The City of Lorain, Ohio

DEPARTMENT OF ENGINEERING

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Dale Vandersommen, PE
City Engineer

August 1, 2022

Mr. David Kirschner
U.S. Department of Transportation Federal Highway
Administration Office of Operations (HOP)
Mail Stop: E86-205
1200 New Jersey Avenue, SE
Washington, DC 20590

Subject:
9(09)-120 (E) – Advisory Bicycle Lanes – Lorain, OH Experimentation
Report #1: August 1, 2022

Dear Mr. Kirschner:

The City of Lorain applied for Congestion Mitigation and Air Quality (CMAQ) funds via our Metropolitan Planning Organization (MPO), the Northeast Ohio Areawide Coordinating Agency (NOACA), in May of 2017. Utilizing those funds we completed the Washington Avenue Advisory Bike Lanes in October of 2021. This letter concerns the status of that project.

This is the first of 6 biannual reports on the Advisory Bike Lanes – FHWA experiment. Reports will be sent to your office of FHWA every August and February through 08/01/2025.

REPORT LAYOUT

This report will include a narrative that includes discussion of traffic counts, speed data, crash statistics, and bike/ped counts. The data included will be compare the current advisory bike lane roadway configuration to the previous conditions which did not accommodate bicyclists. Additionally, as this is the first report following the addition of advisory bicycle lanes, it will be used to establish a baseline for future reports.

In addition to the written report, all data will be attached as appendixes to the report.

CORRIDOR GEOMETRY

In the fall of 2021, The City of Lorain updated the pavement markings to include experimental bike lanes along Washington Avenue from the Railroad Crossing near W. 12th Street to W. Erie Ave., and from Highland Park Blvd. to W. 21st St. In additional to Washington Ave., experimental bike lanes markings were added from W. 26th. St. from Ashland Ave. to Oberlin Ave.

Prior to the fall of 2021, each of the aforementioned sections of the corridor contained two traditional travel lanes for motor vehicle traffic, with street parking on the east side of the road between the Railroad Crossing near W. 12th Street to W. Erie Ave., and no bike lane accommodations.

Following the fall of 2021, each of the aforementioned sections of the corridor included a single, center lane for motor vehicles, with advisory lanes on each side, and street parking on the east side of the road between the Railroad Crossing near W. 12th Street to W. Erie Ave.

Table 1 indicates the current geometry the three sections of the Advisory Bike Lane Corridor.

City	Street	Length (ft)	Center Lane Width (ft)	Advisory Lane Width (Ft)	Speed Limit (MPH)	AADT (VPD)
Lorain	Washington Ave. (Railroad to W. Erie Ave.)	2,160	16	5	25	2,100
Lorain	Washington Ave. (Highland Park Blvd. to W. 21st St.)	3,440	20	4.5	25	2,850
Lorain	W. 26th St. (Ashland Ave. to Oberlin Ave.)	950	16	5	25	400

Table 1: Cross-Sectional Geometry for Advisory Bike Lane Corridor Sections

TRAFFIC COUNTS

The City of Lorain has seen a slight decrease in vehicular traffic along the Washington Avenue corridor between May 2021 and June 2022. Northbound vehicle traffic decreased from 891 to 844 in a 13 hour period during this time period. Southbound vehicle traffic decreased from 909 to 742 during this time period.

The City of Lorain has seen large increases in bicycle traffic along the Washington Avenue corridor between May 2021 and June 2022. Northbound bicycle traffic increased from 28 to 62 in a 13 hour period during this time period. Southbound bicycle traffic increased from 9 to 36 during this time period.

Traffic counts can be viewed in Appendices A, B, and C.

	5/12/2021	9/16/2021	6/8/2022	Percent Change
Motor Vehicles (Northbound)	891	1116	844	-5.3%
Motor Vehicles (Southbound)	909	1022	742	-18.4%
Bicyclists (Northbound)	28	43	62	+121.4%
Bicyclists (Southbound)	9	27	36	+300.0%

Table 2: Vehicles per 13-Hour Period for Washington Avenue Corridor

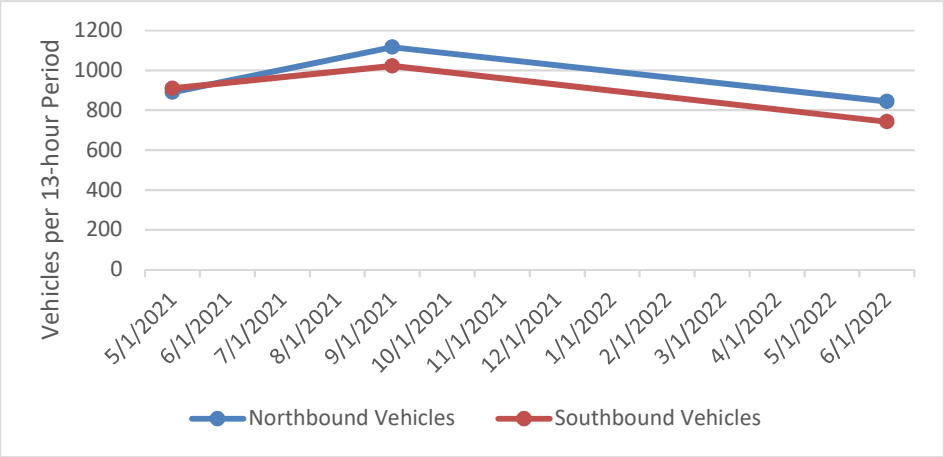


Figure 1: Motor Vehicle Traffic for 13-Hour Period along Washington Avenue Corridor

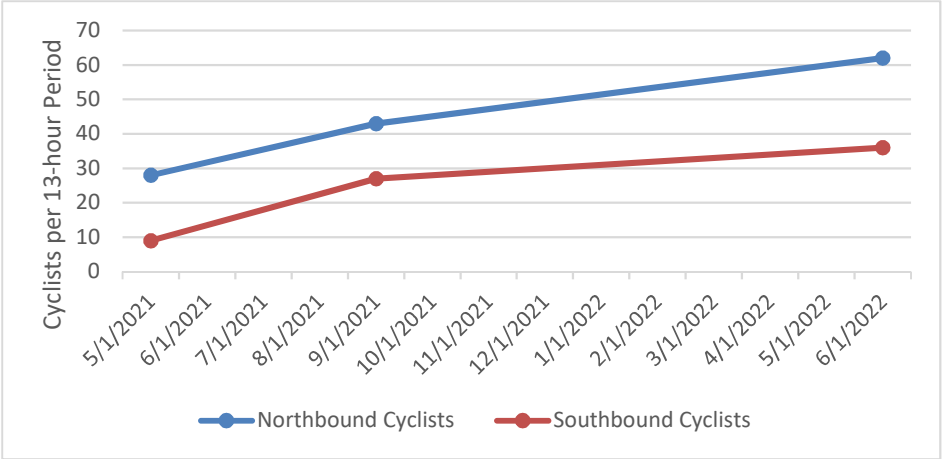


Figure 2: Bicyclist Traffic for 13-Hour Period along Washington Avenue Corridor

SPEED ANALYSIS

The City of Lorain has seen no change in vehicle speeds along the Washington Avenue corridor between August 2021 and May 2022. Northbound and southbound vehicle traffic speeds remained constant when observed over a 7-day period during this time period.

Speed analysis reports can be viewed in Appendices D and E.

	8/24/2021	5/17/2022	Percent change
Northbound Traffic Speed	24	24	0%
Southbound Traffic Speed	27	27	0%

Table 3: Average Motor Vehicle Speed along Washington Avenue Corridor

HISTORIC CRASH STATISTICS (2010-2021)

The historic crash statistics for the three sections of the Advisory Bike Lane Corridor were evaluated individually by utilizing the Ohio Department of Transportation's GCAT (Geographical Crash Analysis Tool).

Historically, the first section (Washington Avenue – West Erie Avenue to the Railroad) experiences on average 12.75 crashes per year. Historically, the second section (Washington Avenue – West 21st Street to Highland Park Drive) experiences on average 12 crashes per year. Historically, the third section (West 26th Street – Ashland Avenue to Oberlin Avenue) experiences on average 1.67 crashes per year.

The historic information is summarized in the below tables and figures:

Location	Year	Crashes	Average Crashes Per Year
Washington Ave. (RR to W. Erie Ave)	2010	19	12.75
	2011	14	
	2012	14	
	2013	8	
	2014	13	
	2015	9	
	2016	19	
	2017	11	
	2018	8	
	2019	14	
	2020	13	
	2021	11	
Washington Ave. (Highland Park to W. 21st St)	2010	12	12
	2011	8	
	2012	9	
	2013	7	
	2014	11	
	2015	11	
	2016	8	
	2017	14	
	2018	11	
	2019	20	
	2020	17	
	2021	16	
W. 26th St. (Ashland to Oberlin)	2010	0	1.67
	2011	2	
	2012	3	
	2013	1	
	2014	0	
	2015	2	
	2016	1	
	2017	2	
	2018	3	
	2019	4	
	2020	0	
	2021	2	

Table 4: Average Crashes per Year by Corridor Section.

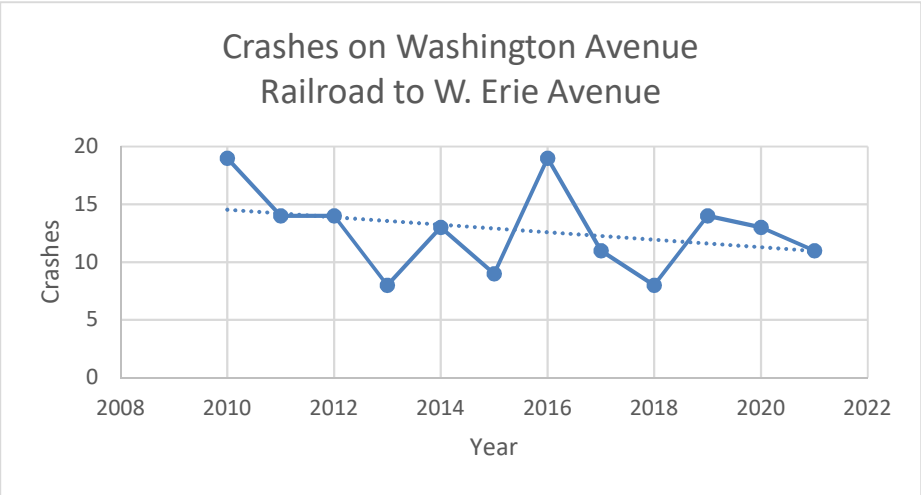


Figure 3: Crashes per Year on Washington Avenue Corridor from Railroad to W. Erie Avenue

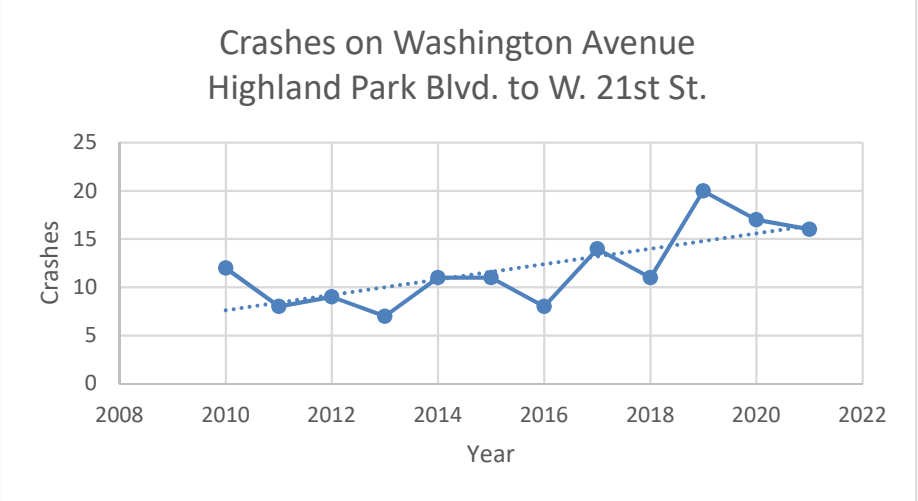


Figure 4: Crashes per Year on Washington Avenue Corridor from Highland Park Blvd. to W. 21st St.

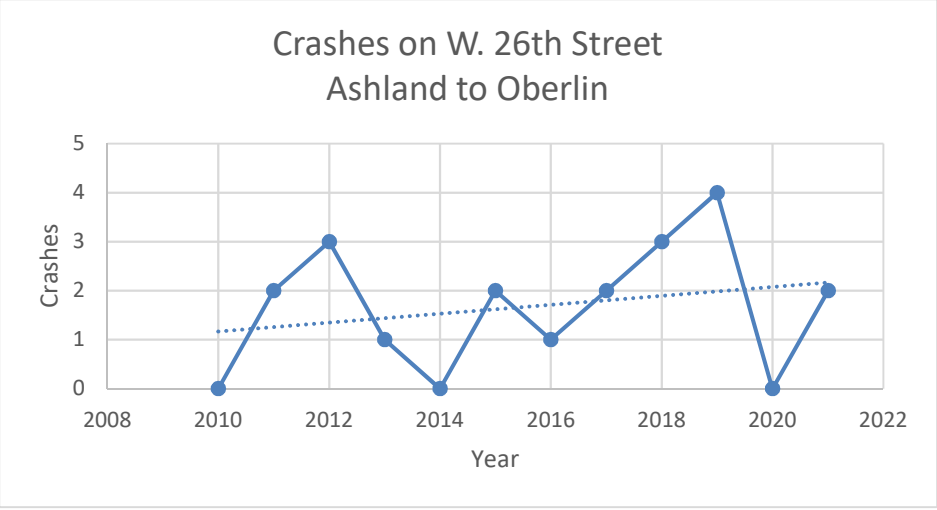


Figure 5: Crashes per Year on W. 26th St. from Ashland Ave. to Oberlin Ave.

2022 Crash Statistics

The 2022 crash statistics for the three sections of the Advisory Bike Lane Corridor are currently available by utilizing the Ohio Department of Transportation's GCAT (Geographical Crash Analysis Tool). Also, traffic crash reports were able to be accessed via the Ohio Department of Transportation to evaluate the crashes to date.

The first section (Washington Avenue – West Erie Avenue to the Railroad) experienced 8 crashes between January 1, 2022 and July 1, 2022. The second section (Washington Avenue – West 21st Street to Highland Park Drive) experienced 5 crashes between January 1, 2022 and July 1, 2022. The third section (West 26th Street – Ashland Avenue to Oberlin Avenue) experienced 0 crashes between January 1, 2022 and July 1, 2022.

Extrapolating the crash data linearly for the entire year of 2022, the first section (Washington Avenue – West Erie Avenue to the Railroad) could be expected to experience 16 crashes in 2022. The second section (Washington Avenue – West 21st Street to Highland Park Drive) could be expected to experience 10 crashes in 2022. The third section (West 26th Street – Ashland Avenue to Oberlin Avenue) could be expected to experience 0 crashes 2022.

Bicycle And Pedestrian Counts

The City of Lorain has seen a large increase bicycle traffic along the Washington Avenue corridor between May 2021 and May 2022. Bicycle traffic increased from 6 to 15 in a 2 hour period during this time period.

Additionally, the City of Lorain has seen an increase in pedestrian traffic along the Washington Avenue corridor between May 2021 and May 2022. Pedestrian traffic increased from 19 to 24 in a 2 hour period during this time period.

Bicyle and pedestrian counts can be viewed in Appendix F.

	5/11/2021	5/12/2021	9/16/2021	9/16/2021	5/10/2022	Percent Change
Bike Total	6	8	19	15	15	150.0%
Bike Male	6	8	15	14	14	
Bike Female	0	0	4	1	1	
Bike No Helmet	6	8	19	14	13	
Bike on Sidewalk	3	3	6	9	7	
Pedestrian Total	19	14	42	67	24	26.3%
Other (Micromobility devices)	0	0	0	3	1	
Total Bike-Pedestrian-Other	25	22	61	85	40	

Table 5: Bicycle and Pedestriran Counts per 2-Hour Period

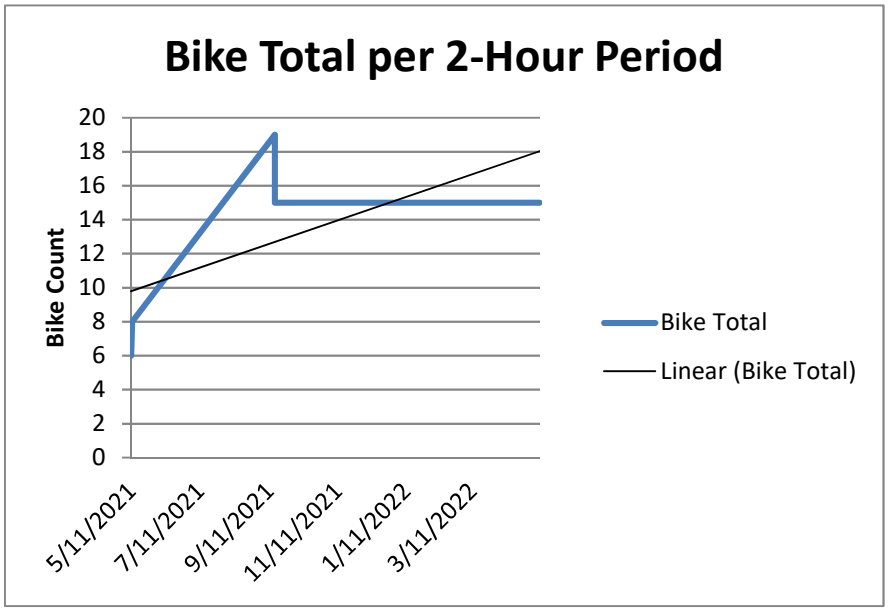


Figure 6: Bike Total per 2-Hour Period

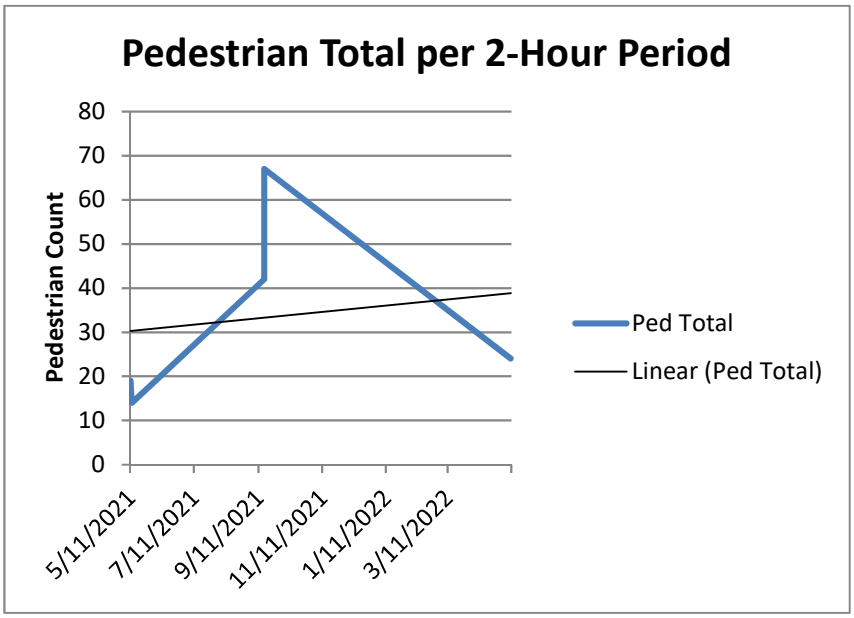


Figure 7: Pedestrian Total per 2-Hour Period

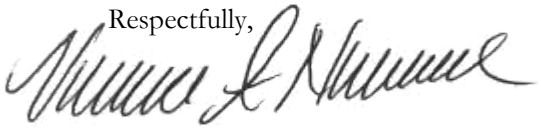
EVALUATION

- Bicycle Volume
  - Bicycle volume has gone up since the installation of the Washington Avenue Advisory Bike lanes
- Vehicular Volume and Speed
  - Vehicular volume has shown a slight decrease. Vehicle speeds remain the same.
- Where do bicyclists tend to ride? Does this vary by the presence of parked or oncoming vehicles?
  - Bicycles tend to ride on either the sidewalk or the advisory lanes. Smaller children and the aged tend to favor the sidewalk. Parked vehicles do not seem to affect the bicycle patterns as riders are in the advisory lanes or on the sidewalk.
- Where do motorists tend to drive? Does this vary by the presence of bicyclists or oncoming vehicles?
  - Drivers tend to drive directly in the middle of the roadway. Initially drivers utilized the advisory bike lanes, as they were more accustomed to driving on the right of the previously existing centerline of the roadway. As drivers became more familiar with the advisory bike lanes, they began to utilize the center driving lane predominately, only utilizing the advisory lanes when approaching oncoming traffic.
  - It is possible that northbound drivers feel more comfortable utilizing the advisory lanes because the parking lane creates additional space between the advisory bike lane and the edge of pavement. Conversely, the southbound advisory bike lanes are immediately next to the edge pavement which creates a less comfortable advisory bike lane. As a result, it has been observed that northbound drivers tend to utilize the advisory bike lanes more than southbound drivers when both are passing.
- Are motorists yielding to bicyclists before merging into the advisory bike lane?
  - Motorists are yielding to bicyclists in the advisory lanes.
- When motorists overtake bicyclists, are they leaving a safe passing distance? Especially important as Ohio is a 3 foot rule state.
  - Safe passing distance is being adhered to. Overall drivers tend to give way more than the required 3 feet.
- Do the advisory bike lanes and lack of centerline appear to create conflicts among bicyclists and motorists?
  - There was a time of adjustment for motorists and cyclists to understand the advisory bike lanes. After this time of transition of approximately the one month, the patterns of drivers and cyclists seem to be consistent.
- Are bicyclists using the treatment as intended?
  - Yes. However, as stated some cyclists still prefer the sidewalk due to age.

- Are motorists using the treatment as intended?
  - Yes.

Thank you reviewing our report on the experiment with advisory bike lanes on Washington Avenue. If I can provide any further information, please email me at veronica_newsome@cityoflorain.org or call me at (440) 204-2003.

Respectfully,



Veronica A. Newsome, P.E.
Staff Engineer