

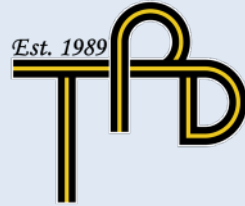


# A Multimodal Charlotte Street From a Long-Anticipated Dream to a Quick Reality

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



# 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**

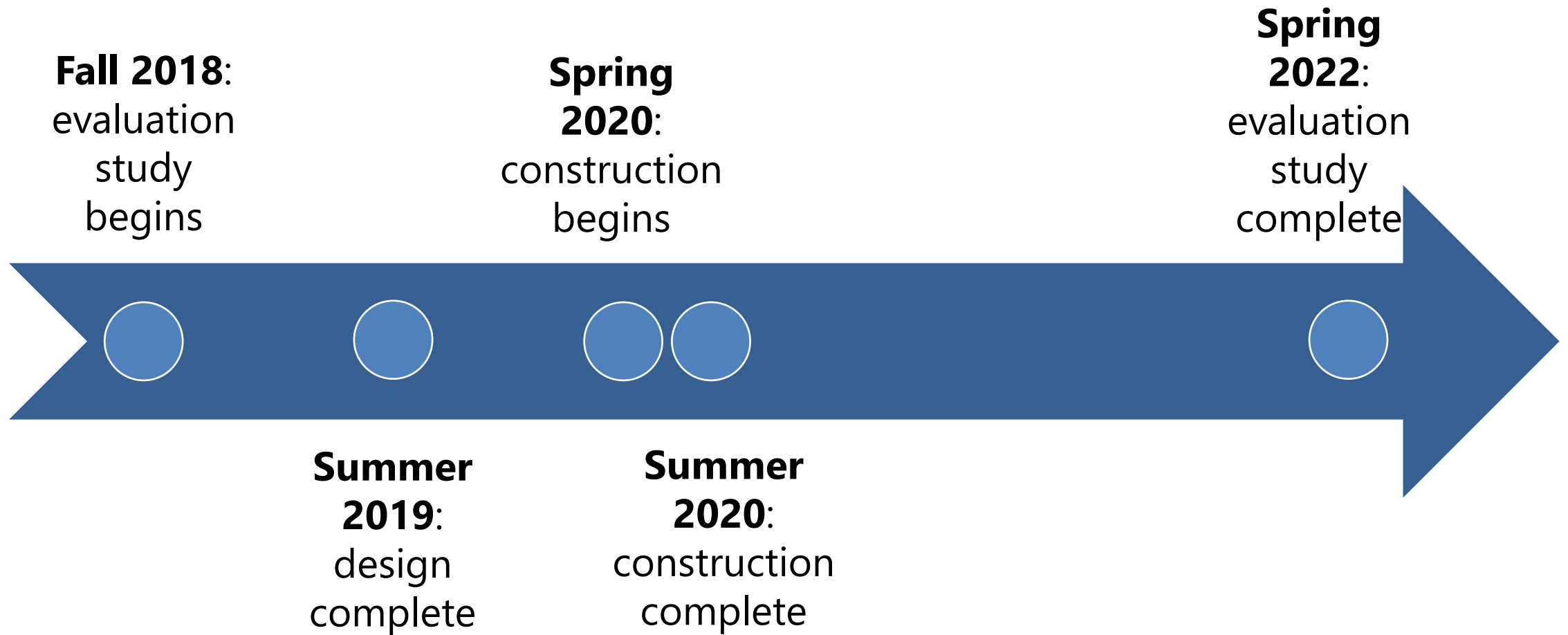
**PROJECT DETAILS**

**COMMUNITY ENGAGEMENT  
HIGHLIGHTS**

**BEFORE & AFTER STUDY**

**LESSONS LEARNED**

# TIMELINE





# CORRIDOR CONTEXT

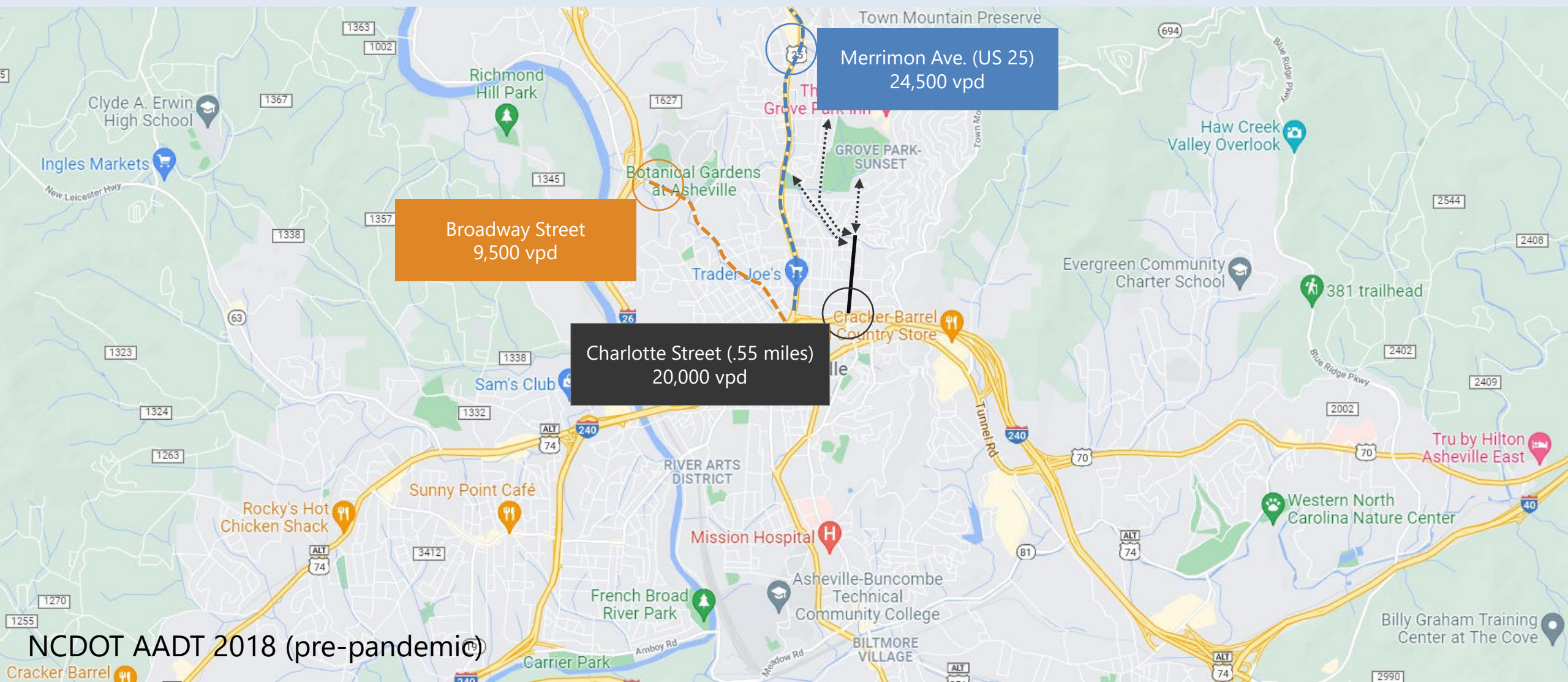


BEFORE: Charlotte St Near Clayton,  
Looking North





# TRANSPORTATION SYSTEM





## 98



# 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





  **$\leq 20,000$   
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



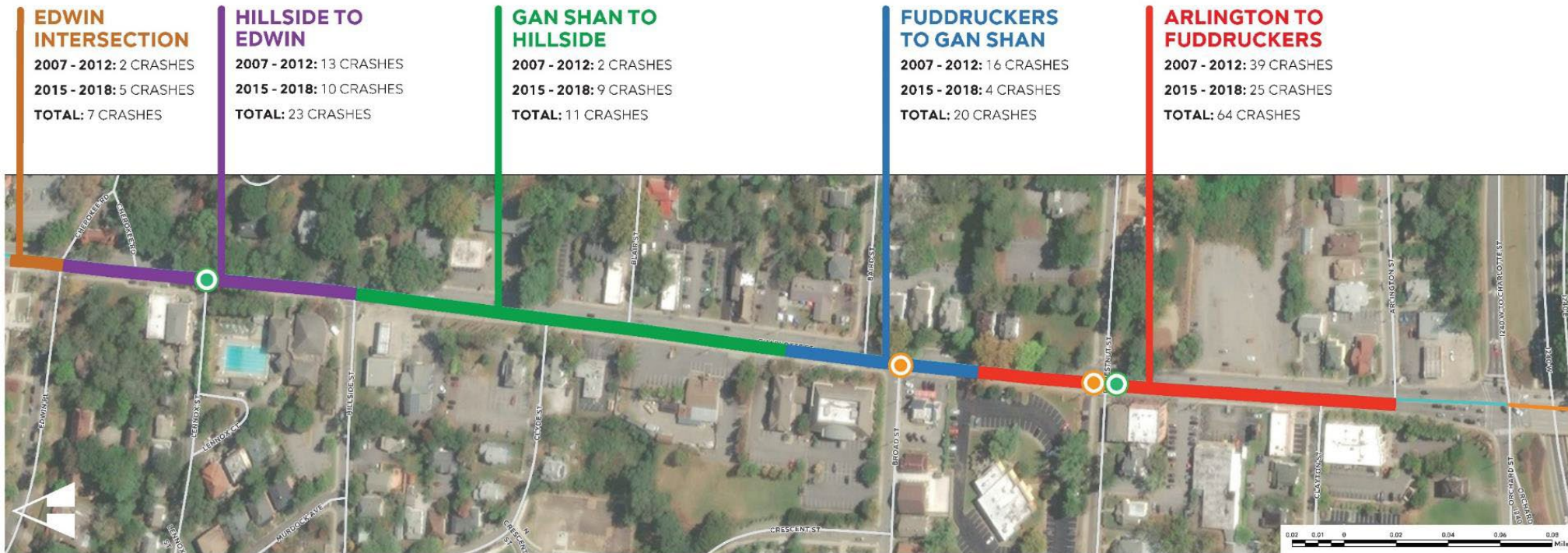




# HIGH NUMBER OF CRASHES

## CHARLOTTE STREET

Angle/Left Turn Crashes Most Prevalent

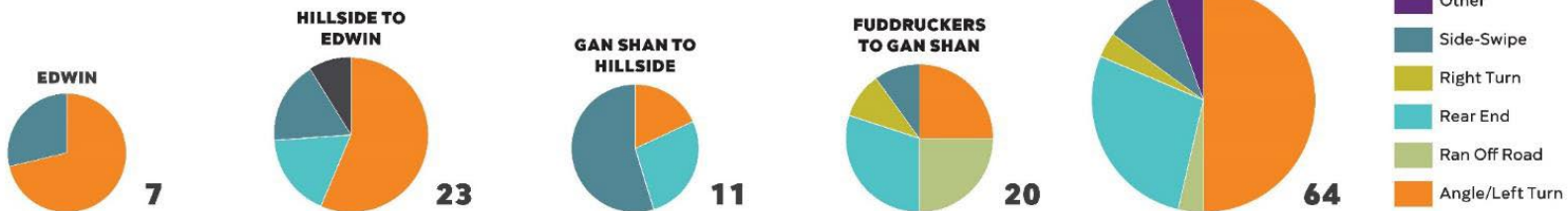


- DOCUMENTED BICYCLE CRASH
- DOCUMENTED PEDESTRIAN CRASH

### CUMULATIVE CRASH HISTORY

Previous Studies\*

2007 - 2012: VHB Corridor Traffic Study Report  
2015 - 2018: NCDOT Crash History Memo





# COMMUNITY ENGAGEMENT HIGHLIGHTS





# WE HATE IT!

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



8

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



2

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

Like · Reply · Share · 2y



5



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 solely 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**

Click to expand

0:03 / 5:15 NOTHING SPECIAL

**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

<sup>1</sup>SOURCE: 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.

<sup>2</sup>SOURCE: 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 **feasibility** lens to identify what **can be fixed with** the **WEST SIDE WALK**.
- 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)



IMPLEMENTATION TOOLS

UPDATED CURB RAMPS, DRIVEWAY APRON UPGRADES

INTERSECTION IMPROVEMENTS



ENHANCED PED CROSSINGS, PED SIGNALS, IMPROVED SIGNAGE

TRANSIT ACCESS



LOCATE CROSSINGS NEAR TRANSIT STOPS

UNSIGNALIZED CROSSINGS



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

UTILITY OBSTACLES



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:

**May 2019**

- Community Meeting (May 1, 2019)
- 90% Design / Construction Plans
- Property Owner Conversations

**June 2019**

- Final Plans Complete
- Continued Property Owner Conversation
- Bid (Advertise Project for Construction)

**July - Aug.  
2019**

- Bidding and Contractor Selection
- Contractor Coordination
- Online Project Updates

**Sep. - Dec.  
2019**

- Construction, Schedule to be Determined During Contractor Coordination
- Construction Administration
- Online Project Updates

### FUTURE AREA PLANNING & PROJECTS

Given the project budget - \$990,000 for roadway improvements, the City 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 development 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

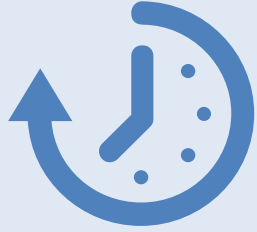
## PHASE III

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**

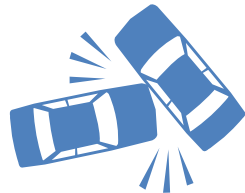


**BICYCLE  
VOLUMES**

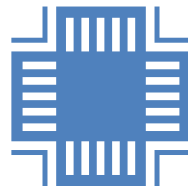


**CUT-THROUGH  
TRAFFIC**

# FUTURE EVALUATIONS



**CRASH  
DATA**



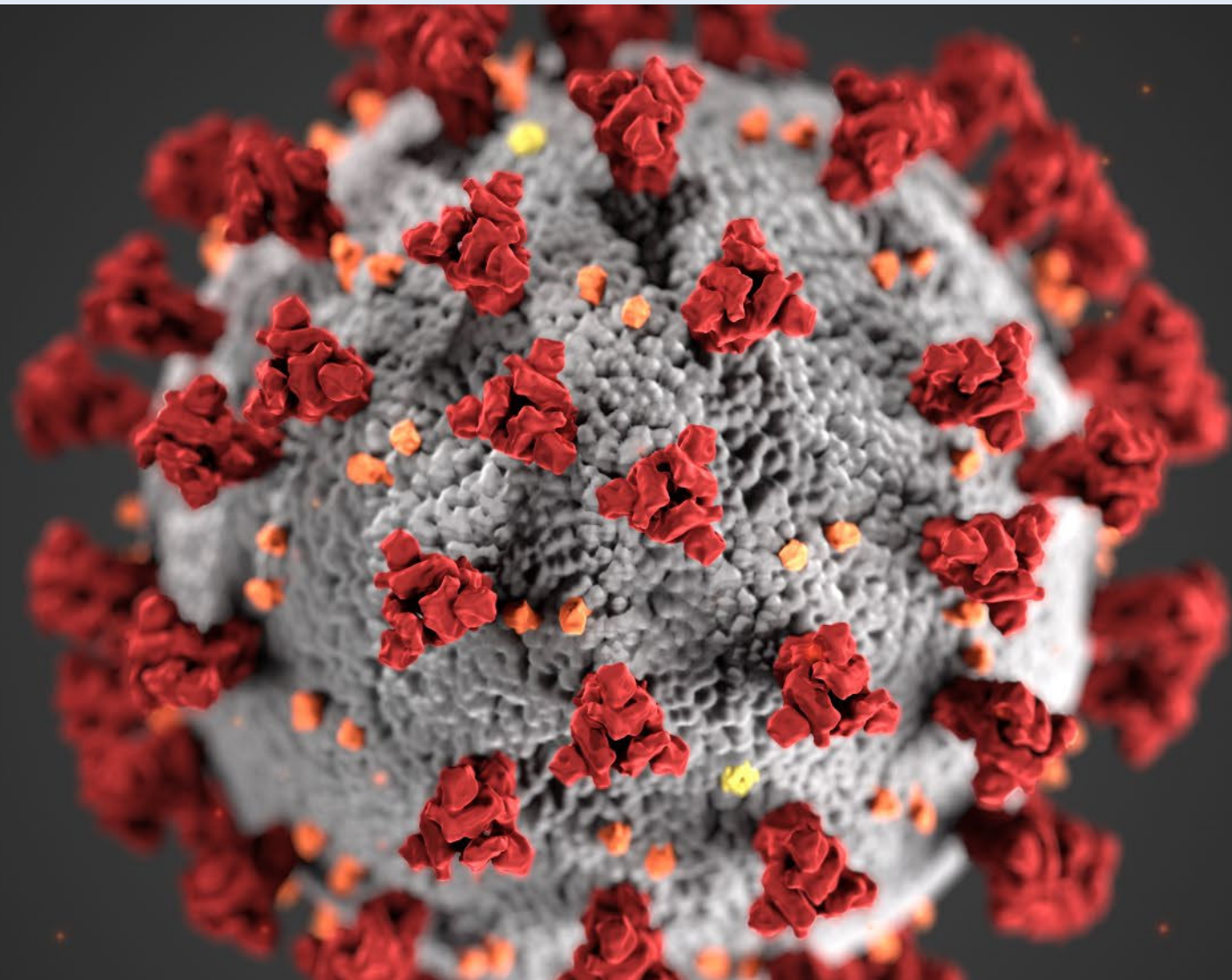
**PEDESTRIAN  
DATA**



**TRANSIT  
ACTIVITY**



# COVID IMPLICATIONS





# BEFORE & AFTER SUMMARY



## SPEED

*Reduced Speeds*



## ADT-ALL

*Down Overall*



## ADT-BIKES

*Increase Overall*



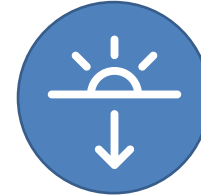
## CUT-THROUGH

*Down Overall*



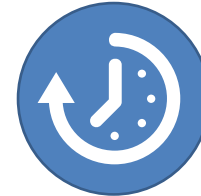
## AM PEAK

*Down Overall, Need  
More Study*



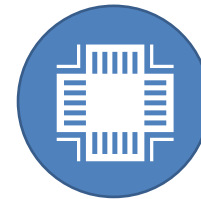
## PM PEAK

*Down Overall, Need  
More Study*



## TRAVEL TIME

*Down (Peak Commuter  
Travel Time)*



## FUTURE STUDY



# "AFTER" FEEDBACK

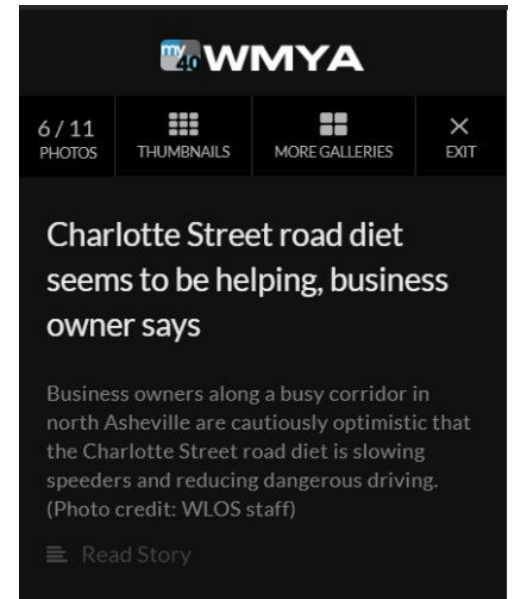
"The left lane turning lane is so much safer than before. She now enjoys driving on Charlotte Street due to the new traffic flow."

"...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 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.

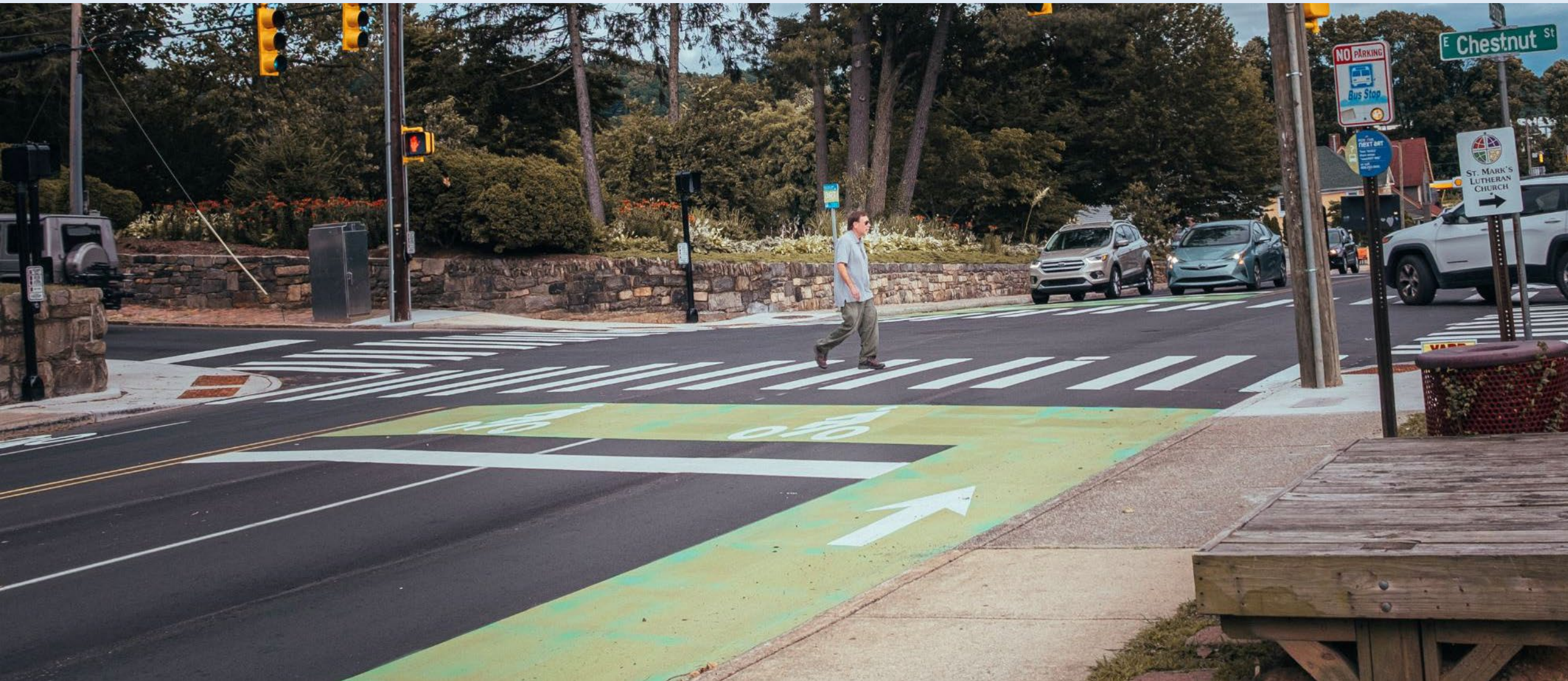
"...first time since moving here I feel safe walking on Charlotte Street."

"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."





# 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](mailto:rbronson@trafficpd.com)*





# Questions?





# DATA POINTS

## 24-HOUR TUBE COUNTS

Vehicles & Bikes

## VIDEO COUNTS

Pedestrians & Bikes

## TRAVEL TIME

BlueMac Data

## VEHICLE SPEED

85<sup>th</sup> Percentile Speed

## CUT THROUGH TRAFFIC

Washington Road

Madison Avenue

Charlotte Street Road D... 🔍 ⋮

Locations of data collection and  
37 views

[SHARE](#)

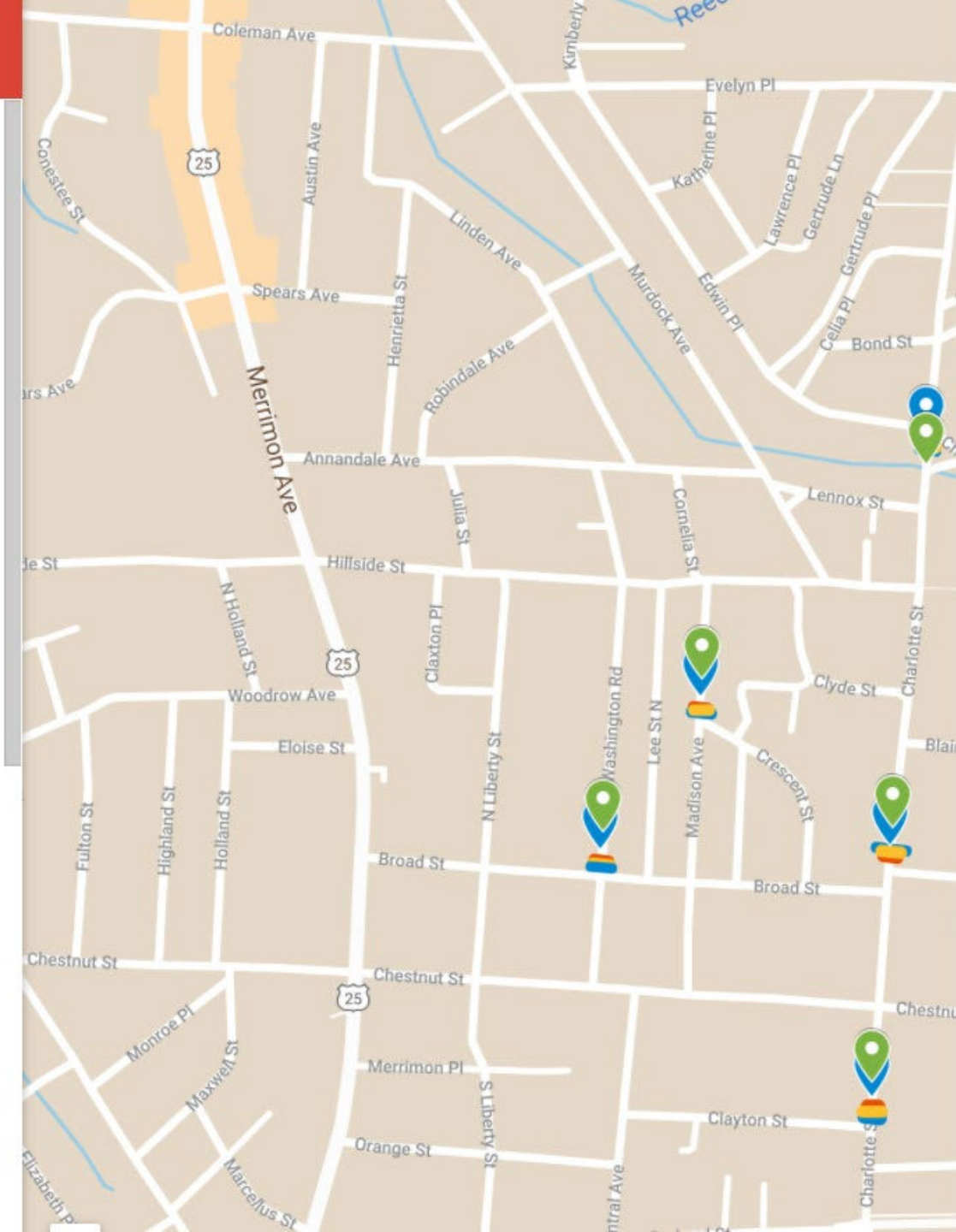
### 24-hr Counts

- 📍 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%)

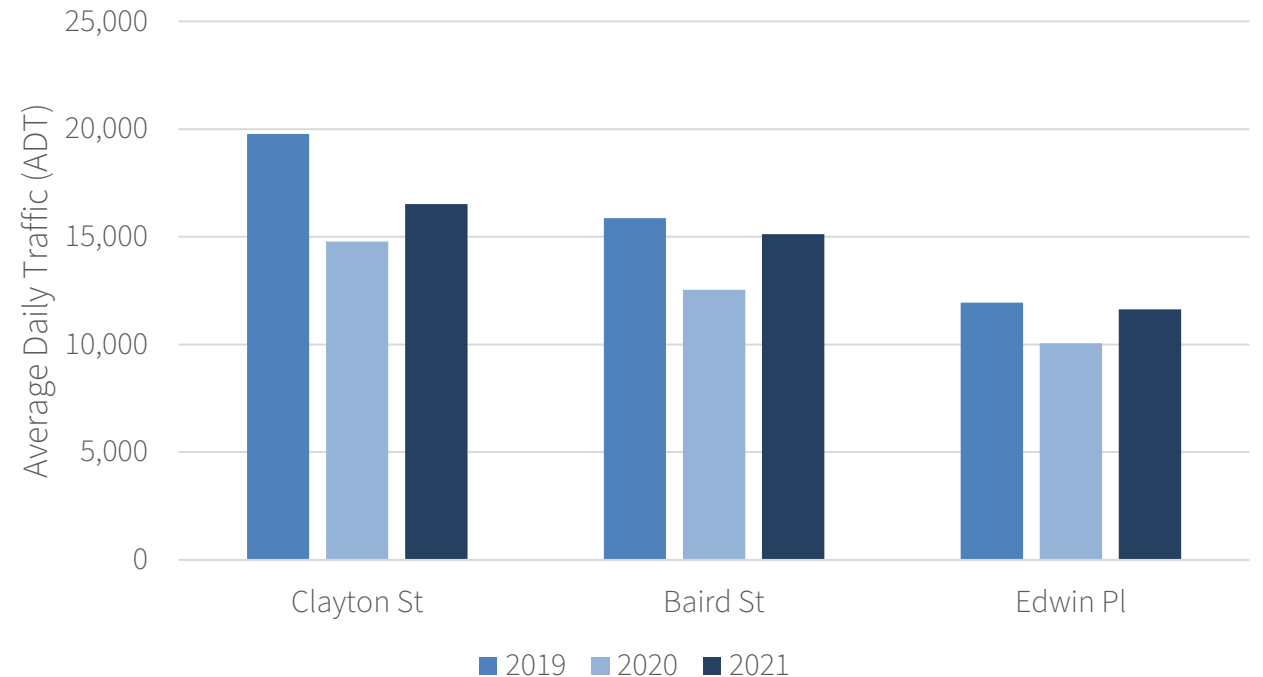
### EDWIN PLACE

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%)

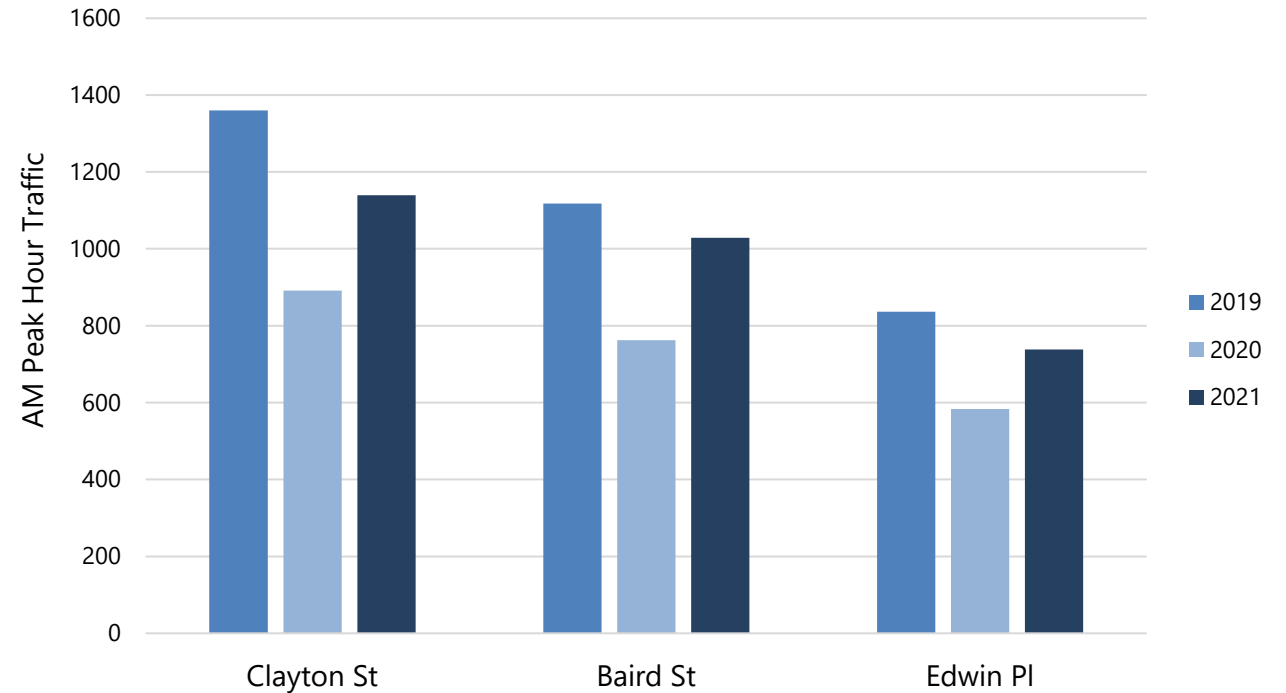
### EDWIN PLACE

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%)

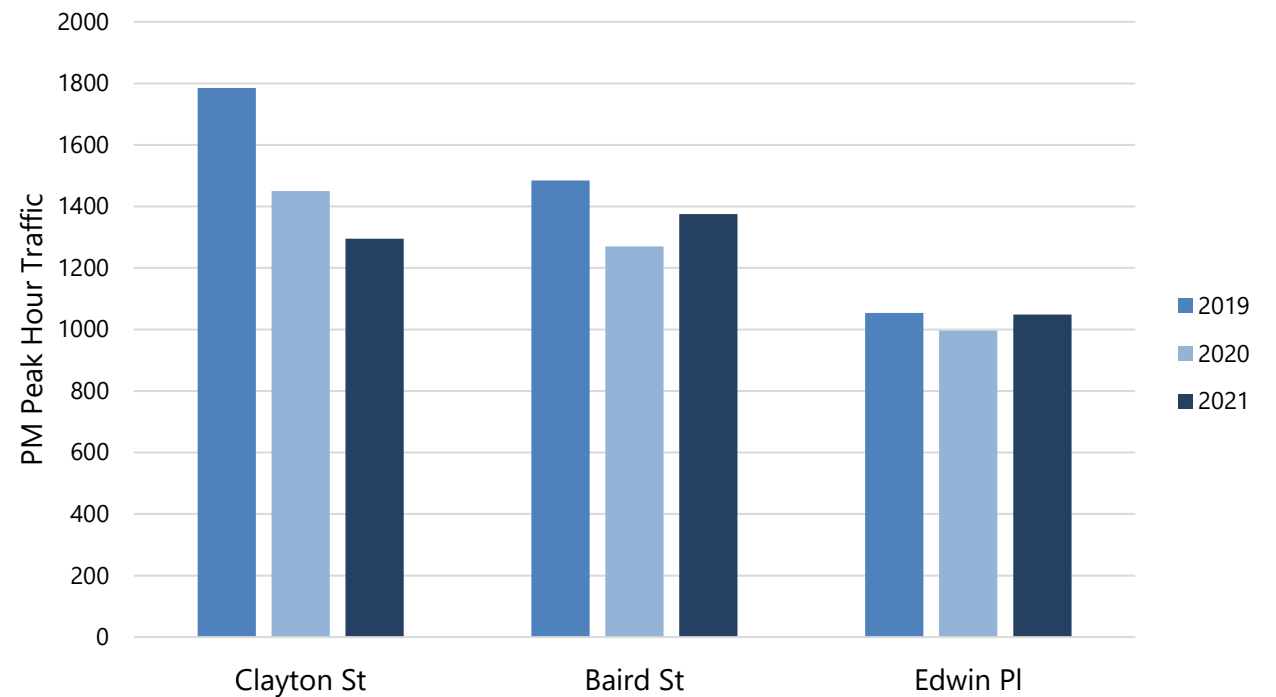
### EDWIN PLACE

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%)

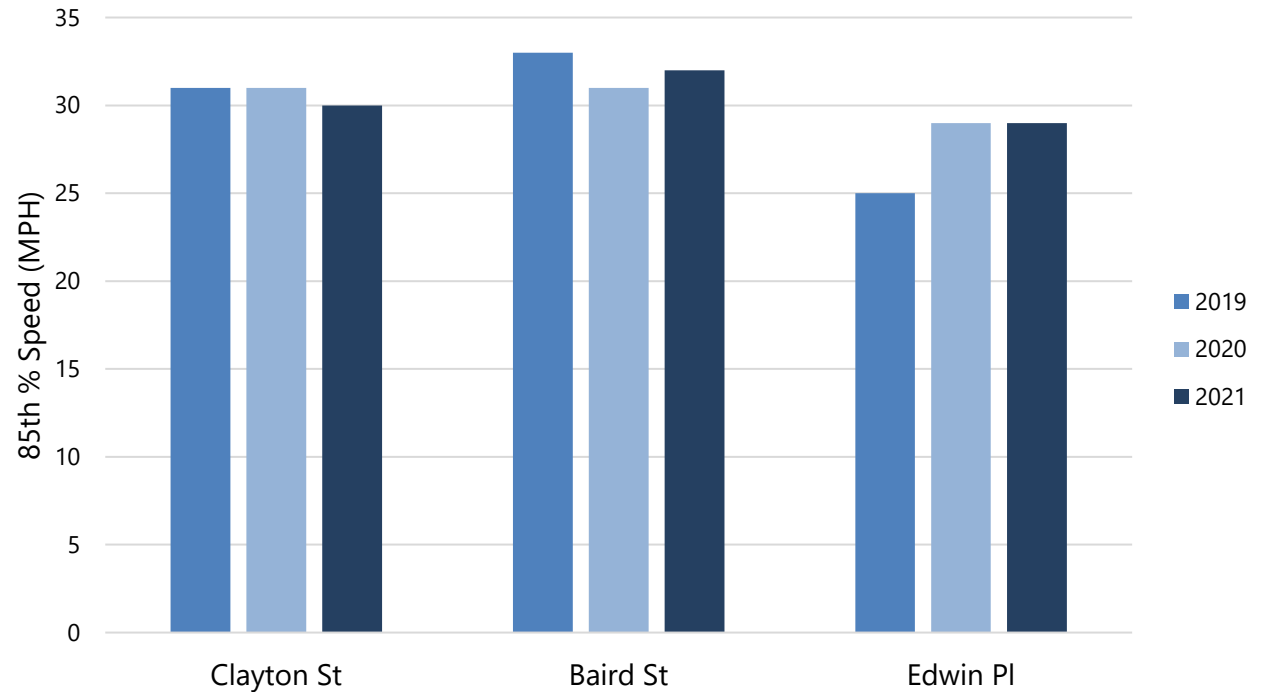
### EDWIN PLACE

Up (+16%)

## TAKEAWAY

*Slight Reduction Except at Edwin Pl (+4 mph)*

## Charlotte Street 85<sup>th</sup> Percentile Speed, 2019-2021





# COUNTS (BICYCLE)

## 2019 – 2021\* COMPARISON

### CHESTNUT STREET

Up (+250%)

### BOARD STREET

Up (+164%)

### EDWIN PLACE

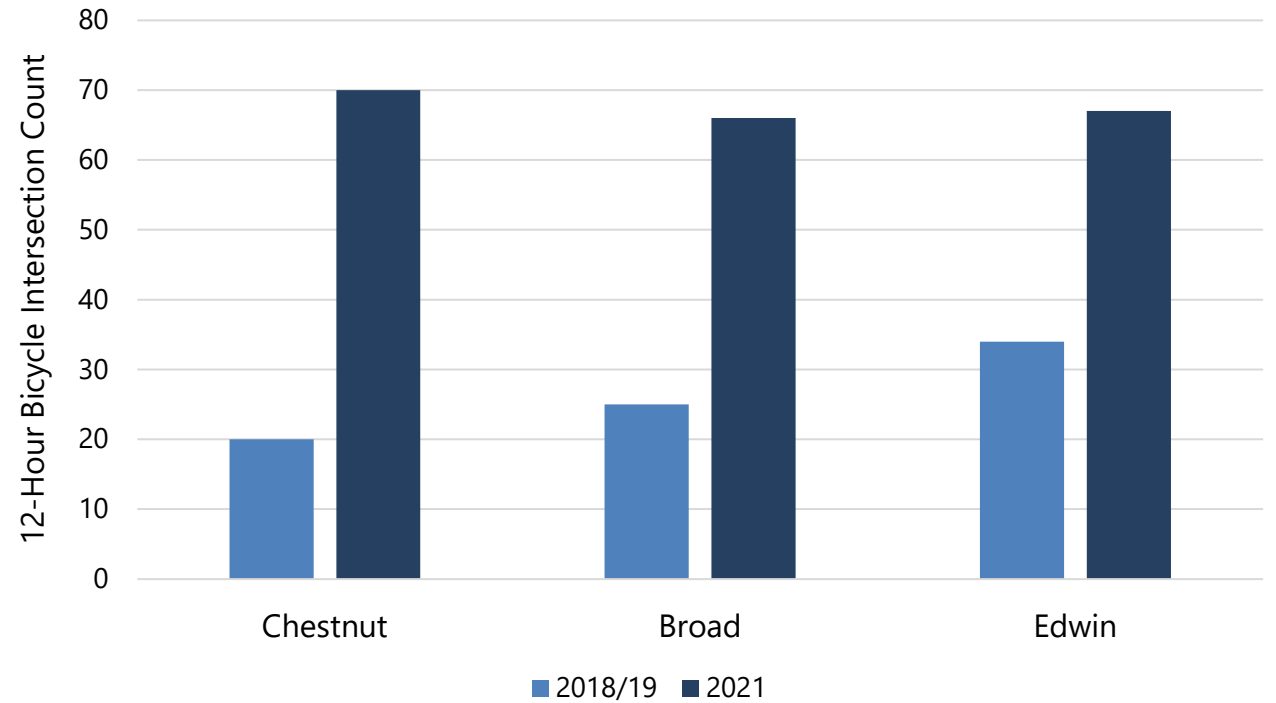
Up (+97%)

*\*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





# COUNTS<sup>1</sup> (PEDESTRIANS)

2019 – 2021\* COMPARISON

## CHESTNUT STREET

Down (-39%)

## BOARD STREET

Up (+60%)

## EDWIN PLACE

Up (+32%)

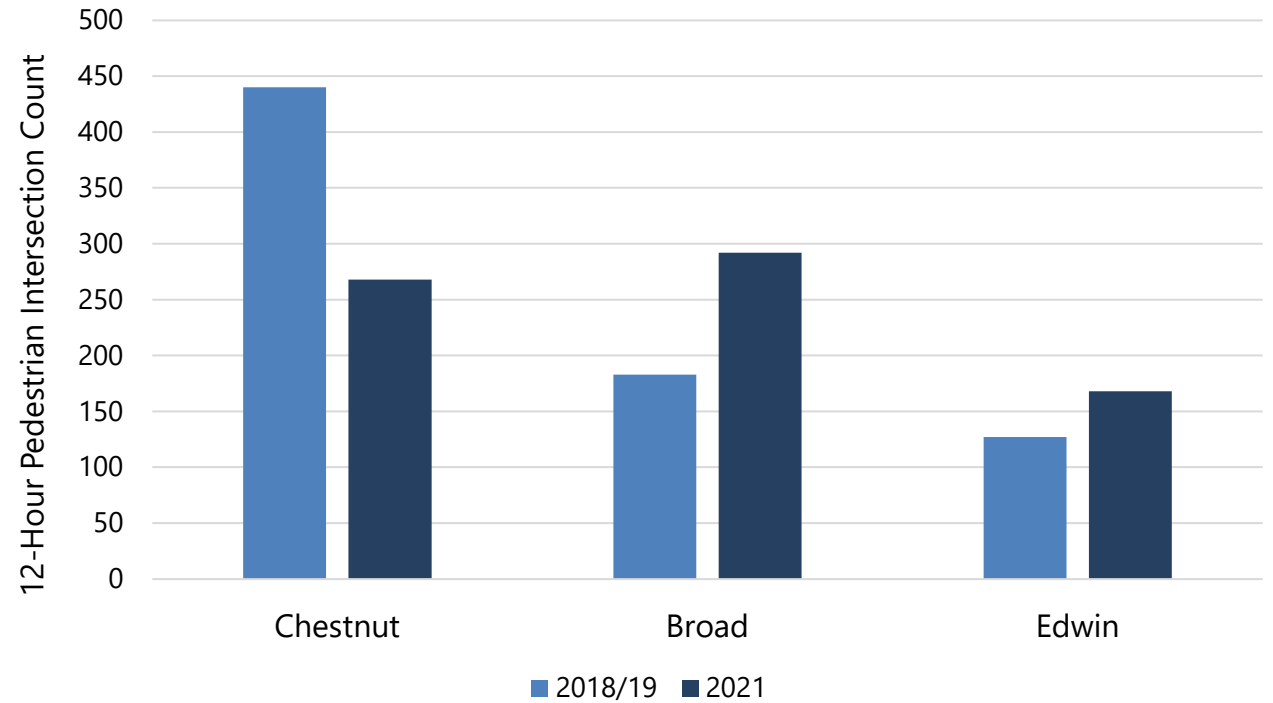
*\*Before weather was sunny/dry, after weather was chilly/wet*

## TAKEAWAY

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

## Charlotte Street 12-Hour Pedestrian Count<sup>1</sup>, 2018/19-2021

<sup>1</sup> 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

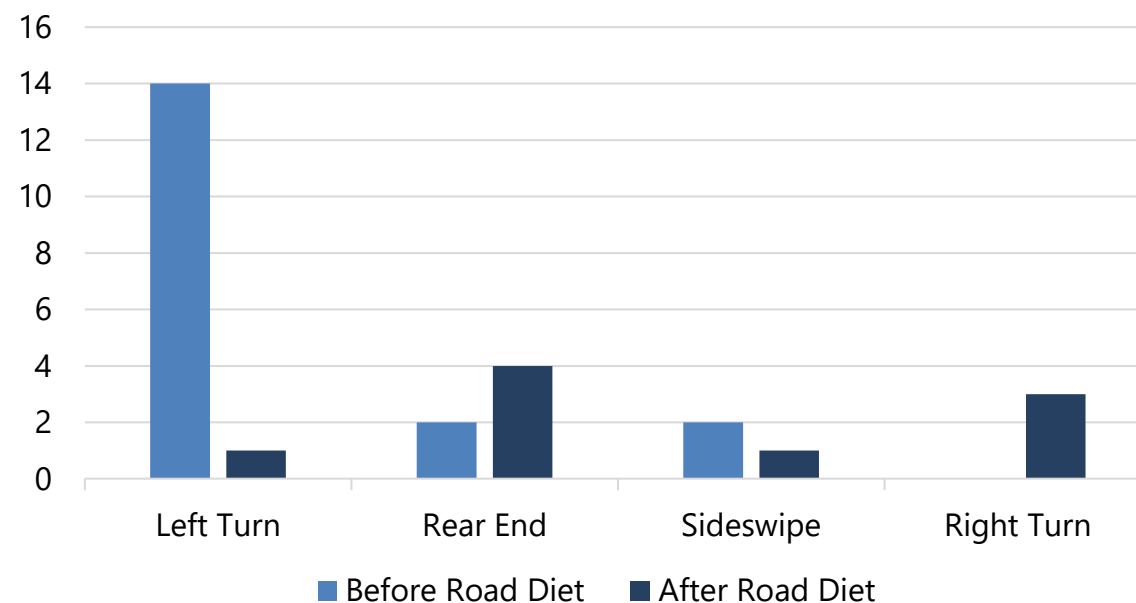
Up 300% (+3 crashes)

## 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*

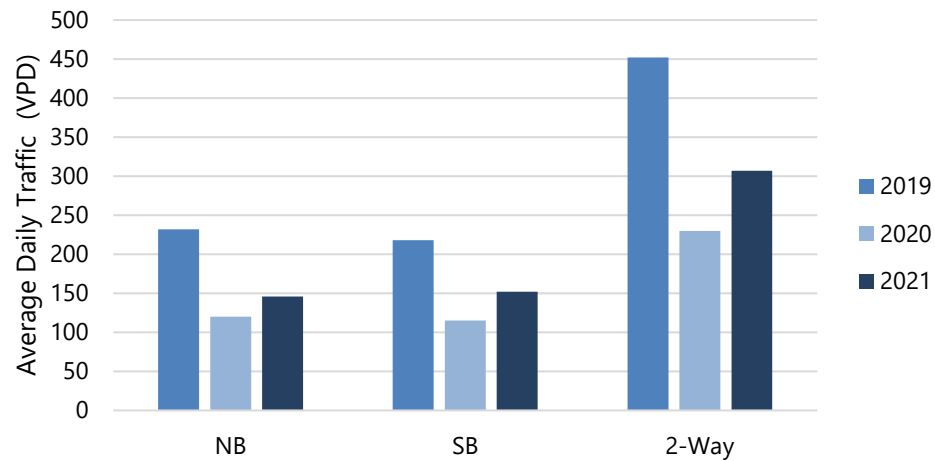




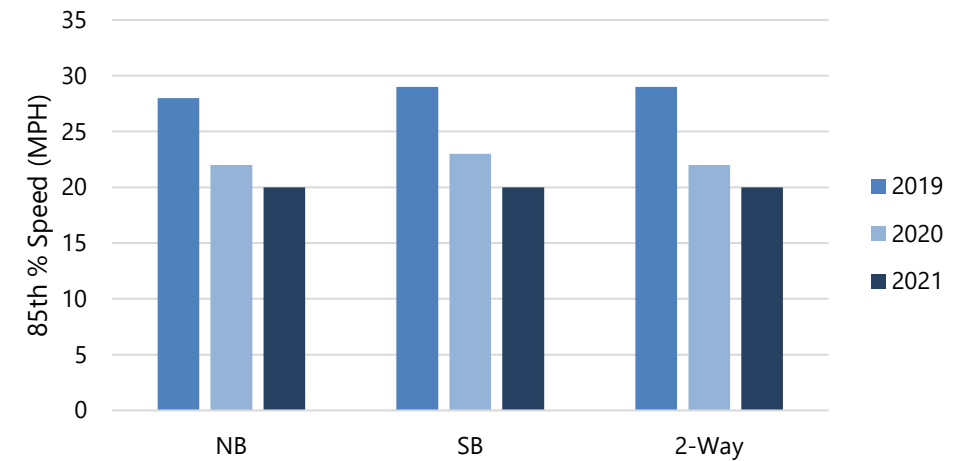
# WASHINGTON ROAD

## *Cut-through Comparison*

Washington @ Broad ADT



Washington @ Broad 85th Percentile Speed



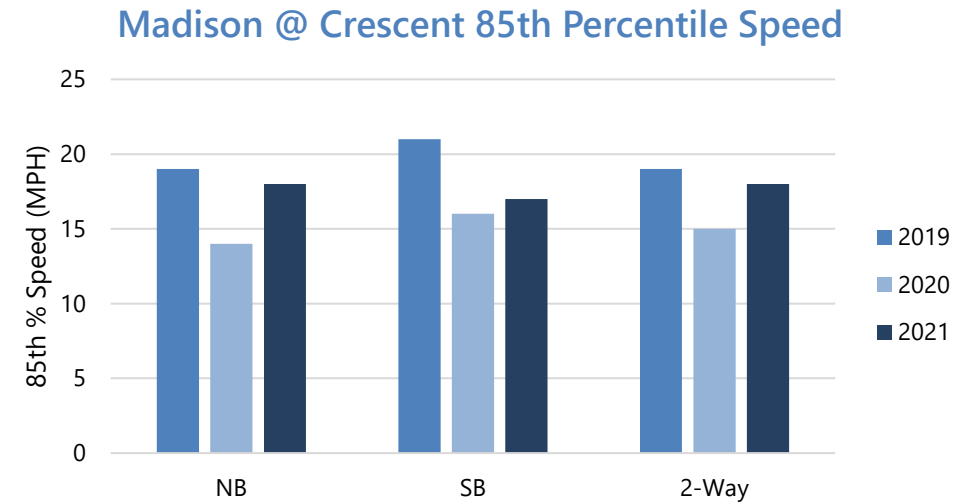
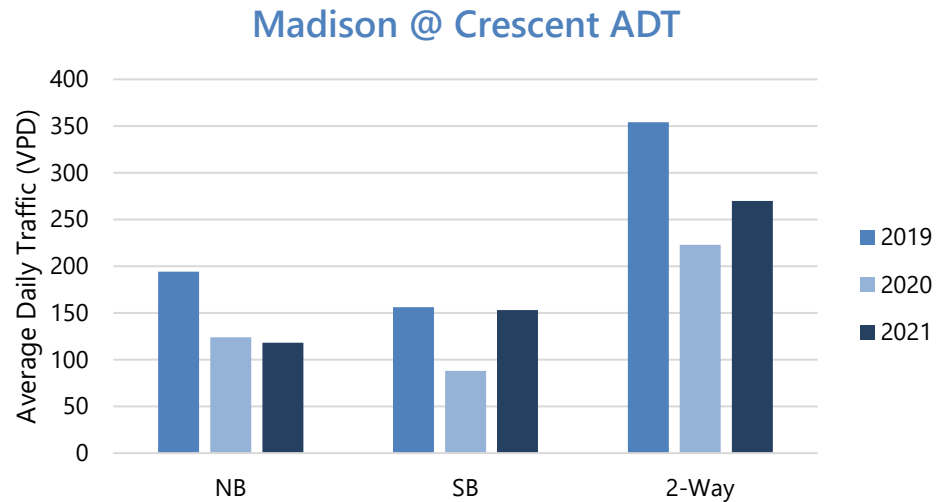
## TAKEAWAY

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



# MADISON AVENUE

## *Cut-through Comparison*



## TAKEAWAY

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