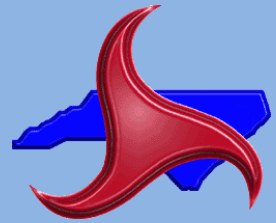


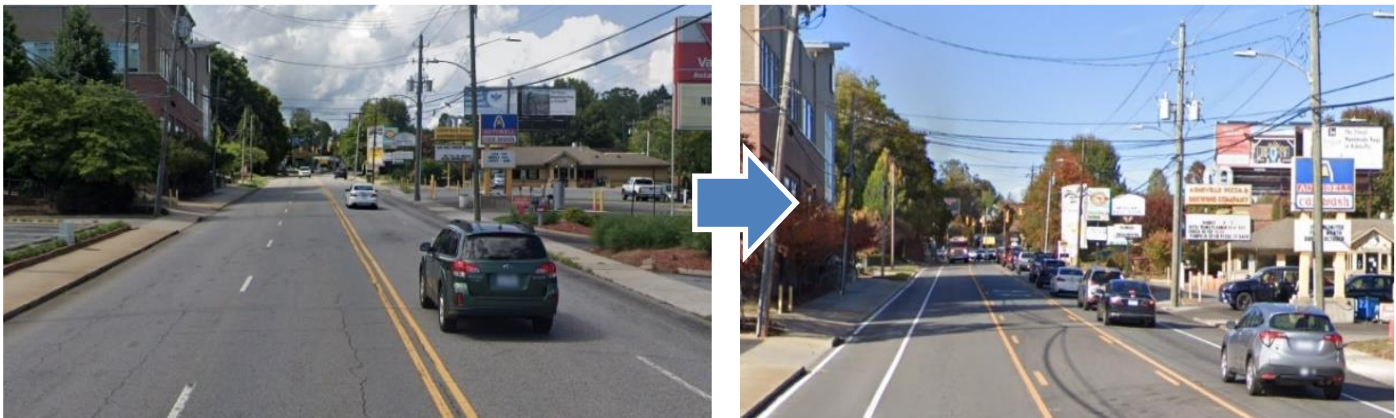
Merrimon Ave 4 to 3 Lane Conversion Safety and Mobility Update – June 2024



Study Metrics

Safety, mobility, and volume metrics are being monitored and evaluated on the Merrimon Ave corridor in Asheville, which underwent a 4- to 3-lane conversion from WT Weaver Blvd to Midland Rd beginning in Oct 2022.

- **Safety Metrics:** Total Crashes, Fatal and Severe Injury Crashes, Bicycle and Pedestrian Crashes
- **Mobility Metrics:** Motor Vehicle Speeds and Travel Times
- **Travel Trends:** Motor Vehicle, Pedestrian, and Bicycle Volumes



Before and After Streetview Images on Merrimon

Duration and Scope of Study

Crash datasets are summarized through February 2024 using the Traffic Engineering Accident Analysis System (TEAAS). TEAAS contains information on all reportable traffic crashes occurring in North Carolina.

- “Before” is 5-years, from 10/1/2017 – 9/30/2022.
- “Initial After” is 1.42-years, from 10/1/2022 – 2/29/2024, with the roadway under construction for part of this time and prior to the project being considered officially completed. The project became officially complete in May 2024.

Spot speeds and volume datasets have been collected on site:

- “Before” collected in both Jul 2022 (summer) and Sep 2022 (fall, school in session).
- “Initial After” collected in Jan/Feb 2023, with construction in progress.
- “After” collected in Oct 2023, with work substantially complete, but prior to final inspection.

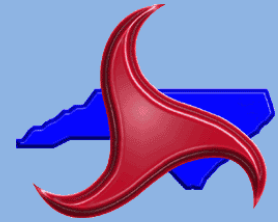
Supplemental mobility datasets to assess corridor speeds and travel times have been obtained using Iteris ClearGuide:

- “Before” obtained in Oct-Nov 2021 (fall) and Jan-Feb 2022 (winter).
- “Initial After” obtained in Jan-Feb 2023 (winter) and “After” in Oct-Nov 2023 (fall).

In addition to the comprehensive study of the 4- to 3-lane conversion section of Merrimon Ave, data on other roadways in the vicinity is being studied to measure possible impacts. This includes mobility data for I-26, I-240, Broadway, WT Weaver, Kimberly, Charlotte, Beaverdam, and Hillside; spot speed and volume data for Broadway, Kimberly, Lakeshore, Woodward, Murdock, and Farrwood; and crash data for Broadway, Kimberly, and Lakeshore. Additionally, Merrimon Ave to the north and south is being studied using multiple metrics.

Additional “After” mobility, volume, and crash datasets are planned.

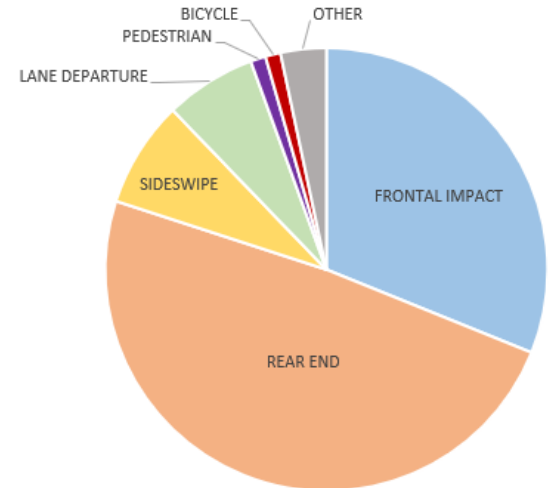
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Preliminary Takeaways

Safety data is generally positive for the initial 1.42-year after period. Crash reductions have been seen for Merrimon Ave.

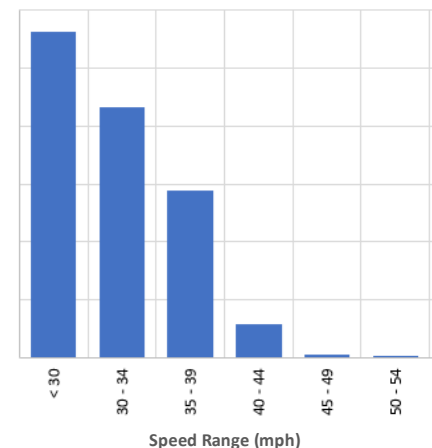
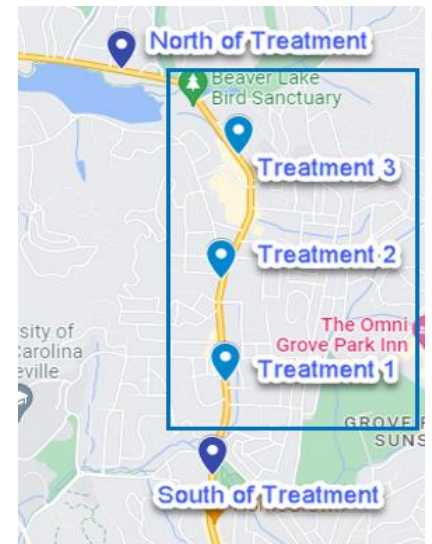
- Preliminary safety data shows a 23% reduction in total crashes and a **30% reduction in injury crashes on Merrimon Ave** for the 4- to 3-lane conversion, as well as slight reductions in total crashes for the sections to the north and south.
- Predominant crash types for the 4- to 3-lane conversion section include rear end crashes and frontal impact crashes during the before period and the initial 1.42-year after period; however, there appears to be some shifting of crash types. Short-term trends suggest a reduction in frontal impact crashes and an increase in rear end crashes.
- Preliminary data shows an overall reduction in crashes for vulnerable road users on the 4- to 3-lane conversion section. **In the initial 1.42-year after period there was one reported pedestrian crash and one reported bicycle crash, both of which resulted in property damage only.**
- Safety data is also being studied on alternate routes. Preliminary results for total crashes vary, with a slight increase on Broadway, no change on Kimberly, and a reduction on Lakeshore. Injury crashes showed reductions for all three routes.



Composition of Reported Crashes on the 4- to 3-Lane Conversion Section (Initial 1.42-Yr After Period, 10/22-2/24)

Spot speed data was collected at five locations on Merrimon Ave, a 35-mph roadway. At the three spot locations in the 4- to 3-lane conversion, speeds were reduced. Minimal changes were seen at the spot locations outside of the treatment area, one to the north and one to the south. Comparing fall datasets before (9/22) and after (10/23):

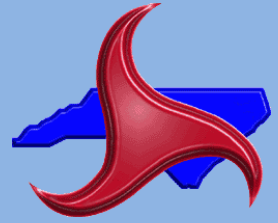
- Speeds were measured at three spots in the 4- to 3-lane conversion on Merrimon, with **average speeds dropping by 3 to 5 mph and 85th percentile speeds dropping by 3 to 6 mph**. After period 85th percentile speeds ranged from 32-36 mph.
- Speeds were measured at spots north and south of the 4- to 3-lane conversion on Merrimon, with average and 85th percentile speeds dropping by 1 mph or less. After period 85th percentile speeds ranged from 38-39 mph.
- Spot speed data was collected at two spots on Broadway St (a 35-mph roadway), with average and 85th percentile speeds increasing by 1 mph. After period 85th percentile speeds ranged from 46-47 mph on Broadway.
- Spot speed data was also collected on Kimberly, Lakeshore, Woodward, Murdock, and Farrwood by the City of Asheville. For all routes, average speeds changed marginally, by 0-2 mph. 85th percentile speeds changed by 0-1 mph for all routes except Woodward, which saw a 6 mph drop.



Middle Right: Locations of Spot Speed Studies on Merrimon

Bottom Right: Speed Distribution on Merrimon near Durwood collected 10/23.

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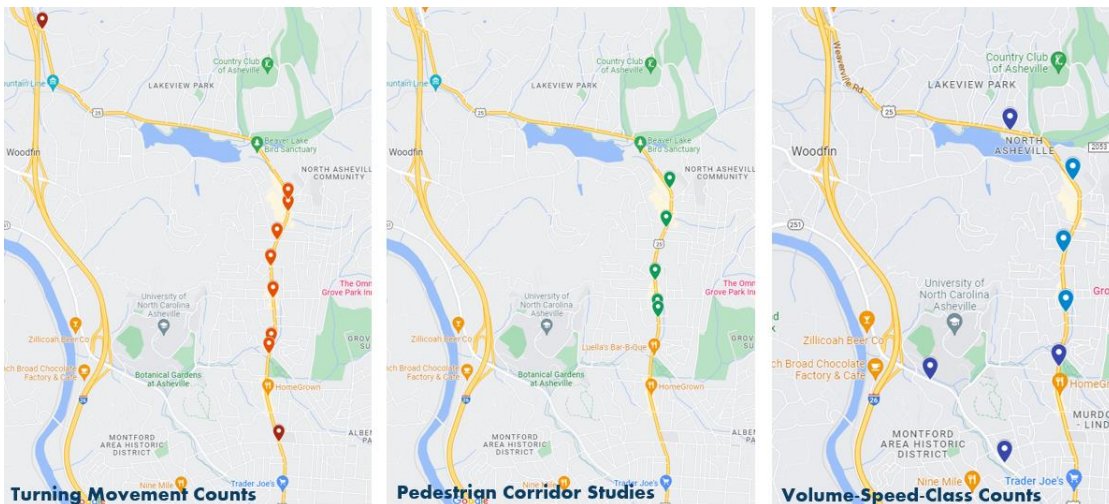


Volume data on the 4- to 3-lane conversion section of Merrimon showed a slight drop in motor vehicle traffic, an increase in bicycle traffic, and mixed results for pedestrians. Comparing fall datasets before (9/22) and after (10/23):

- At three midblock points where volumes were collected in the 4- to 3-lane conversion, the **average daily volume was down by 1-8%**. In Oct 2023, the average daily volume varied from 12,000 to 19,600, as compared to 12,400 to 21,300 when taken in Sep 2022.
- Just north and south of the treatment section, Merrimon saw drops in average daily volume of 1-4%.
- Changes in pedestrian volumes varied across 12 data collection points in the 4- to 3-lane conversion section, with some locations showing increases and some decreases. Rainfall during some of the Oct 2023 data collection likely played a role in sites showing a decrease in pedestrian activity. Over 1,900 pedestrians were counted in Oct 2023, as compared to almost 2,200 in Sep 2022.
- **Bicycle volumes increased in 11 of 12 data collection points**, despite rainfall during some of the Oct 2023 observations. At the northern end of the treatment section, the number of bicyclists increased most substantially (by 269%, an increase of 35 bicyclists over 2-day counts). Almost 700 bicyclists were counted in Oct 2023, as compared to over 400 in Sep 2022.
- The percentage of bicyclists riding on the roadway increased dramatically in the after period with the installation of bicycle lanes. In Sep 2022, 28% of bicyclists traveled on the roadway. In Oct 2023, 82% of bicyclists traveled on the roadway.
- Motor vehicle volumes were collected at two points on Broadway. The average daily volumes were up by 6-11% (an increase of 700 to 900 vehicles per day).
- Motor vehicle volumes were also collected on Kimberly, Lakeshore, Woodward, Murdock, and Farrwood by the City of Asheville. All but Murdock showed an increase in average daily volumes with increases varying from 5% to 16%. The heaviest increase was on Kimberly, where increases varied from 600 to 900 vehicles per day.

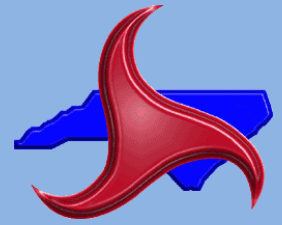


Bicyclist observed traveling on Merrimon.



Locations of Volume Data Collection on Merrimon and Broadway

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Travel time data on the 4- to 3-lane conversion section generally showed an increase in average travel times, with the highest increases in the PM peak hours, when comparing data from fall 2021 and fall 2023 in Iteris ClearGuide. The sections of Merrimon to the north and south of the treatment section generally showed decreases in average travel times when comparing these periods.

For the entire Merrimon corridor, a 4-mile section from I-240 to I-26, average travel times range from about 8-10 minutes at peak times. The following changes were observed:

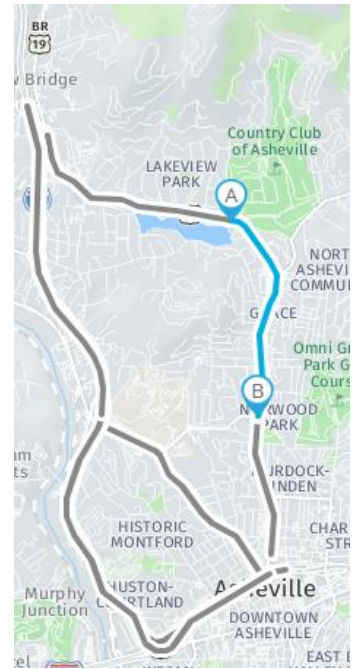
Northbound direction:

- 19 second **reduction** in average travel times at 9 AM
- 1 second **reduction** in average travel times at 1 PM
- 14 second **increase** in average travel times at 5 PM

Southbound direction:

- No change in average travel times at 9 AM
- 8 second **increase** in average travel times at 1 PM
- 2 second **increase** in average travel times at 5 PM

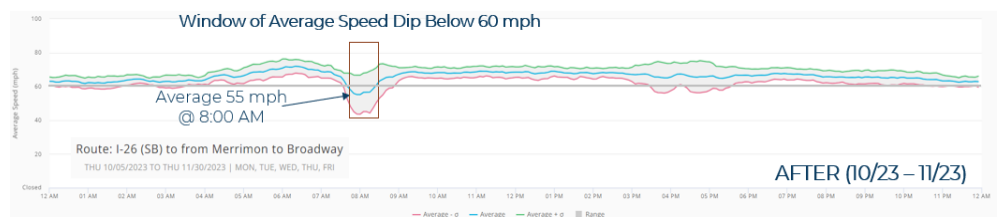
On the 4- to 3-lane conversion section, in fall 2023, the slowest average speeds in the northbound direction occurred at 10:15 AM in the AM peak and 4:35 PM in the PM peak and in the southbound direction at 8:15 AM in the AM peak and 5:30 PM in the PM peak.



Primary Areas of Mobility Data Study on Merrimon, Broadway, I-240 and I-26 (treatment section in blue).

Mobility impacts to adjacent routes appear to be minimal when comparing datasets in fall 2023 to fall 2021 in Iteris ClearGuide.

- On I-26 from Broadway (exit 25) to Merrimon (exit 23), there did not appear to be a negative impact on average speeds for either direction of travel. In fact, mobility showed some improvement, with the amount of time in which average speeds dipped below 60 mph being smaller in the after period than the before period.
- On I-240 from Merrimon (exit 5) to I-26 (exit 4) and on I-26 from I-240 to Broadway (exit 25), there appeared to be minimal impacts on average speeds. In the northbound direction, average speeds were similar in the before and after period and the amount of time in which average speeds dipped below 50 mph was similar. In the southbound direction, average speeds dropped by a few mph in the AM and PM peaks, but the amount of time in which average speeds dipped below 50 mph was smaller in the after period than the before period.
- On Broadway, Iteris ClearGuide data showed a slight increase in average speeds from before to after, which is in line with the spot speed studies collected on that route.
- Corridor speeds were pulled for five other routes with available data: Charlotte, Hillside, WT Weaver, Kimberly and Beaverdam. All showed no change to slight increases in average speeds throughout the course of the day.



Average speeds by time of day on I-26 Southbound from Merrimon to Broadway in fall 2023. Average speeds dip below 60 mph for roughly 1-hour on the weekdays, an improvement from fall 2021.