

Advisory Shoulder Implementation CTT- 12/5/24

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Matthews
North Carolina



Agenda

1. Matthews Overview
2. Crestdale Neighborhood
 - a. Crestdale Heritage Trail
3. Downtown Mobility Study
4. Advisory Shoulder Planning and Development
5. Matthew Chapel Rd
 - a. Existing Conditions
 - b. Alternatives Analysis
 - c. Intro to Advisory Bike Lanes/Shoulder
6. Matthews Chapel Rd Case Study
 - a. Three observation periods
 - b. Results
 - c. Recommendations

About the Town of Matthews



Location: Southeast corner of Mecklenburg County between Charlotte and Union County – one of the fastest growing state regions in the

Population: 30,156 (as of 2022)

History: Incorporated in 1879

Government: Council-Manager form of government; Mayor and six-member Board of Commissioners

Services: 236 employees; Services include: Finance, Planning, Parks, Recreation and Cultural Resources, Police, Fire & EMS, Public Works (local roads, storm water, landscaping and solid waste)

Highlights: Matthews offers big city amenities with a small-town feel, outstanding parks & greenways, a vibrant downtown, and family-friendly special events & festivals including Matthews Alive.

Attractions: Mecklenburg County Sportsplex at Matthews, Fullwood Theater. McDowell Arts Center. Matthews



2023-2028 Strategic Vision Plan



Vision 4. Vibrant, Pedestrian-Friendly Downtown

Vision 3. Walkable and Bikeable Community

Vision 2. Well-Planned, Functional Transportation System

Vision 1. Small Town Feeling and Identity

Matthews has kept its small town feeling and identity, while continuing to grow. Attractive neighborhoods, a variety of churches, quality schools and an outstanding medical center make for a full-service community. Above all, people feel safe and secure here. Streets in Matthews create a small town charm: overhanging street trees, attractive landscaping, understated signage, and wide, shaded sidewalks. Small parks and natural areas dot the community. Rural parking lots, once viewed as "eyes of ugliness," have been broken up, softened, and shaded with landscaped islands and perimeter buffers. Matthews has avoided "anywhere USA" franchise-style development. Instead, buildings, old and new, honor the 100-year-plus heritage of the community. New buildings are largely of modest height and scale, and are finished in traditional wood and brick architectural themes.



Our Town, Our Vision!



VISION 1: WELL-PLANNED, MULTI-MODAL TRANSPORTATION SYSTEM

A system of improved arterial roads help divert non-local, commuter traffic away from downtown Matthews. Street improvements accommodate cars, pedestrians, bicyclists, and transit services. The Silver Line extension of the light rail line provides many benefits to the community and is a welcomed alternative for commuters.



VISION 2: VIBRANT, PEDESTRIAN FRIENDLY DOWNTOWN

Downtown Matthews is a true destination in the region, with a reputation for a variety of dining, entertainment options, and thriving local businesses. Pedestrian-friendly streetscapes create a safe and inviting environment. New mixed-use development in the downtown support merchants and add vibrancy to the community.



VISION 3: WALKABLE AND BIKEABLE COMMUNITY

Matthews is a true walkable and bikeable community. There is improved connectivity between neighborhoods and developments with a well-integrated network of streets, sidewalks, bikeways, walking trails, and greenway trails. This continuous system provides a multitude of transportation choices for residents.



VISION 4: SMALL TOWN FEELING AND IDENTITY

Matthews has kept its small-town identity and welcoming charm. Attractive landscaping, understated signage, and wide, shaded sidewalks create an inviting community. Many parks and open spaces are accessible within walking and biking distance from most parts of town. Town residents put a high value on the town's heritage and the preservation of historic buildings and landmarks throughout the community.

History - Crestdale Neighborhood

“Crestdale began as a post-Civil War settlement founded by free African Americans and freed plantation slaves in the 1860s.”

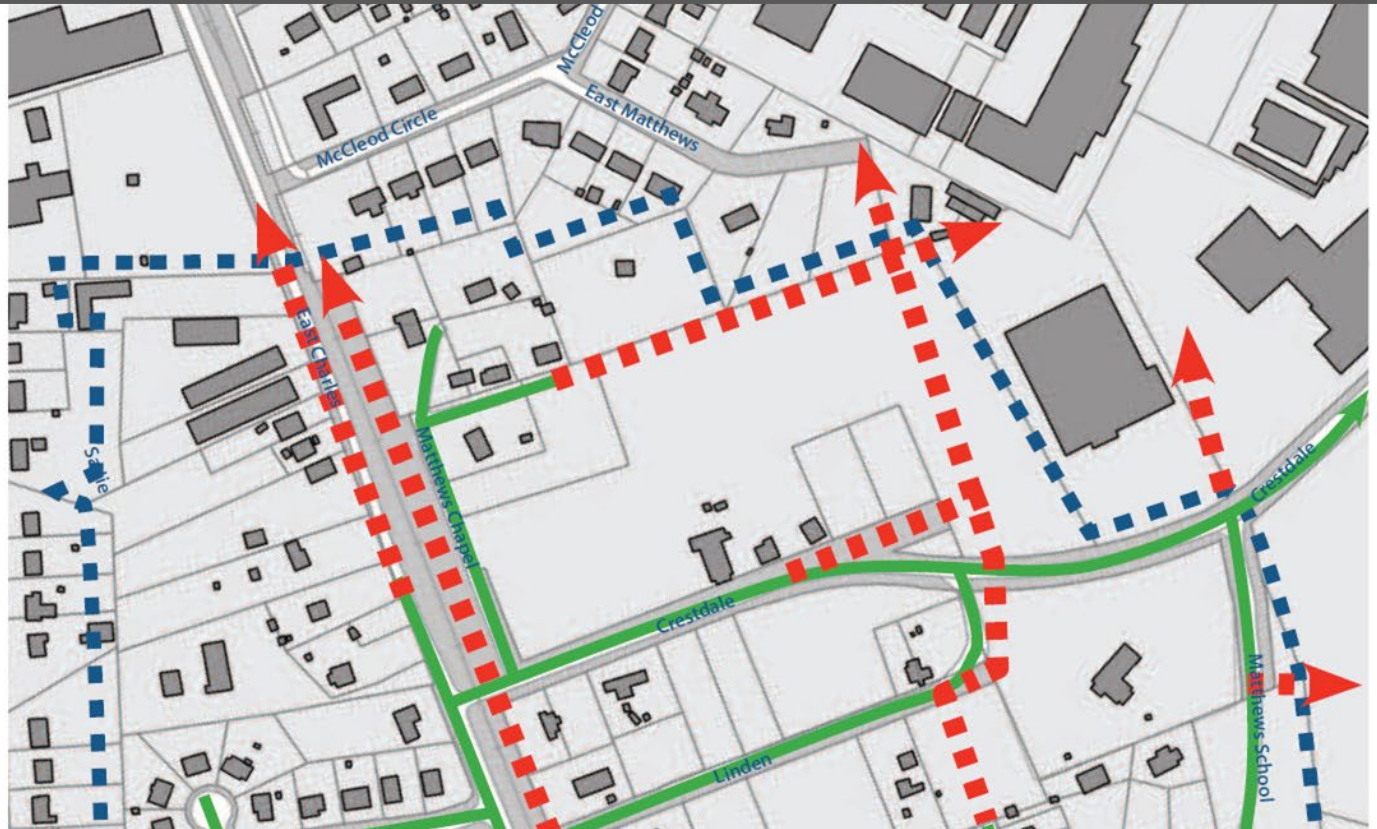
Crestdale Rising 2011

- One of the oldest African American community in the state of NC
- Matthews Colored School - Opened 1918
- Desegregation closed the school in 1966
- The area was annexed by Matthews in 1988

Crestdale Rising Map (2011)

Legend

- Existing Street Network
- Proposed Street Connections
- Right of Way
- Streets
- Existing Buildings
- Crestdale Neighborhood Boundary



Downtown Mobility Study 2020



PEDESTRIAN IMPROVEMENTS

- Sidewalks (for greenways and sidepaths, see Bikeways + Multi-Use Paths)
- Crossing improvements
- ADA-accessibility
- Placemaking



STREET TRANSFORMATIONS

- Lane reallocation
- Shared streets
- New Complete Street connections
- Traffic calming
- Intersection reconfigurations



BIKEWAYS + MULTI-USE PATHS

- On-street bike facilities
 - » Bike Lanes
 - » Shared Lane Markings
 - » **Advisory Shoulders**
- Multi-Use Paths
 - » Greenways
 - » Sidepaths



PARKING

- New on-street spaces
- Surface lots
- Wayfinding



TRANSIT

- Bus stop amenities
- Bus stop relocation
- Light rail connections



PROGRAMS + POLICIES

- Parking
- New Mobility Technology
- Wayfinding
- Transportation Demand Management



Public Works tested painting
pavement crosswalk
Summer 2020

Heritage Trail Opened in 2021

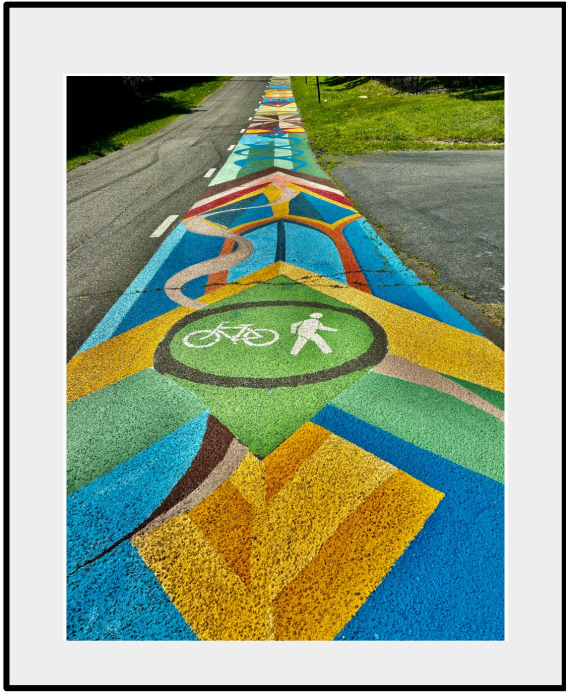
LEGEND

- | | | | |
|--|-----------------------|--|-----------------|
| | Heritage Trail | | Boardwalk |
| | Share the Road | | Creek / Stream |
| | Future Heritage Trail | | Street Name |
| | Greenway Trail | | Railroad Tracks |
| | Neighborhood Entrance | | |
| | Greenway/Trail Access | | |





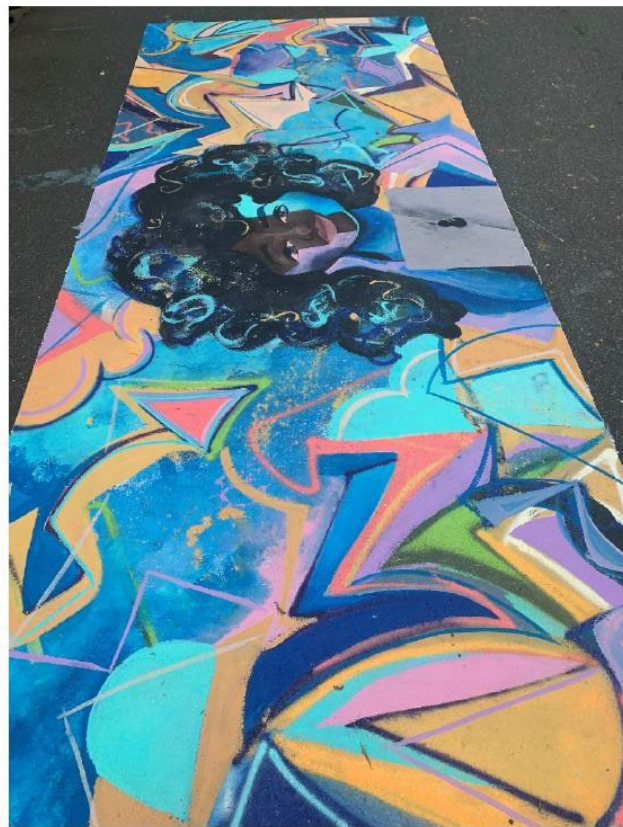
Advisory Shoulder - 2023



Mural Artist

Makayla Binter -

“Design is inspired by kente cloth with the color schemes of skin and earth tones. The kente cloth pattern looks like a trail that leads to the base of the Tree of Life. Kente cloth represents family and collective work, both necessary for community growth and the roots of community pride. The tree of life represents the vast age ranges of neighbors in the area and emphasizes students since Crestdale also focuses on education.”



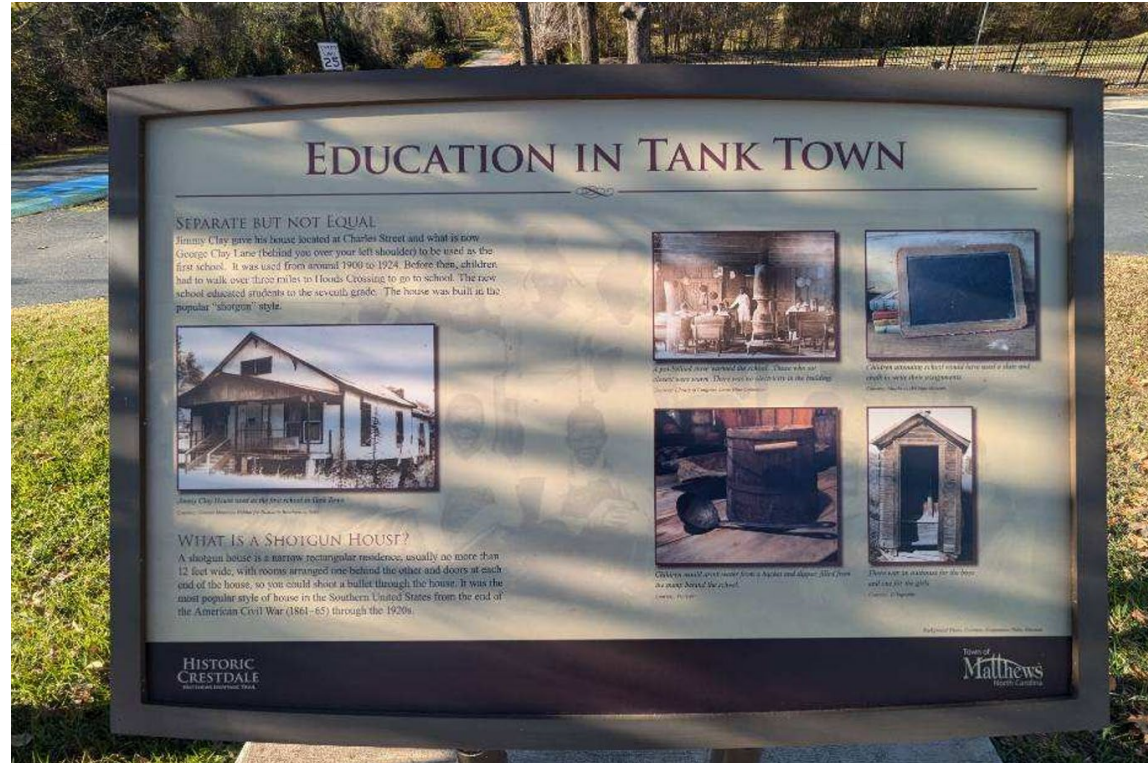


Public Engagement- 2023





Historic Markers



Matthews Chapel Road - Before and After



Before

CTT

After



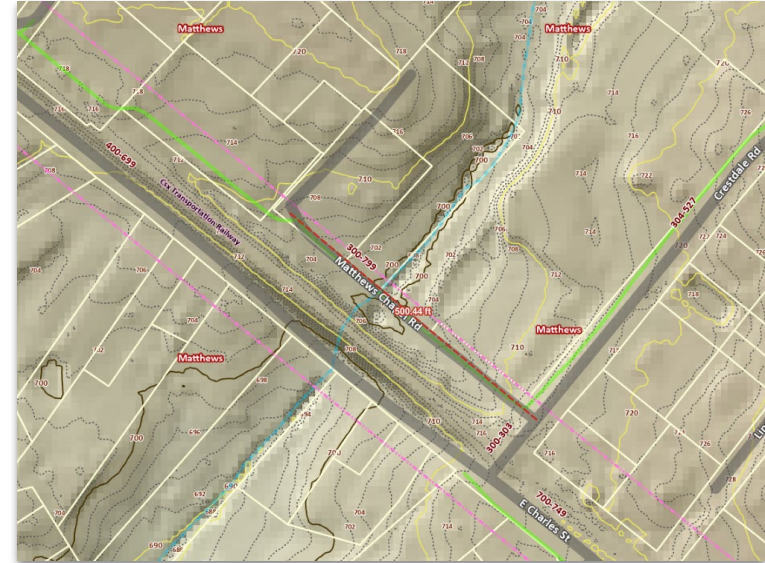
Development of Matthews Chapel Rd Advisory Shoulder

Existing conditions of Matthews Chapel Rd

- 500-ft length, 16-ft wide pavement, uncurbed
- creek crossing midway through segment
- no sidewalks or bike lanes
- cemetery, railroad

Need for improvements

- Connect Crestdale to Downtown
- Community investment
- Create iconic space



Development of Matthews Chapel Rd Advisory Shoulder

Alternatives analysis

1. Do nothing
2. Sidewalk
3. Advisory Bike Lanes



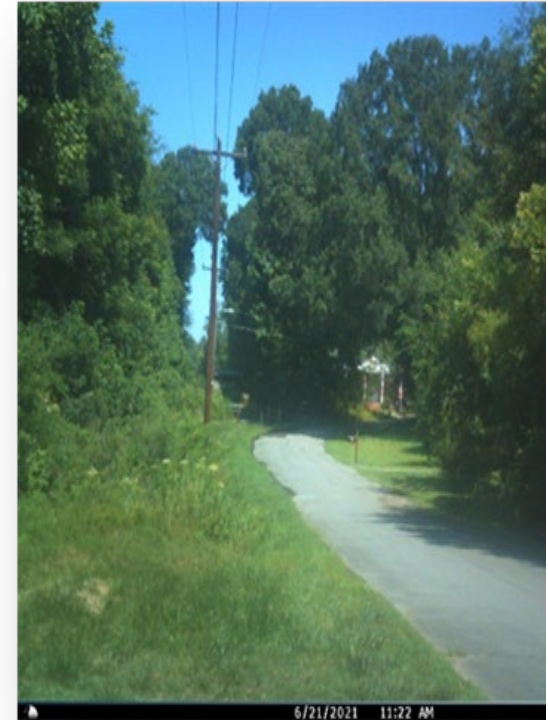
Development of Matthews Chapel Rd Advisory Shoulder

Alternatives analysis

1. Do nothing

Data considered:

- 90 AADT, residential area
 - Few conflicts among modes
- Drivers, cyclists and pedestrians use conventional yielding practices
 - Drivers and cyclists use the right-hand side of the roadway; pedestrians walk along the left edge

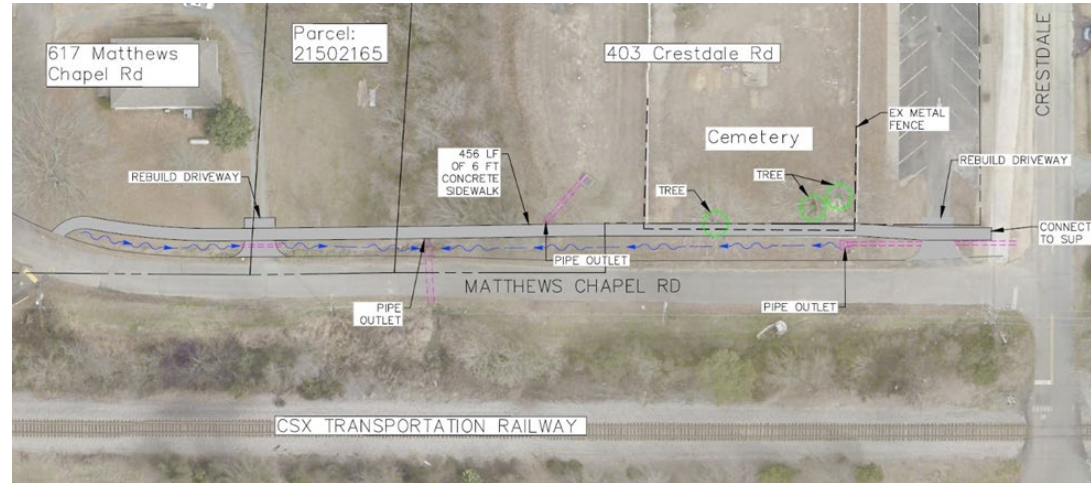


Alternatives analysis

2. Sidewalk

Data considered:

- Placement and width of sidewalk
- Cemetery, fence, trees, creek crossing, driveways, swale



Development of Matthews Chapel Rd Advisory Shoulder

Alternatives analysis

1. Do nothing
2. Sidewalks
3. **Advisory Bike Lanes**

When in Europe...

- Hugo de Grootstraat, Delft
- Kleiweg, Marknesse

CROW manual: Netherlands



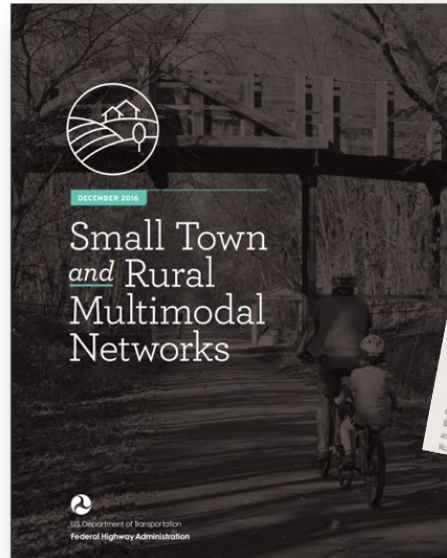
Source: edgelaneroads.com



Source: Google street view

What are Advisory Bike Lanes/Shoulders?

- 2016 Federal Highway Administration (FHWA) “Small Town and Rural Multimodal Networks”
- Single vehicular lane with dashed shoulders for multimodal use
- 13-ft to 16-ft vehicle lane (10-ft min), 6-ft multimodal lanes (4-ft min)
- Opposing vehicles merge into shoulder when clear



What are Advisory Bike Lanes?

Requests for Experiment:

Lincoln, MA (2021)
Portland, OR
Ft Collins, CO
Harris Co, TX
Presidio Trust, CA
Danville, VT
Washington DC
Boone Co, IA
Lorian, OH
Minneapolis, MN
Hailey, ID
Chicago, IL
Edina, MN (2012)

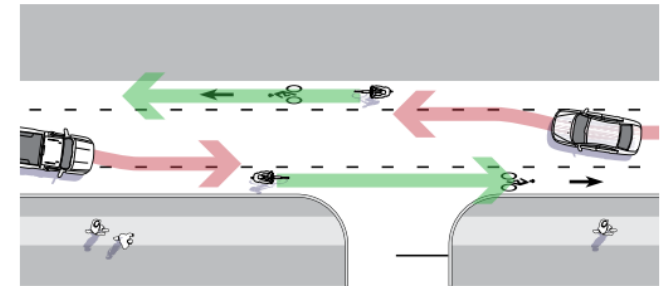
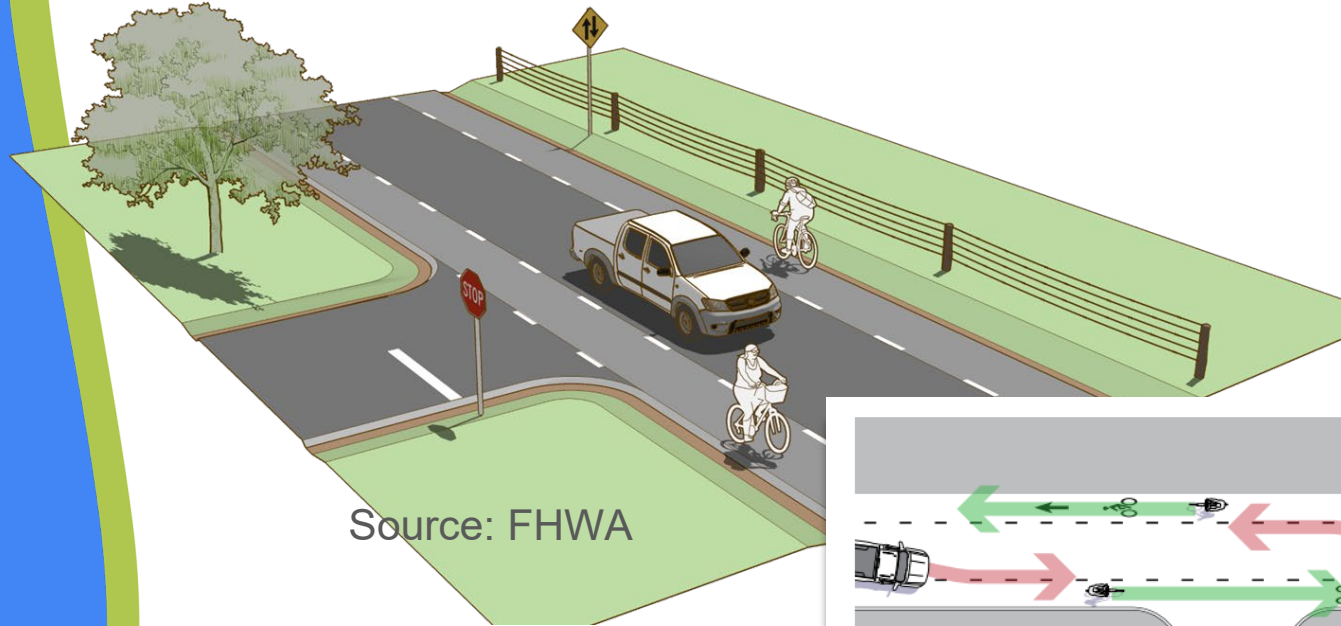


Exhibit 4: When approaching oncoming motor vehicles, motorists must merge into the Advisory Bike Lane. If a bicyclist is present, motorists must slow and yield to bicyclist traffic prior to entering the Advisory Bike Lane.

Source: Alta

Applications/Elements of Advisory Bike Lanes/Shoulders

- Use on roads with volumes <6,000 AADT and speed <35mph
 - <3,000 AADT and <25mph preferred
- Marked with white short dashes on the pavement

Optional elements:

- White edge line or curb
- Signage
- Pavement symbols
- Parking lane
- Sidewalks

Studies

- FHWA experiment reports
- Alta white paper 2017
- ITE Journal article 2019

Development of Matthews Chapel Rd Advisory Shoulder

Alternatives analysis

3. Advisory Bike Lanes

Data considered:

- 16-ft pavement width (10+4+4 needed)
- Roadway widening required
 - Swales shared with cemetery and railroad
 - Cost to minimally widen for 500-ft length
- Modes using the Crestdale Heritage Trail
 - Solution needs to prioritize pedestrians

Development of Matthews Chapel Rd Advisory Shoulder

Alternatives analysis - SOLUTION

3b. Advisory Shoulder

Data considered:

- 16-ft pavement width
 - 10-ft vehicle lane
 - 6-ft multimodal lane
- Only pavement markings needed



Development of Matthews Chapel Rd Advisory Shoulder

Implementation

- Request to experiment denied
- Conversations with NCDOT engineers
- Evaluation criteria
- MUTCD/Town Board
- Installation in 2022
 - Town of Matthews street crews
 - \$2,000 included white short dashes, crosswalk, and signs



Evaluation Plan

1. Bicycle, pedestrian, and vehicular volume (before and after)
2. Observations will be made once or twice per year, and will include items such as the following:
 - a. Where do bicyclists tend to ride? Does this vary by the presence of oncoming pedestrians or vehicles?
 - b. Where do pedestrians tend to walk? Does this vary by the presence of oncoming vehicles or bicyclists?
 - c. Where do motorists tend to drive? Does this vary by the presence of bicyclists, pedestrians, or oncoming vehicles?
 - d. Are motorists yielding to bicyclists and pedestrians before merging into the advisory shoulder?
 - e. When motorists overtake bicyclists and pedestrians, are they leaving a safe passing distance?
 - f. Does the advisory shoulder and lack of centerline appear to create conflicts among bicyclists, pedestrians, and motorists?
 - g. Are bicyclists using the treatment as intended?
 - h. Are pedestrians using the treatment as intended?
 - i. Are motorists using the treatment as intended?

Three Scenarios observed:

1. Unmarked roadway
2. Marked advisory shoulder
3. Painted advisory shoulder



Observations/
Evaluation

Three Scenarios observed:

1. Unmarked roadway
 - a. 16-ft width for two-way bicycle, vehicular and pedestrian traffic
 - b. No shoulders

2021 (June)	average	per hour	Peak count
Pedestrian	14.5	1.4	41
Bike	4.9	0.5	13
Car	28.1	2.7	54
avg time	10.36667		

Date	Pedestrian	Bike	Car	Total all modes	Total time monitored (hours)
Monday, Jun 21, 2021	9	8	34	51	10
Tuesday, Jun 22, 2021	10	4	35	49	11
Friday, Jun 25, 2021	8	10	16	34	8
Monday, Jun 28, 2021	10	4	21	35	9
Thursday, Jul 1, 2021	8	0	36	44	8.5
Tuesday, Jul 6, 2021	17	13	35	65	12.5
Wednesday, Jul 7, 2021	20	5	37	62	14
Thursday, Jul 8, 2021	0	0	2	2	5.5
Friday, Jul 9, 2021	9	8	32	49	13.5
Saturday, Jul 10, 2021	23	2	7	32	6
Wednesday, Jul 14, 2021	23	7	40	70	13
Wednesday, Jul 21, 2021	15	1	42	58	13
Thursday, Jul 22, 2021	18	1	26	45	13.5
Friday, Jul 23, 2021	7	0	4	11	4.5
Saturday, Jul 24, 2021	41	10	54	105	13.5



Three Scenarios observed:

2. Marked advisory shoulder

- a. 10-ft travel lane for two-way vehicular traffic
- b. 6-ft shoulder for two-way bicycle and pedestrian traffic

2022 (July)	averages	per hour	peak count
Pedestrian	21.0	1.3	34
Bike	9.8	0.6	24
Car	41.9	2.7	60
Daily hours	15.8125		

Date	Pedestrian	Bike	Car	Total all modes	Total time monitored (hours)
Saturday, Jul 23, 2022	23	5	36	64	16
Sunday, Jul 24, 2022	18	10	38	66	16
Monday, Jul 25, 2022	17	2	26	45	16
Tuesday, Jul 26, 2022	34	5	40	79	16
Wednesday, Jul 27, 2022	21	5	47	73	15.5
Thursday, Jul 28, 2022	24	7	34	65	15.5
Friday, Jul 29, 2022	25	7	52	84	15.5
Saturday, Jul 30, 2022	26	17	37	80	15.5
Sunday, Jul 31, 2022	9	10	35	54	15.5
Monday, Aug 1, 2022	20	15	57	92	15.5
Tuesday, Aug 2, 2022	29	7	28	64	16
Wednesday, Aug 3, 2022	25	8	51	84	16
Thursday, Aug 4, 2022	16	5	60	81	16
Friday, Aug 5, 2022	14	7	42	63	16
Saturday, Aug 6, 2022	16	24	44	84	16
Sunday, Aug 7, 2022	19	22	44	85	16



Three Scenarios observed:

3. Painted advisory shoulder

- a. 10-ft travel lane for two-way vehicular traffic
- b. 6-ft shoulder for two-way bicycle and pedestrian traffic

2023 (October)	average	per hour	peak count
Pedestrian	37.7	2.6	73
Bike	12.8	0.9	23
Car	60.9	4.2	93
Daily hours	14.64286		

Date	Pedestrian	Bike	Car	Total all modes	Total time monitored (hours)
Saturday, Oct 14, 2023	24	10	51	85	15
Sunday, Oct 15, 2023	38	15	40	93	15
Monday, Oct 16, 2023	49	15	48	112	15
Tuesday, Oct 17, 2023	40	6	66	112	15
Wednesday, Oct 18, 2023	37	12	66	115	15
Thursday, Oct 19, 2023	44	23	59	126	15
Friday, Oct 20, 2023	23	3	55	81	15
Saturday, Oct 21, 2023	38	13	69	120	15
Sunday, Oct 22, 2023	49	12	63	124	15
Monday, Oct 23, 2023	73	19	54	146	13.5
Tuesday, Oct 24, 2023	36	13	75	124	14
Wednesday, Oct 25, 2023	26	12	73	111	14.5
Thursday, Oct 26, 2023	24	12	93	129	14
Friday, Oct 27, 2023	27	14	41	82	14



Observation Results

- Advisory shoulders seem to clearly communicate where **vehicles** should be in the pavement, especially after the mural was installed
- One-sided advisory shoulder seems to be confusing to **pedestrians** who were taught to walk facing traffic
- Painted advisory shoulder seemed confusing to where **pedestrians** should walk
 - But does make it attractive for parking
 - And attractive for selfies!

Recommendations



- Place **signage** for no parking
- Public information about **using** the mural
- When it comes time to repave Matthews Chapel Rd:
 - Staff should conduct observations to determine if pedestrians and drivers are using the device
 - If not, widen pavement 2-ft on either side to create two advisory bike lanes, include bike/ped pavement markings in the bike lanes, and include mural in the crosswalk
- There are **no safety issues** with the advisory shoulder as installed today, and staff concludes that the mural within the shoulder creates unique **placemaking**. Visitors to the area know this is a special place.

Questions?

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[Heritage Trail Video](https://youtu.be/mUNFp3W6KXI)

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