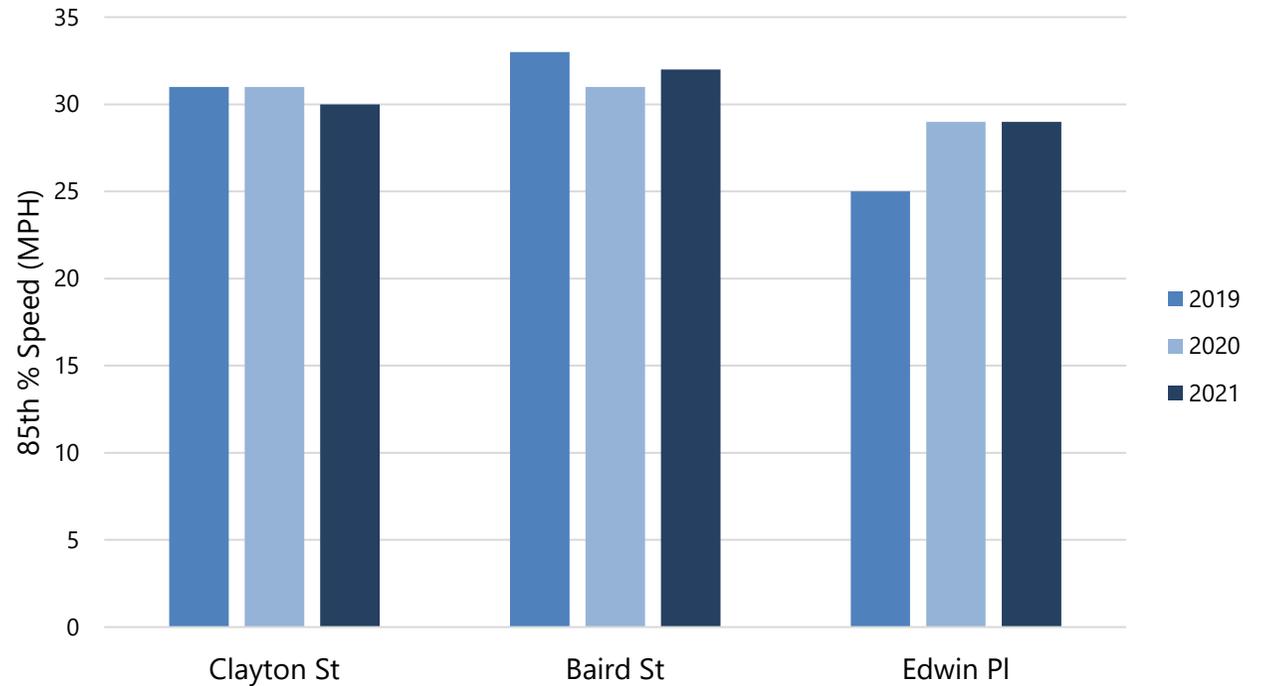
EDWIN PLACE

Up (+16%)

TAKEAWAY

Slight Reduction Except at Edwin Pl (+4 mph)

Charlotte Street 85th Percentile Speed, 2019-2021



COUNTS (BICYCLE)

2019 – 2021* COMPARISON

CHESTNUT STREET

Up (+250%)

BOARD STREET

Up (+164%)

EDWIN PLACE

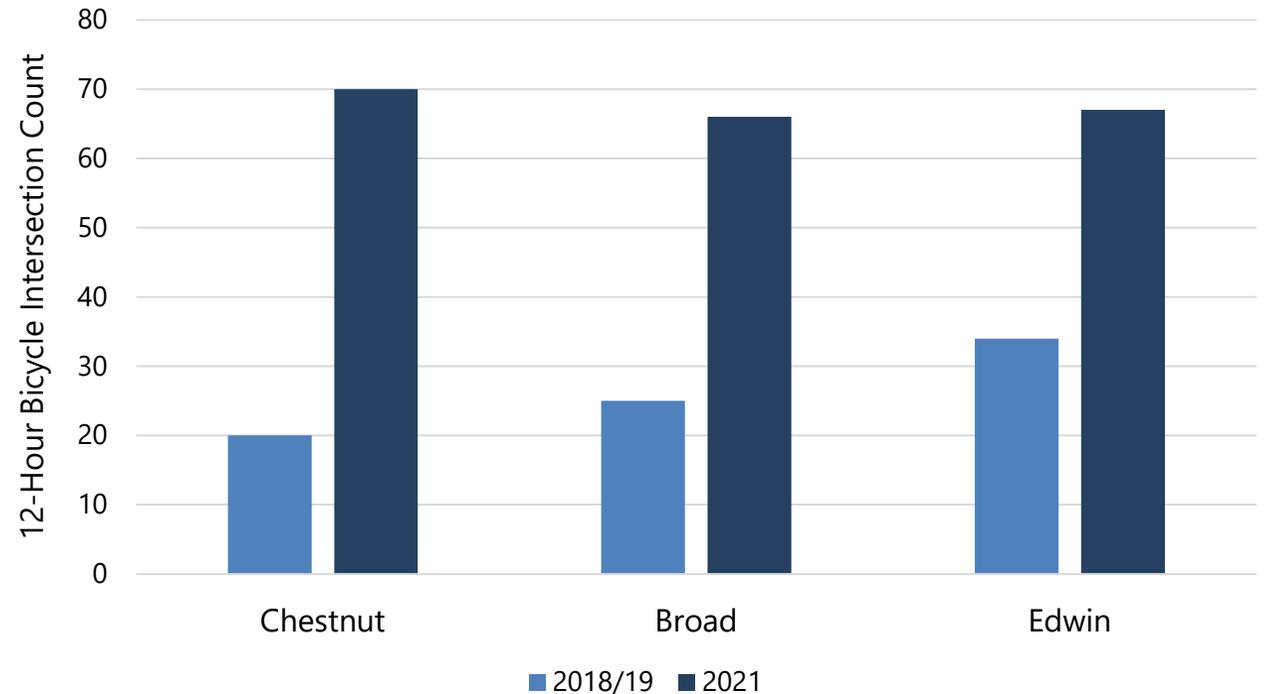
Up (+97%)

**Before weather was sunny/dry, after weather was chilly/wet*

TAKEAWAY

Bike Volume Significantly Increased
(Poor Weather for "After" Data Collection)

Charlotte Street 12-Hour Bicycle Count, 2018/19-2021



COUNTS¹ (PEDESTRIANS)

2019 – 2021* COMPARISON

CHESTNUT STREET

Down (-39%)

BOARD STREET

Up (+60%)

EDWIN PLACE

Up (+32%)

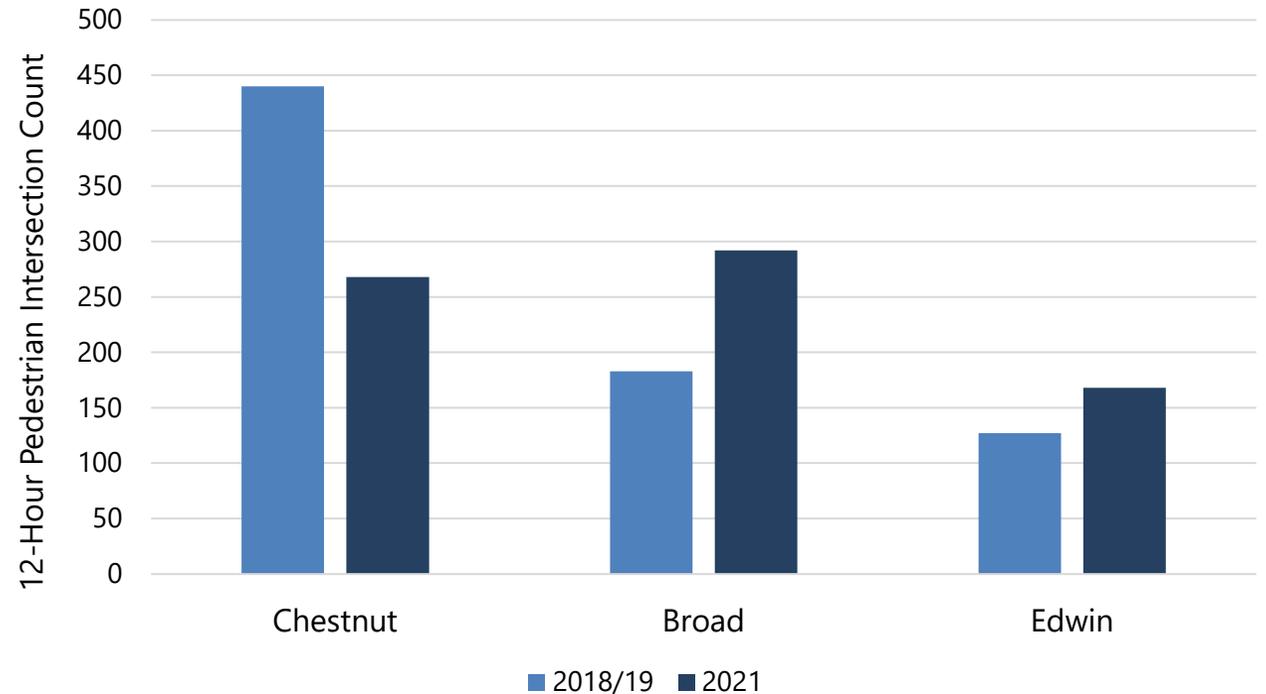
**Before weather was sunny/dry, after weather was chilly/wet*

TAKEAWAY

Ped Volume Change Varies by Intersection
(Poor Weather for "After" Data Collection)

Charlotte Street 12-Hour Pedestrian Count¹, 2018/19-2021

¹ Pedestrian Volumes are Not a Key Indicator of Road Diet Effectiveness for Charlotte Street Due to High Pedestrian Activity in "Before" Data



CRASHES

2019 – 2021



LEFT TURN

Down 93% (-13 crashes)



REAR END

Up 100% (+2 crashes)



SIDESWIPE

Down 50% (-1 crash)



RIGHT TURN

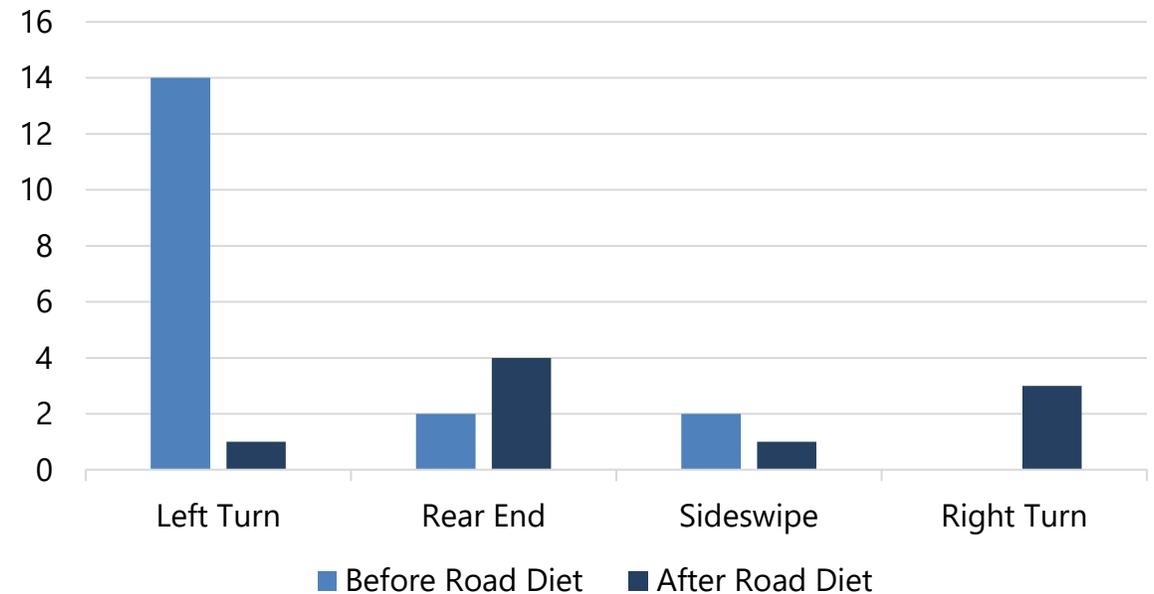
Up 300% (+3 crashes)

TAKEAWAY

Overall Crashes Down 59%
(-9 Crashes Over 12 Months)

Before and After Road Diet Analysis of Select Crash Types

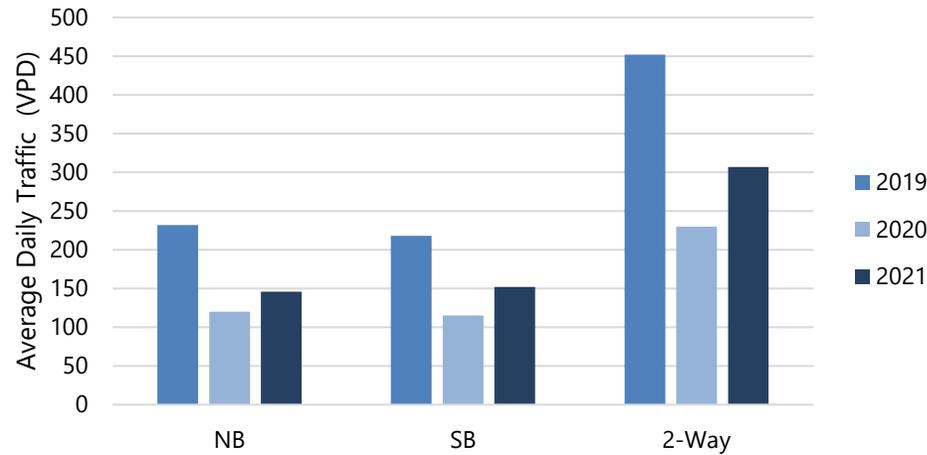
**For more robust findings, a 3-year post-construction evaluation is recommended*



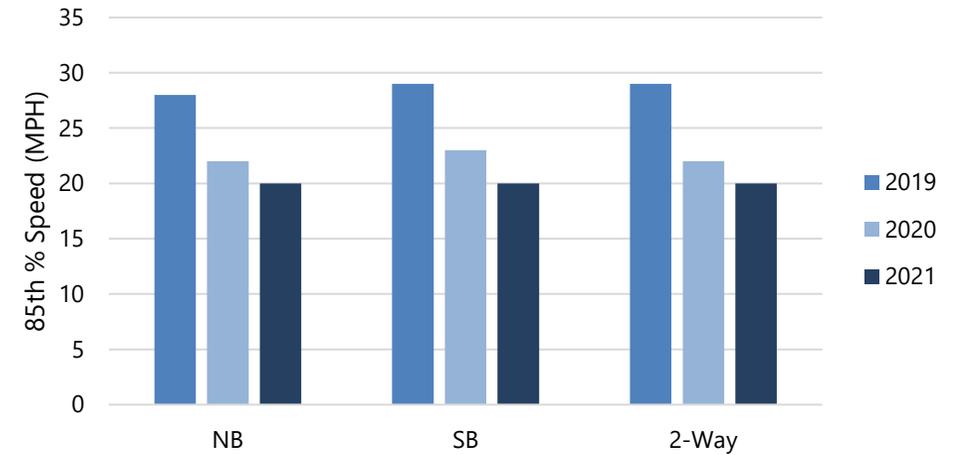
WASHINGTON ROAD

Cut-through Comparison

Washington @ Broad ADT



Washington @ Broad 85th Percentile Speed



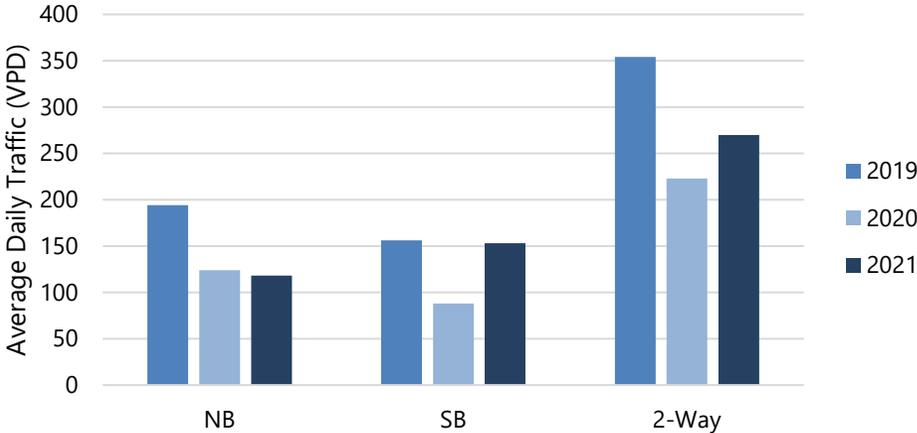
TAKEAWAY

ADT & Volume Decline on Side Streets with No Increase in Cut-Through Traffic

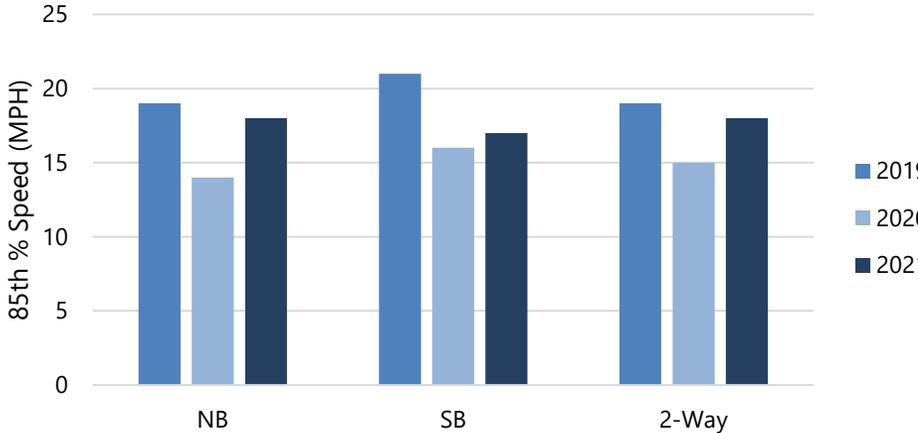
MADISON AVENUE

Cut-through Comparison

Madison @ Crescent ADT



Madison @ Crescent 85th Percentile Speed



TAKEAWAY

ADT & Volume Decline on Side Streets with No Increase in Cut-Through Traffic