Appendix D

MEMORANDUM

TO: Transportation Commission

FROM: Cynthia Redinger, PE, PTOE – Transportation Engineer

DATE: July 15, 2019 (revised July 23, 2019)

SUBJECT: **Responses to comments and concerns from City Council and the Transportation Commission**

This memorandum is provided to you in order to answer specific comments or concerns raised during the City Council meeting on June 3, 2019, and at the Transportation Commission meeting on June 19, 2019. Transportation staff have prepared the information presented in this document for your consideration.

The comments from City Council and questions from the Transportation Commission seemed to focus on performance metrics, staff processes regarding public input, and miscellaneous items. The remainder of this document will be structured around these three larger areas.

Performance Metrics

Many comments were made regarding lane reduction performance measures. Comments centered on items such as how it is determined if a lane conversion has been successful, how are lane conversions performing in the City of Ann Arbor, and how do the City's projects compare to other case studies. The main performance measures for a lane conversion project are the same as those used in identifying viability of a project in the first place. The main items used by the City staff, from Federal Highway Administration (FHWA) guidance, include:

Consideration	**What it means**	**Measure of effectiveness (MOE)**
Average Daily Traffic Volume (ADT) <20,000 veh.	This guideline is general. It helps quickly find locations that would be unsuitable for lane conversions. It also helps to find locations with high trip density during the peak travel hour where the design may be a disadvantage during off-peak hours.	MOE: Daily Volume Data Collection: Periodically collect vehicular travel counts.

Peak Hour Traffic Volume <1750 veh. *Peak hour directional volume <750 veh.*	These guidelines helps to determine if the peak hour operations will not fall below industry standard operations during the busiest hour of the day. This guideline is supplemented by detail intersection modeling.	MOE: Peak Hour Volume, Vehicular Level of Service (LOS), Vehicular Travel Time, Vehicular Volume to Capacity Ratio (v/c) Data Collection: Periodically collect vehicular travel counts; verify that build-out operations are consistent with LOS (delay) and travel times predicted by modeling. Note: Travel time data collected for N. Maple Road is included in the Appendix
Traffic signal density *Transit usage* *Parking usage* *Railroad crossings* *Driveway/intersection conflicts*	These guidelines help to inform how people driving vehicles will flow through the corridor and what their user experience will be. Corridors with a high density of conflicts due to many parking maneuvers (e.g. high turnover parallel parking), extremely dense high volume commercial driveways, or transit transfer centers would impact the user experience of people driving cars.	MOE: None. Usually tied to land use. Data Collection: None. Indirectly impacts LOS for people driving vehicles
Speed	A typical desired outcome for a lane conversion project is slower speed choice by people driving vehicles. When people make errors using the transportation system, the speed of the person driving a vehicle is an extremely important factor in the outcome of a resulting crash. Lane conversion projects are an important tool in the speed management toolbox and help us move together towards City Council's vision of zero transportation fatalities by 2025.	MOE: 85^{th} percentile speed Data Collection: Collect data before and after the conversion.

Pedestrian and bike traffic	A typical desired outcome for a lane conversion project is an increase in people walking and people riding bicycles. Often a street suitable for a lane conversion does not have comfortable spaces for people who otherwise might choose to walk or bike. The lane conversion provides these spaces for individuals. Sometimes the most significant increases in this type of activity are during off-peak and weekend hours.	MOE: Number of people walking or bicycling Data Collection: Count the number of people walking or bicycling
Effect on parallel routes	This consideration is important for locations within full or near-full grid street patterns. If a street has a nearly identical parallel route, people driving vehicles may choose the parallel route.	MOE: Vehicle volume on route and parallel route(s) Data Collection: Periodically collect vehicular travel counts. Note: See case studies in the Appendix.
Road width	Road width is a significant factor in determining what the final design could be.	MOE: None Data Collection: None
Crash history	Lane conversion projects, also known as road diets, are an identified proven safety countermeasures by FHWA. Projects of this nature, which convert 4 lanes to 3 lanes, can be expected to have (from FHWA): • *An overall crash reduction of 19 to 47 percent.* • *Reduction of rear-end and left-turn crashes due to the dedicated left-turn lane* • *Reduced right-angle crashes as side street motorists cross three versus four travel lanes.*	MOE: Reported crashes Data Collection: Before and after crash data, raw and rolling five year average data Note: See before and after crash comparisons in the appendix.

• *Fewer lanes for pedestrians to cross.* • *Continued.* • *Opportunity to install pedestrian refuge islands, bicycle lanes, on-street parking, or transit stops.* • *Traffic calming and more consistent speeds.* • *A more community-focused, "Complete Streets" environment that better accommodates the needs of all road users.*	

The FHWA guidebook on lane conversions (road diets) also notes that the Quality of Service is a most important consideration. Quality of Service, discussed in section *3.3.4 Quality of Service*, must be considered in a complete manner consistent with all ways people use the street.

- People walking are likely to experience an improved level of service (LOS) due to fewer vehicular travel lanes to cross, lower speed choice from people driving vehicles, and more physical separation from people driving vehicles.
- People bicycling are also expected to have an increase in LOS as a result of some of the same factors, especially reduced speed choice, as well as the addition of dedicated operating space for people choosing to bicycle.
- People driving vehicles will experience some changes to their operating environment, but corridors without frequent traffic signals and other disruptions to traffic flow (see above) will not experience significant changes to their level of service.

During the City Council meeting it was cited that staff have not produced documents reporting on the outcomes of previous lane conversions throughout the City. Many of these road diets have been in place for more than 10 years; examples are Glazier Way, Green to Earhart, and Platt Street between Packard Road and I-94. City staff monitored these locations after installation, much as staff currently are; however, formal reports were not produced and retained. The most recent lane conversions, Stone School Road (Eisenhower to Packard) and N. Maple (Dexter to M-14), are currently being monitored. Staff have performed travel time evaluations and made incremental adjustments to traffic signal timing plans in response to concerns and observations. Neither of these projects have been in place long enough to conduct full before and after crash data analyses.

A series of case studies have been prepared for your use in understanding how projects similar to those implemented in the City, or proposed, have performed in other locations. The case studies are attached to this memo in Appendix.

Staff Processes: Public Engagement

City of Ann Arbor staff are committed to engaging with the community. Community engagement happens on many levels including policy changes, project scoping refinement, and project implementation. Community engagement typically falls under three general categories. These categories are:

- Policy engagement
- Formal project engagement
- Informal daily engagement

The Community Engagement Toolkit is the City's strategy for guiding the engagement process. The toolkit is used to form the engagement strategy for policy changes and formal project engagement. The toolkit contains the following steps:

- Step 1 – Prepare to meet with your internal team
- Step 2 – Develop your Community Engagement Action Plan
- Step 3 – Refine Key Stakeholders List and define roles
- Step 4 – (Post Engagement) analyze and record engagement outcomes

The toolkit is designed to be flexible and applies to projects of all sizes. The toolkit was used for the resurfacing program which included Green Road and Traverwood Drive, and for Earhart Road which is a stand-alone project. Additional information on the application of community engagement can be found in the memo from Howard Lazarus to City Council on September 24, 2018 in response to Resolution R-18-275.

Each new project involves some form of each of the above types of engagement. Policy level engagement occurred during the development of the City's Non-Motorized Plan Update (2013). Early project public engagement occurs during the Capital Improvement Plan process, which includes the Planning Commission and public hearings; and project specific formal public engagement begins once design has started, which includes the Transportation Commission, public meetings, and opportunities for individual feedback.

Staff utilize public comments and questions in a variety of ways. The top priority for staff reviewing public commentary is to identify transportation system user problems that are not being addressed in the project. An example of this type of issue identification comes from the Green Road project. During the public open house we received feedback that included the request for more opportunities to cross Green Road between Burbank Drive and Plymouth Road. While the scheduled pavement preservation work, i.e. surface treatment, does not include concrete work, staff were able to add these requests to the sidewalk program for prioritization and future installation.

Another important source of individual public comments come from the interactions staff have with residents on a routine basis. Concerns and comments are received from the public through a variety of means. These concerns and comments often involve requests for longer term outcomes. These customer comments are logged, typically in CityWorks or the Street Files, for use when renewal or replacement projects are planned.

Customer comments that are received begin helping to shape the projects, sometimes before they are even formally presented to the public. Each of the projects covered by this memo are excellent examples of this process.

Earhart Road:

Staff had already received a resident request, formally submitted by Councilmember Lumm, for an increased level of traffic control at the intersection. The request asked that traffic signalization or a roundabout be considered at this location. The request was in Transportation's open items working queue, and in progress, when staff were directed to review the outstanding lane conversion location from the 2013 Non-Motorized Plan update, Figure 5.1B-Near-term Opportunities – Proposed Road Changes on page 163. The work of analyzing conditions at the intersection was incorporated into the remainder of the corridor analysis.

Traverwood Drive:

Traverwood Drive was scheduled to be part of the 2019 Annual Resurfacing Program. All of the project locations in this program are reviewed for known concerns/comments from residents, unmet elements from the City's Non-motorized Plan, and potential systemic safety improvements. This corridor has a history of requests identifying concerns with the ground slope next to the library's parallel parking, requests stating concerns about non-library patrons using the library spaces (indicating unmet parking demand), and requests for flexible parking to be allowed on the street during services and holidays. The corridor is identified as a neighborhood connector on the City's Bike Map and as a shared use path corridor. Staff were able to develop a project that took these concerns into account. Subsequent concerns have been brought forward, but people riding bicycles will have the option to use the low-stress option of the off-road shared use path.

Green Road:

During the public meeting staff heard some interesting feedback from residents who sometime choose to bicycle and sometimes choose to drive. These residents were very supportive of buffered bike lanes and felt that the inclusion in the pavement renewal project would be very beneficial to the trips they take by bicycle; however, they were very concerned about losing the dedicated right turn lane on southbound Green Road at Plymouth Road. These comments challenged staff to come back to the Design and Transportation teams to create another solution. Thus staff's recommended design will provide the dedicated space for people bicycling as well as maintain the current capacity of the southbound Green Road approach to Plymouth Road.

Miscellaneous Items

Traverwood Drive Parking:

During the City Council meeting staff were asked how many new parking spaces the project would be providing. The answer to this question is 71 spaces.

Why create bike lanes when we could be repairing pavement?:

Comments were made addressing resident concerns that the City was spending money to create facilities for corridors that have a small number of people bicycling when money could be redirected towards pavement repairs. The Traverwood Drive and Green Road projects are part of pavement renewals, which will require completely new pavement markings anyway. These projects are providing an opportunity to make these changes without needing to pay for existing pavement marking renewals. Additionally, the Earhart Road project is intended to utilize tactical urbanism (see below) to test the design concept prior to a planned resurfacing project.

Tactical urbanism allows the City to use a deliberate, phased approach to make major changes in the built environment. This process is being used by cities throughout the country to make safety improvements with low-cost materials. It allows staff the opportunity to test, and possibly refine, a design before making a major capital improvement investment.

Why create bike lanes when no one is biking there?

The concern was raised that some residents report seeing very few people bicycling on some of these corridors, and more information was requested on why building bicycling infrastructure is important. Staff submits the following for your consideration.

According to the League of American Bicyclists, in the 2017 Where We Ride report, Ann Arbor is in the national top five list for cities sized between 100,000 to 200,000 people. As shown in the table below, data sourced from the report, over 5% of our commuters travel by bike (over 18% by walking). This rate is a significant increase over the 2000 Census rate of 2.39 %. It is also significantly higher than the 2013-17 five year average census statistics of 0.4% for Michigan and 0.6% Nationwide.

Location	Population	% who bike	# who bike	% who walk
1. Boulder, CO	107128	10.70%	6141	10.80%
2. CAMBRIDGE, MA	113631	8.20%	5335	23.50%
3. BERKELEY, CA	122334	7.90%	4846	19.80%
4. FORT COLLINS, CO	165089	5.40%	4682	3.40%
5. ANN ARBOR, MI	121461	5.10%	3257	18.40%
6. EUGENE, OR	168909	4.40%	3663	7.00%
7. GAINESVILLE, FL	132253	4.40%	2849	6.70%

Building out the bicycle network, and providing higher level design for bicycling facilities, has been shown to generate better safety outcomes for all transportation modes in research completed by the University of Colorado Denver. The research was conducted with 13 years of data from 12 major U.S. cities with percentages of people bicycling Denver, Dallas, Portland, Ore., and Kansas City, Mo. A sample of the fatal crash reductions observed include:

- Portland, Ore., 75%
- Seattle, 60.6%
- San Francisco, 49.3%
- Denver, 40.3%
- Chicago, 38.2%

These safety outcomes are in line with Vision Zero, and City Council's desire for zero transportation fatalities by 2025.

Impacts of the Future Nixon Road Construction

The City has completed a corridor study for Nixon Road between Huron Parkway and city limits. This study recommended the construction of a series of roundabouts on Nixon Road. Concerns were brought up regarding the revised section's ability to carry the additional traffic from a Nixon Road closure. Detoured vehicle operations were modeled. The results are shown below.

	Level of Service	*Delay (s/v)*	*Volume/Capacity*
Green Rd. at Plymouth (SB) *AM Peak*	• Current: E • w/ Detour: E • *After: E* • *w/ Detour: E*	• Current: 55.0 • w/ Detour: 60.4 • *After: 59.4* • *w/ Detour: 74.2*	• Current: 0.22 • w/ Detour: 1.00 • *After: 0.32* • *w/ Detour: 0.99*
PM Peak	• Current: E • w/ Detour: E • *After: E* • *w/ Detour: E*	• Current: 60.6 • w/ Detour: 70.9 • *After: 67.2* • *w/ Detour: 81.7*	• Current: 0.93 • w/ Detour: 1.00 • *After: 0.96* • *w/ Detour: 1.03*
*Traverwood Dr. at Plymouth (SB)** *AM Peak*	• Current: C • w/ Detour: C • *After: C* • *w/ Detour: C*	• Current: 26.4 • w/ Detour: 23.9 • *After: 25.3* • *w/ Detour: 24.4*	• Current: 0.16 • w/ Detour: 0.53 • *After: 0.17* • *w/ Detour: 0.56*
PM Peak	• Current: C • w/ Detour: C • *After: C* • *w/ Detour: C*	• Current: 26.2 • w/ Detour: 24.1 • *After: 25.6* • *w/ Detour: 30.0*	• Current: 0.57 • w/ Detour: 0.71 • *After: 0.68* • *w/ Detour: 0.80*

**Notes: a.) "After" conditions analysis include a single left-thru lane, as considered in the original analysis. The results are shown this way to be consistent with previously presented results although detailed design decisions lead to retaining both the left and right turn lanes. b.) Delay is reported as an average for the approach. Detour conditions show a drop in delays due to the increase in right turning vehicles with lower delays.*

How are other lane conversions in the area performing?

City staff reached out to the Southeast Michigan Council of Governments (SEMCOG) for additional information on the performance of regional lane conversion projects. SEMCOG provided data for six locations:

- W. Seven Mile Rd., Inkster Rd. to Grand River Ave., Wayne County
- N. Dixie Hwy., Circle Dr. to E. Elm Ave., Monroe
- W. Nine Mile Rd., Pinecrest Dr. to Livernois St., Ferndale
- E. Nine Mile Rd., Woodward Ave. to Pilgrim Ave., Ferndale
- W. Huron River Dr., N. Hewitt Rd. to Cornell Rd., Washtenaw County Road Commission
- S. Hewitt Rd., Packard Rd. to Ellsworth Rd., Washtenaw County Road Commission

				Annual Average Crashes		Annual Avg. Fatal & Serious Injury Crashes		
Location	Limits	Bike Lanes?	Year Installed	5 Years Before	After	5 Years Before	After	Years After
Seven Mile Rd	Inkster Rd to Grand River Ave	No	2011	32.4	34.1	1	0.4	7
Dixie Hwy	Circle Dr to Elm Ave	Yes	2013	13	10.6	0.8	0.2	5
Nine Mile Rd	Pinecrest Dr to Livernois St	No	2013	6.2	5.6	0	0.2	5
Nine Mile Rd	Woodward Ave to Pilgrim Ave	Yes	2015	24.4	33	0.4	0.3	3
Huron River Dr	N Hewitt Rd to Conell Rd	Yes	2015	29	28.7	1.2	0.3	3
Hewitt Rd	Packard Rd to Ellsworth Rd	Yes	2015	36.2	32.7	1	0.7	3

22 Denotes a location with an increase, or an undesirable outcome.

As shown above, most of the locations have had desirable crash performance. Seven Mile and Nine mile, Woodward to Pilgrim, have seen an increase in annual average; however, each of these locations saw a reduction in the number of serious injury crashes. Nine Mile, Pinecrest to Livernois, saw a very minor increase in serious injury crashes but had an overall reduction in the number of crashes.

Lighting Design

Comments were made about lighting conditions at numerous locations within the corridors. No new crosswalks are being established with these projects. Traverwood Dr. and Green Road will not have any additional street lights. Street lights at existing locations are addressed through the street light asset management group; street lights are planned for the Earhart Road corridor (as noted on the plans) to address roundabout lighting needs.

Crosswalk Design

Questions were raised about crosswalk design at several locations. In particular, requests for rectangular rapid flashing beacons (RRFBs) were made in several locations. The final designs for crosswalks will be made in accordance with the City's crosswalk design guidelines.

Attachments: Appendix

cc: N. Hutchinson, File

Appendix

Maple Road Segment Travel Times-Spring 2019

Road segment is on Maple Rd from Dexter Ave to southern-most roadabout at M-14 bridge, including ques on either end of road segment.

North

Date	Real-Time	Distance (ft)	Distance (mi)	Time Elapsed (min:sec)	Time Elapsed (hr)	Speed (mph)
6/4/2019	17:08	5988	1.13	02:50	0.05	24
6/4/2019	17:25	5724	1.08	05:06	0.09	13
6/4/2019	17:43	5290	1.00	01:49	0.03	33
6/5/2019	8:22	5374	1.02	03:09	0.05	19
6/5/2019	8:39	5301	1.00	02:22	0.04	25
6/5/2019	17:00	5953	1.13	04:02	0.07	17
6/5/2019	17:09	5588	1.06	05:26	0.09	12
6/5/2019	17:19	5504	1.04	05:09	0.09	12
6/6/2019	7:40	5291	1.00	05:34	0.09	11
6/6/2019	7:53	5278	1.00	02:11	0.04	27
6/6/2019	8:03	5300	1.00	01:56	0.03	30
6/13/2019	7:45	5458	1.03	03:02	0.05	20
6/13/2019	7:59	5221	0.99	01:49	0.03	33
6/13/2019	8:09	5277	1.00	01:42	0.03	35
6/13/2019	17:00	5885	1.11	02:31	0.04	27
6/13/2019	17:09	5412	1.03	03:03	0.05	20
6/13/2019	17:19	5501	1.04	04:46	0.08	13

Travel Stats

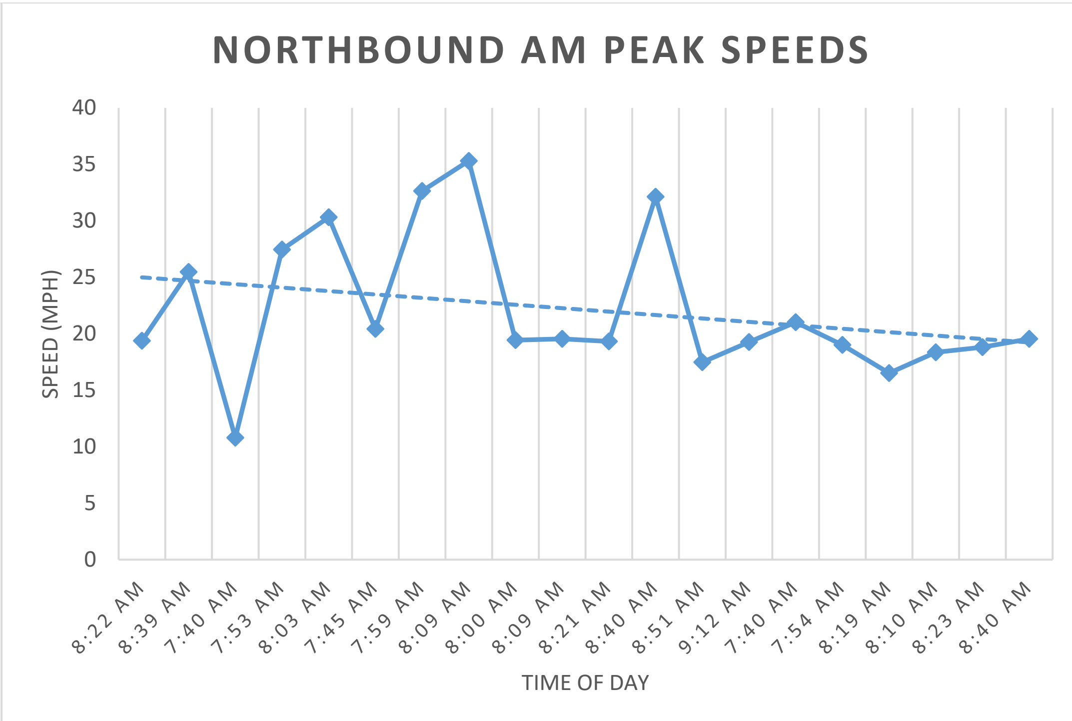
Direction	AM/PM	Avergage Time (min:sec)	Avergae Distance (ft)	Min Speed (mph)	Max Speed(mph)	Average Speed (mph)
North	PM	3:51	5649.4	12	33	19
North	AM	2:43	5312.5	11	35	25
South	PM	2:59	5289.7	17	30	21
South	AM	5:23	5299.8	9	17	12

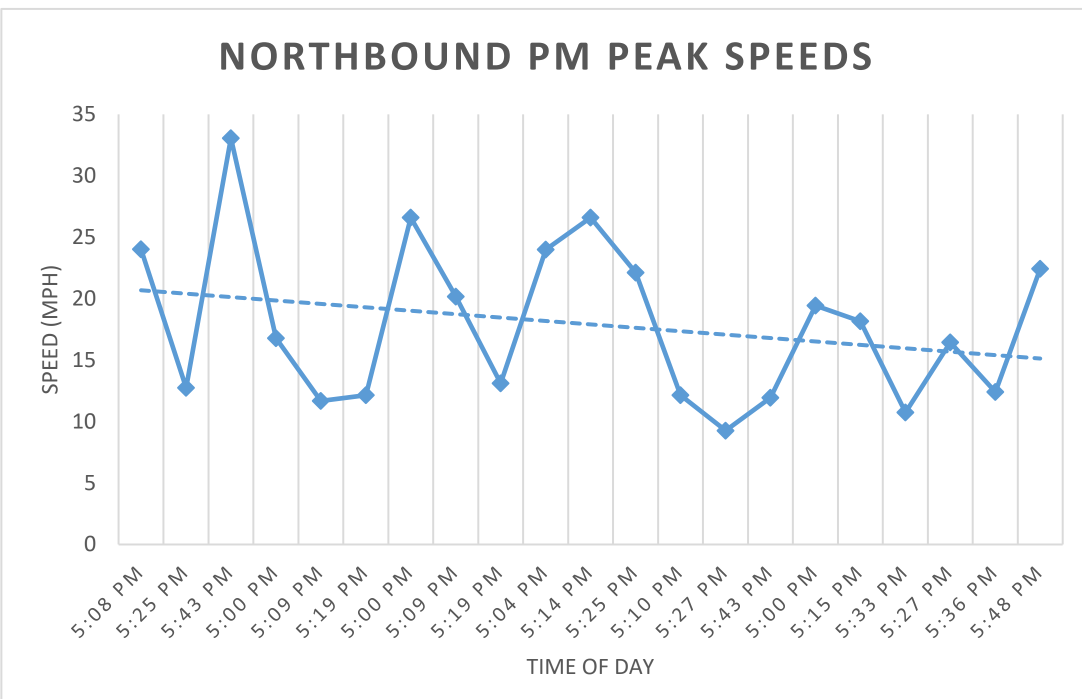
South

Date	Real-Time	Distance (ft)	Distance (mi)	Time Elapsed (min:sec)	Time Elapsed (hr)	Speed (mph)
6/4/2019	16:59	5310	1.01	03:24	0.06	18
6/4/2019	17:13	5289	1.00	03:36	0.06	17
6/4/2019	17:32	5358	1.01	02:01	0.03	30
6/5/2019	8:27	5262	1.00	06:32	0.11	9
6/5/2019	8:42	5225	0.99	04:28	0.08	12
6/5/2019	17:06	5361	1.02	02:30	0.04	24
6/5/2019	17:15	5247	0.99	02:15	0.04	27
6/5/2019	17:25	5226	0.99	03:43	0.06	16
6/6/2019	7:47	5305	1.00	04:33	0.08	13
6/6/2019	7:56	5324	1.01	04:59	0.08	12
6/6/2019	8:08	5285	1.00	05:58	0.10	10
6/13/2019	7:50	5345	1.01	07:08	0.12	9
6/13/2019	8:02	5321	1.01	06:01	0.10	10
6/13/2019	8:12	5331	1.01	03:29	0.06	17
6/13/2019	17:04	5322	1.01	0:02:46	0.05	22
6/13/2019	17:13	5291	1.00	03:08	0.05	19
6/13/2019	17:25	5203	0.99	0:03:25	0.06	17

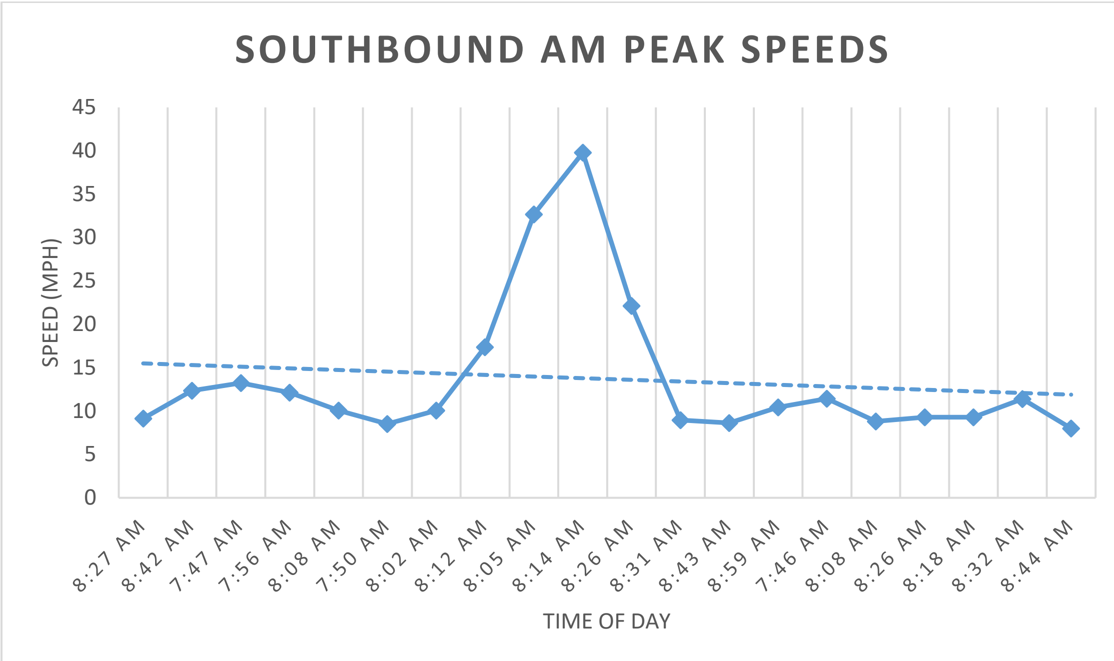
Maple Rd. Travel Times/Speeds Graphs

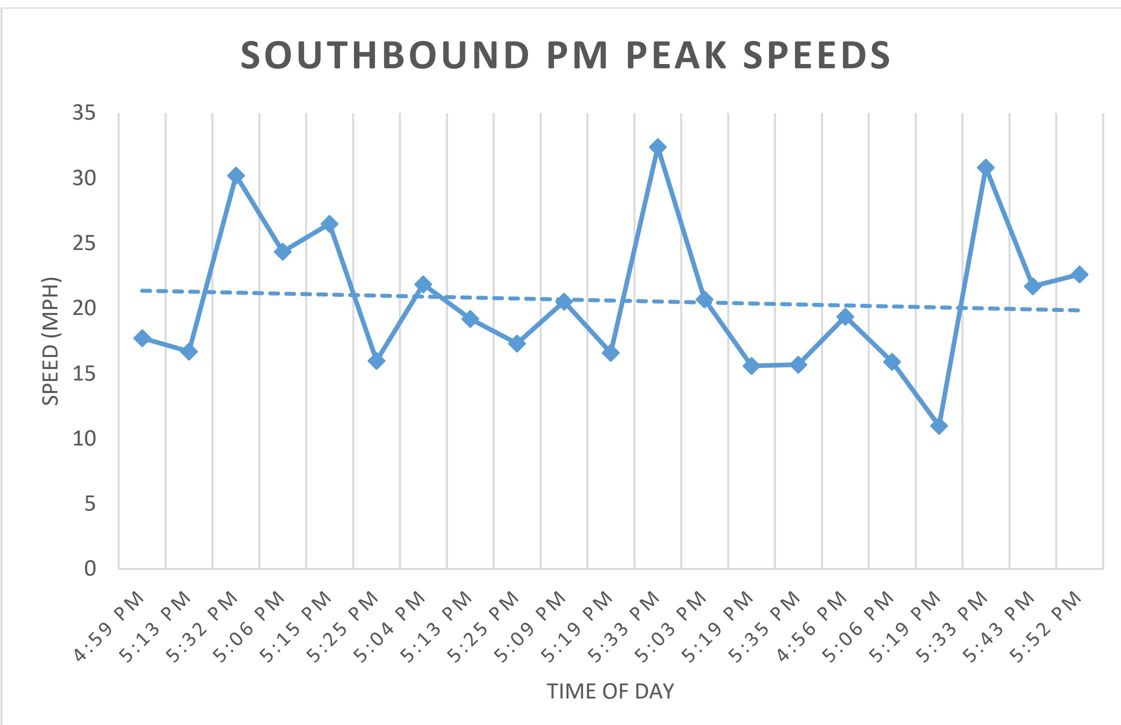
Northbound Speeds:



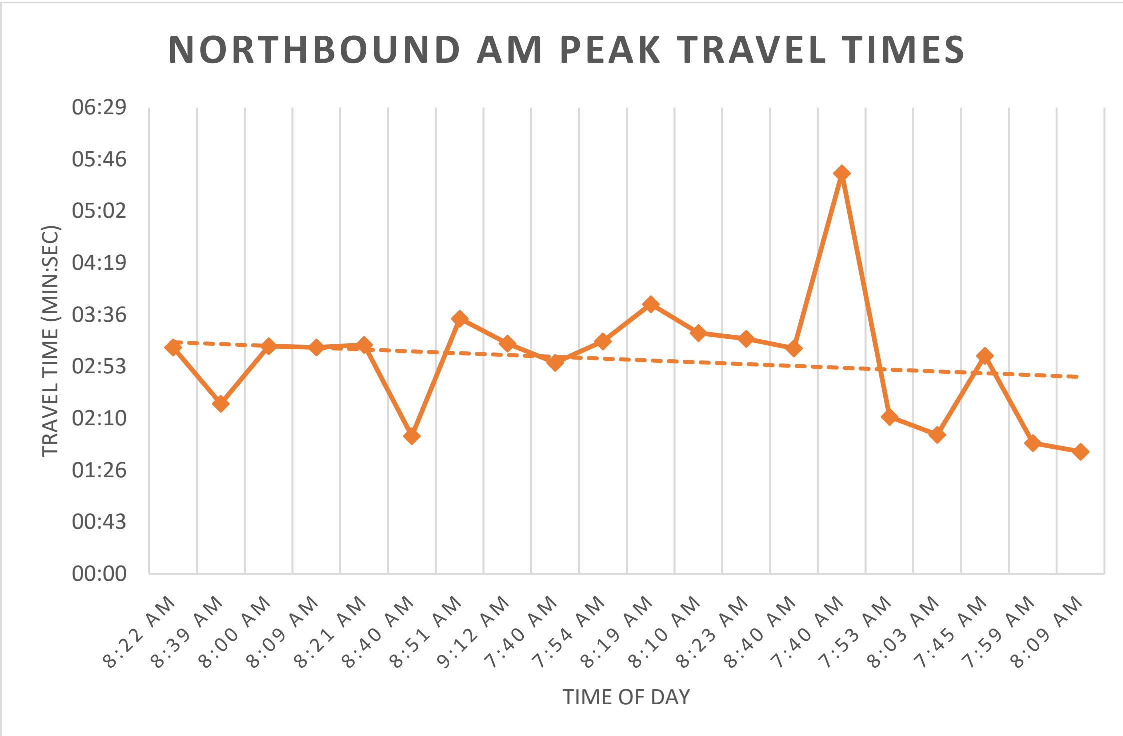


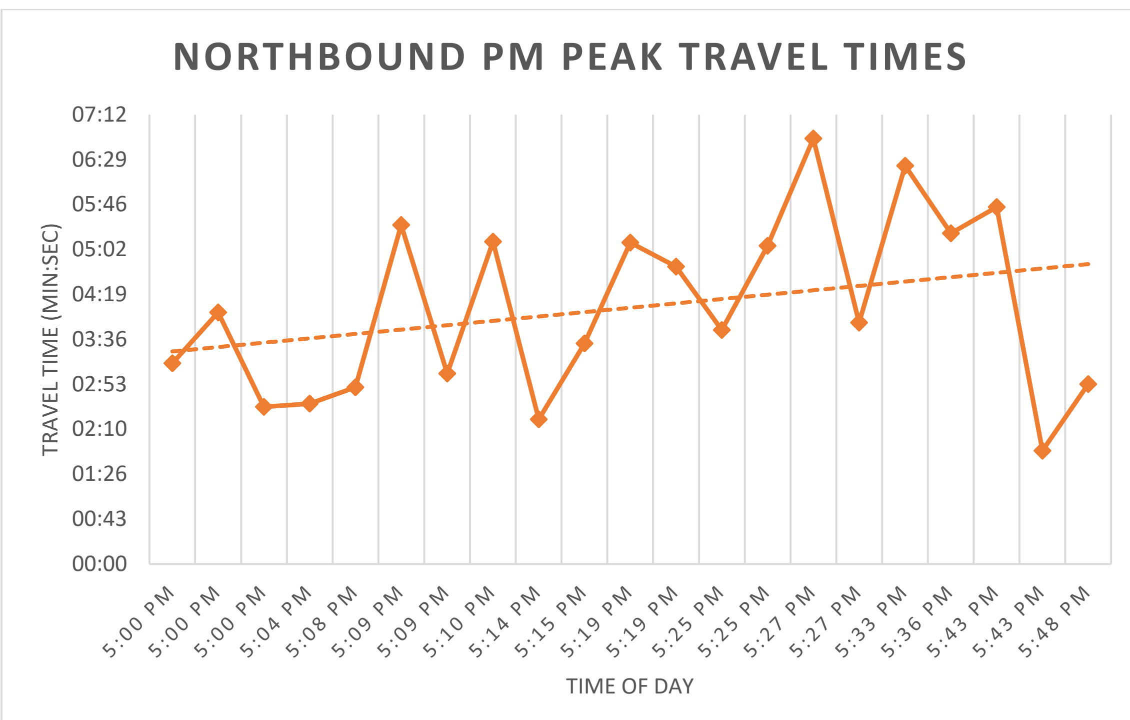
Southbound Speeds:



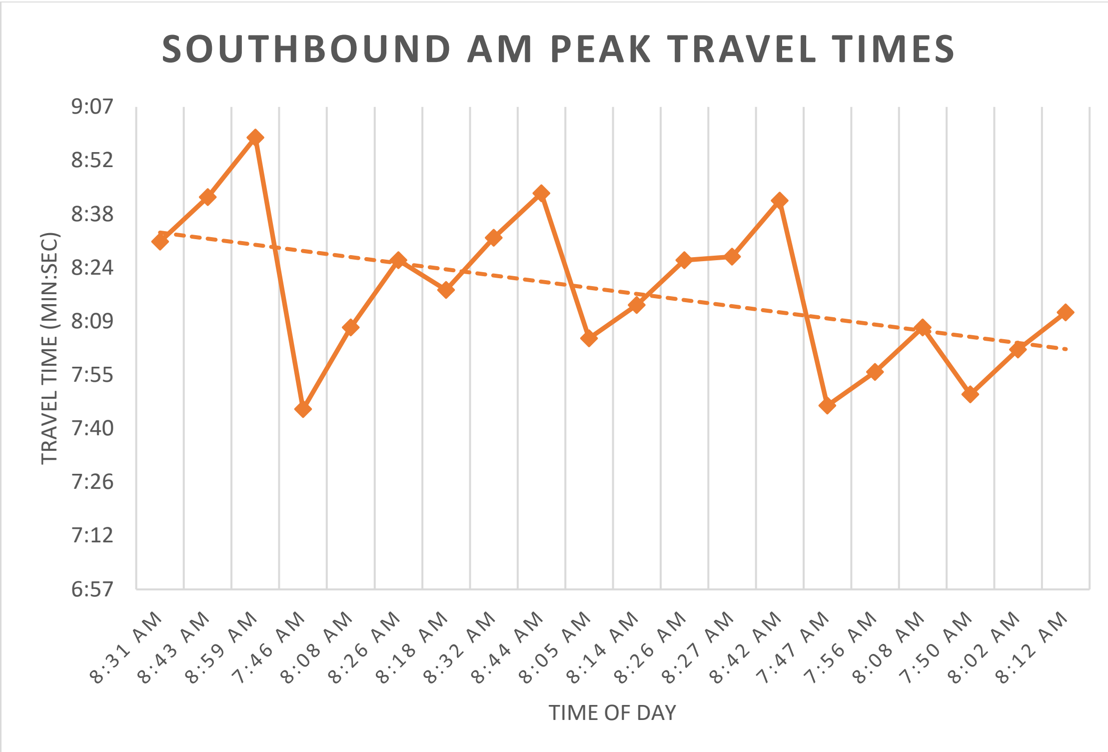


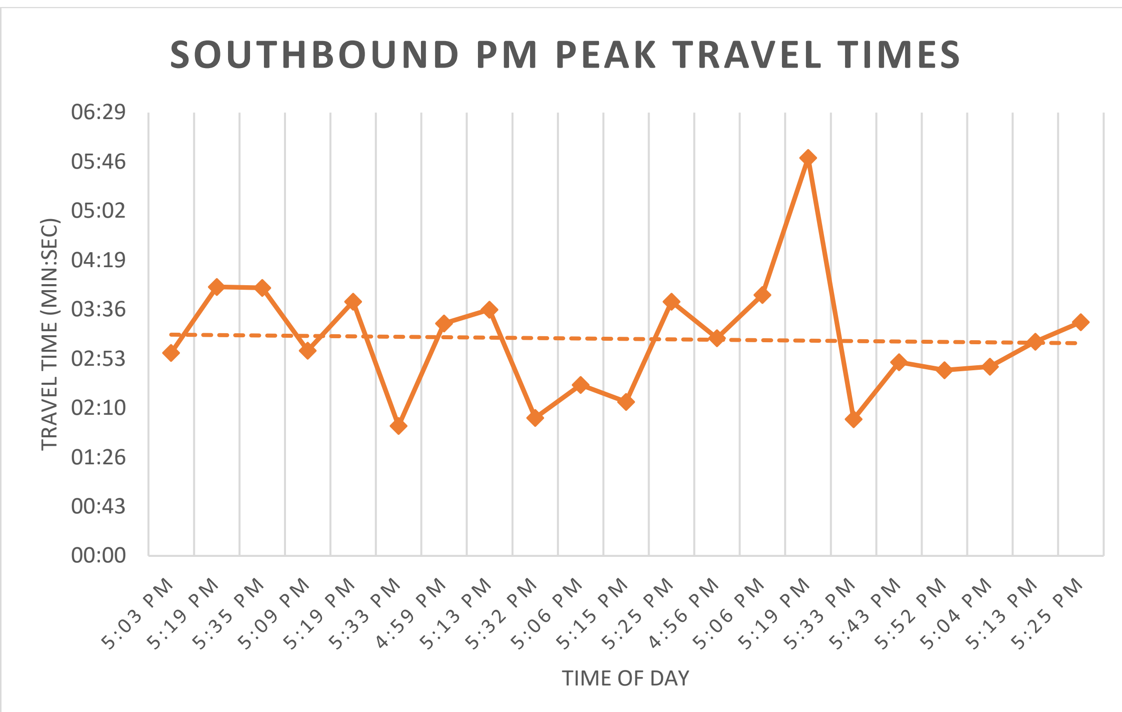
Northbound Travel Times:





Southbound Travel Times:





Stadium Boulevard, Pauline Blvd. to Seventh St.: 1 Year Survey Responses

Card Number	Satisfied		Comments
	yes	no	
1	x		
2	x		
3	x		
4	x		Very pleased with the 3 lanes and less heavy truck traffic most of the time. Less noisy and less pollution. All is well. Thank you very much.
5	x		
6	x		
7	x		**Survey card comments:** I at 1415 W. Stadium one of the few houses with driveways ON stadium. It is much safer to enter my driveway, and easier when eastbound, with the reduced lane and bike lane. My only complaint was that the grass between the sidewalk and street was not re-seeded, as well as construction debris and gravel left behind. I contacted Elizabeth Rolla several times from fall '10 through July of '11, I was told that the job would be completed, but it's 2016 and I'm still waiting. **Email comments:** I have one of the few driveways that is directly on W. Stadium, rather than on a side street. I only lived at the house for about a year, before the project, but the change from 4 lanes, to "2 +turn lane + bike path", is a big improvement. I find it much safer to turn into my driveway, both East and West bound, with the lane reduction. Before, I feared being rear ended, and cars would swerve around turning/stopping vehicles. It is also easier to turn into my driveway, when eastbound, with the bicycle lane providing spacing for a wider turn. The pedestrian walkways are still not followed. There is one by my driveway, that I attempt to use, but less than 1 out of 100 cars actually stops. I've even had postal vehicles and police cars drive through them, when pedestrians are at the crossing.
8	x		
9	x		I know a lot of people hate the changes to Stadium Blvd but I live directly on Stadium and it seems the traffic flows smoothly. It also seems to have slowed down somewhat - closer to the speed limit! And it seems there are fewer accidents, due to the passing lane. I would not want it changed back to the way it was.
10	x		For the homes on Stadium 2 lanes and a turning lane make it feel much more like a neighborhood and less like houses by the highway. I also think it encourages to drive slower and safer, which is greatly appreciated since we all have to cross the street and many of us have kids. I never have problems with the flow of traffic unless it is an athletic event, which is expected.
11	x		It is much better. I live on Stadium and it is safer when making a turn.
12	x		
13	x		I've only lived on Stadium 2 years and so never experienced driving before on this road until after the construction. Overall, I think traffic flows well and I like the turning lane.
14	x		Good job, please fix more roads in Ann Arbor!!! :)
15		x	The merging going west on Stadium is awful. The drivers are not prepared to merge. Accidents are going to occur, the bikes I see are on the sidewalk if any! Getting out of driveways to the street is more difficult and dangerous. Game day is AWFUL! It took me 35 minutes to get to the corner of Main and Stadium, 3 hours before the game from Maple and Miller due to the decrease in lanes. After the game is 3x as long - the decrease in lanes backs up JACKSON ROAD to get out of Ann Arbor. Events are important!! If Ann Arbor is going to provide a "great experience."
16		x	Traffic is forced to merge too quickly when heading west of S. Seventh causes bottle-ups frequently.
17		x	It's quite difficult to make left turns onto stadium from Greenview and it gets backed up quite a bit where it narrows down to one lane. This frequently causes mild road rage during rush hour time periods.
18		x	People have no idea how to merge lanes and traffic is super congested. It's impossible to turn out onto Stadium.
19		x	Forcing Stadium heading west to one lane at S. Seventh without sufficient prior warning causes conflicts everyday. During morning and evening rushhours traffic backs up/ slows because one lane cannot handle the same volume as the two did. I seldom, if ever see a bike using this section of road (I drive it about 4 times every day at all hours).
20	x		Because of cars stopped waiting to make left turns, the 4 lane (old) configuration was really usually only 1 lane each way, anyway!
21	x		We are satisfied by the better traffic flow along Stadium but there still is a lot of speeding along our road! We should get a digital speed post! I have almost been hit, multiple times, just trying to turn into my driveway.
22	x		Living on the corner of Stadium on Westfield I am aware of quieter, more controlled traffic. Eternally grateful for the safer, center lane turn! We are retired people and therefore not driving in the height of traffic that has troubled other neighbors nearer to the turn at Franklin. Much Safer!
23	x		I live at the corner of Stadium and Maywood. There were quite a few accidents the first 2 years. People drive pretty fast around the bend on Stadium. When vehicles turn right from Stadium onto Maywood vehicles behind drive in the middle lane to pass turning car.
24	x		

Stadium Boulevard, Pauline Blvd. to Seventh St.: 1 Year Survey Responses (cont.)

25		x	**Survey card comments:** Difficult to turn left out of Alhambra Dr. as there is no longer a second lane to turn into to proceed. Also - we have witnessed 3 accidents as people do not know how to merge! Same is true at the 7th and Stadium intersection. **Additional written comments attached:** From my view the change has been a disaster. We live at the corner of Alhambra & Stadium just past Gretchen's House where the 2 east bound lanes come together. We hear the horns constantly as some driver charges up the right side to pass a few cars and cut in. Regularly cars come together and pull in front of our house to exchange information or wait for the police after an accident. It's a miracle a bike rider hasn't been hit in the bike lane near the merge. At rush hour, both a.m. & p.m. it can take 5 minutes to turn either direction, especailly left. We used to be able to turn into one of the 2 lanes of traffic. The traffic heading in the one lane of traffic westbound is often bumper to bumper for a couple hours. I have walked back from the stadium faster than the traffic. Change it back.
26	x		On football Saturdays I enjoy watching the traffic go by from my breezeway. Having the turn lane makes a left turn onto Stadium much safer, thank you. I think you should make it plane that it is ok for outgoing Stadium traffic to use the turn lane in that case it would make traffic move faster. Everyone now acts like the few cars that use the turn lane are doing the wrong thing.
27	x		Center turn lane has added greatly to safety - many fewer accidents. Biggest concern- the stretch between Woodland and Seventh, and the left turn lane onto Franklin. Suggest "no left turn" from eastbound Stadium to Franklin- eliminate this cut through to Seventh (no longer necessary).
28	x		Corner of Ardmoor and Stadium still experiencing standing water occassionally in front of 1361 Ardmoor Ave. section between street and curb broken by heavy truck during construction= uneven drainage
29??	x		West bound on Stadium when it opens up as it approaches Pauline leads traffic to the left lane and it backs up at the Pauline light while most of the time the right lane is fairly empty. This makes it difficult to make a left turn onto Stadium from any of the driveways along the west side of the street.
30		x	need more lanes
31		x	Traffic flow is NOT safer for roadway users. Large pulses of 2-lane traffic merging to 1 lane eastbound from Pauline Blvd and westbound from 7th St generate merge-rage conflicts; longer streams of 1-lane traffic result in merge tailgaiting, riskier left turns from side streets onto Stadium Blvd, and dangerous use of center left-turn lane to pass vehicles that are slowing down for right-turns from Stadium to side streets. *Shorten streams of traffic by more frequent and shorter red-green cycles at 7th St and Pauline Blvd traffic lights.
32		x	In addition to the seemingly interminable wait to turn left onto W. Stadium from Stadium Ct. (sometimes 14-15 cars) the curve at Westfield/Arella can be somewhat dangerous when making left-hand turns onto Westfield or Stadium Ct and in the eastbound direction onto Arella, it is very difficult to see if someone else is in the left-hand turn lane approaching you. There have been at least two head-on collisions here since introducing the new turn lane. Thanks for the opportunity to offer feedback!
33	x		I am appreciative of the turn lane. Safer and keeps traffic moving.
TOTAL	24	9	

Federal Highway Administration Road Diet Case Study Summaries

Genesee County, Michigan

Genesee County intended on implementing road diets at all 4-lane road segments throughout their jurisdiction with lower traffic volumes where feasible. After the success at these locations the county began to implement road diets at feasible 4-lane road segments with higher volumes as well. The intention of these road diets was to improve safety throughout the county and encourage walking, bicycling, and transit use. After verifying the feasibility of implementing a road diet, Genesee County Metropolitan Planning Commission (GCMPC) would approach the individual city agencies and begin the education process for all stakeholders. GCMPC utilized an educational approach to gain public support and ease the process and ensure that stakeholders had a sense of project awareness. After implementation the county experienced overall crash reductions, improved livability, and community support for road diets.

Crash Type	Davison Rd.	Dupont St.	Flushing/Fifth Ave.	ML King Jr Blvd	Miller Rd.	University Ave.	Vienna Rd.	Overall
Head-on	-17%	-31%	-100%	129%	-43%	-100%	-62%	**-32%**
Head-on Left Turn	-28%	-74%	-100%	-41%	-37%	-100%	-24%	**-58%**
Rear End	-16%	-54%	-29%	-46%	-29%	-53%	-21%	**-35%**
Rear End Left Turn	-92%	-79%	-100%	-17%	-37%	-100%	-13%	**-36%**
Side Swipe Same Side	-18%	-56%	-48%	-42%	-15%	-31%	-20%	**-33%**
Side Swipe Opposite Side	-31%	-5%	-100%	-17%	-33%	-100%	-55%	**-39%**
All Non-alcohol & Non-deer	-16%	-47%	-42%	-38%	-23%	-35%	-26%	**-32%**

This road diet case study presents a successful network of road diets throughout a municipality close to Ann Arbor that gained public support through a successful education process. This pertains to the City of Ann Arbor's road diet plan not only because it shows the safety benefits of road diets overall but also how through a proper education process the public and stakeholders will support road diet implementation.

Grand Rapids, Michigan

The City of Grand Rapids has identified all 4-lane facilities within its jurisdiction and analyzed them with the intention of implementing a road diet. This is in line with the city's recognition of the safety, livability, and potential traffic impact benefits road diets present.

Through this process The City of Grand Rapids implemented a road diet on Division Street, from I-96 to Wealthy Street. The road segment was converted from four or five lanes to three lanes with a mixture of bikes lanes, shared lanes, and additional parking. The intention of this road diet was to improve the business environments, commercial activity, the local economy, and increase parking. The city conducted public meetings to gain public support of the road diet. One positive outcome of this road diet was the increased livability and perceived quality of life, as reflected by businesses along the corridor and rental spaces long vacant being leased. The owner of the newly rented facilities attributes the economic growth to bicycles enthusiasts who now want to live on this corridor. The City did, however, learn that the road diet can have an effect on the reliability of transit vehicles staying on schedule, but the local bus company worked with the city to relocate some routes to accommodate the road diet. More positive outcomes and their tradeoffs can be viewed below. The City decided to maintain the road diet after positive public feedback.

Positive Outcomes	Trade-offs
Increased parking	Increased delay
Decreased vehicle speeds (-1 to -4 mph)	Longer queues (i.e., Northbound increased from 81 feet before to 180 feet after in the PM)
Improved bicycle facilities (bike lanes/shared lanes)	Longer travel times (average increase of 19 to 52 seconds through corridor)
Reduction in head-on left turn (-38%)*, angle (-17%), and sideswipe crashes (-20%)	Rear-end crashes nearly tripled after installation
Increased pedestrian/bicycle flow (+13% PM, +57% off-peak, and -14% AM)	Increased emissions (+19.8% AM, +1.1% off-peak, and -5.3% PM)
Decreased volumes (-18% to -29% north of Wealthy St.)	Diversion from the corridor
*Calculated from data in the referenced Report (eight crashes before to five crashes after; this percentage varies from the percentage published in the report table.	

The City of Grand Rapids also implemented a road diet on Burton Street, from Division Street to Plymouth Avenue. The road segment was converted from four lanes to three lanes with bikes lanes and street parking. This road segment runs through both residential and commercial areas of town, including several public schools and parks. The intention of this road diet was to install bikes lanes, improve safety, while accommodating the needs of school and public buses stopping. There were concerns expressed before installation of this road diet over congestion from the high traffic volumes, frequent stopping buses (both public and school), and the availability of sufficient gaps for stop sign controlled side streets to enter the roadway. These concerns were addressed by incorporating bus loading and unloading zones into the proposed bike lanes and by optimizing signal timings to ease congestion and allow sufficient gaps for stop sign controlled vehicles. The road diet was successful in lowering speeds (thus increasing safety) and improving the roadway for bicyclists while accommodating concerns over congestion and transit needs.

Both of these case studies present successful road diets that created safer roadways for all users while utilizing other tools to address issues that may occur. Both incorporate transit loading and unloading areas, either initially or after the fact, and the Burton St. location also utilized signal optimization to ease congestion threats. This demonstrates, a practice also used by the City of Ann Arbor, that the overall design of road diets is more than purposed paint but incorporates elements throughout the entire corridor to ensure that they are truly successful in improving the overall quality of life surrounding and on the roadway.

Chicago, Illinois

The City of Chicago mayor announced in 2011 that the City planned to install 100 miles of separated bike lanes throughout the city and multiple road diets were implemented in order to accommodate this goal.

One road diet occurred on 55th Street, from Cottage Grove Avenue to Dorchester Avenue, which runs along the University of Chicago campus and Washington Park, and includes institutional, residential, commercial, and service land uses. The road segment was converted from four lanes with parking to three lanes with parking and separated bike lanes. The intention of this road diet was to install the aforementioned separated bike lanes, improve safety, while accommodating transit needs. In order to maintain adequate transit functionality the City worked with the Chicago Transit Authority during the design process to include bus stops incorporated into the separated bike lanes. The road segment has experienced better adherence to the posted speed limit, improved livability, an improved pedestrian and bicycle environment, as well as support for the installed bike lanes. These views were expressed by a mix of business owners, community members, City staff, and University students and staff.

Another road diet was implemented on Franklin Boulevard, from Sacramento Boulevard to Central Park Avenue. The roadway was converted from four lanes to a three lanes with separated bike lanes. The land use along this corridor is primarily residential and includes two schools, a veterans home, and a hospital. Due to the low ADT along the roadway little concern was expressed over the implementation of this road diet. The addition of bike lanes has received support from residents who enjoy the prospect of safer biking conditions for school aged children to bike to school, and the veterans home who provides bicycles to its residents and visitors. The bike lanes also connect multiple parks, public transit facilities/utilities, and community institutions while overall improving the bicycle facilities for the Chicago community.

Wabash Avenue from Cermak Road to Harrison Street also experienced a road diet in order to support Chicago's plan to expand bike lane network. The road segment is located just north of "The Loop" and consists of commercial, institutional, and service-oriented businesses land usage. The road segment was converted from four lanes with parking to three lanes with street parking and buffered bike lanes. To ensure a positive outcome traffic signal optimization was utilized. The road segment experienced a capacity improvement after the road diet and signal optimization as illustrated by a simulation software.

These case studies show the success of road diet installation with the intent of creating a better bicycle route system throughout a city in multiple environments. Each case study is in varying locations across Chicago, from low ADT by a school to a more commercial/institutional environment, to an area as busy as the Chicago "Loop", but still presents increased quality of life for the communities surrounding them. Besides this, the City of Chicago was also able to connect routes and locations throughout the city for bike users creating a more comprehensive bicycling environment. The City of Ann Arbor's planned road diets were conceived with the same intention as Chicago, to complete bicycling routes, and these case studies show that road diets are not only successful in accomplishing this but will also improve the environment on and surrounding the roadway in question.

Pasadena, California

In support of the City of Pasadena's Bicycle Master Plan, a road diet was implemented on Cordova Street from Lake Avenue to Hill Avenue. The road segment consists of a central business district, includes multi-family residential units, a school, a park, and a community college. The road was converted from four lanes to three lanes with bike lanes and on street parking. The intention of this road diet was to lower speeds, improve pedestrian safety, install bike lanes, and improve pavement conditions. Residents had expressed concerns for pedestrian safety and even suggested installing signals to aid in this. After the road diet was implemented, an improvement in bicycle level of service (LOS) with no changes to pedestrian and vehicular LOS was observed. The road diet did, however, allow safer conditions for pedestrians crossing at un-signalized intersections. A slight reduction in total crashes and injuries was observed after the road diet, as well as reduced speeds and better compliance with a higher posted speed limit. The road diet was installed in conjunction with a resurfacing project, which allowed road surface conditions to be improved as well.

In this case study the safety conditions for non-motorized road users were improved without a negative effect on the motorized roadway functionality. Presenting the case that designing for better roadway conditions for all road users does not imply a negative effect on motorized road users. The City of Ann Arbor and State of Michigan recognize this quality of road diets and utilizes an analysis process to verify that proposed road diet locations reflect this and dismiss locations that do not.

Santa Monica, California

The City of Santa Monica implemented a road diet on Ocean Park Avenue from Lincoln Boulevard to Cloverfield Boulevard in response to concerns voiced by community members over the safety of school aged children utilizing the two schools and recreational facilities on the road segment. High vehicle speeds and a recent increase in crashes are what sparked these concerns and it became apparent to city officials that additional safety improvements including crossing guards, flashing crosswalks, and speed feedback signs had little influence on the these patterns. Though the ADT (about 23000) is on the upper end of traffic volumes typically recommended for a three lane road diet, the roadway was converted from four lanes with parking to three lanes with bike lanes and parking. Nine months after installation a 65% decrease in crashes and a 60% decrease in injury collisions were observed. The speeds generally maintained the same after installation, while there was a 10 mph increase in speeds outside the road diet area. Many people appreciate the improvement to conditions for bicyclist and pedestrians but others are dissatisfied by delays and a perceived shift in motorized traffic utilizing nearby local roads. The City followed up on the last sentiment and collected data which presented that Ocean Park Blvd had a decreased volume of about 3000-4000 vehicles per day with the location of the shifted traffic being unclear. This same study also presented that traffic volumes on nearby local roads had remained relatively stable after installation. The City made the decision to maintain the road diet configuration due to the resulting improved safety conditions.

This case study presents a road diet implementation on a busy roadway that greatly increased safety but also delay. It also presents that perceived changes to traffic conditions do not always substantiate true conditions on the roadway. Though delay was affected enough to deter traffic away from the road segment, side roads were not greatly impacted as perceived by opposition to the road diet. The City of

Ann Arbor can note this case study as an example of the safety improvements nearby a school outweighing the effect on delay, and that perception of road conditions does not always indicate reality.

Staten Island, New York

After the fatal crash involving a student pedestrian, the NYCDOT, Staten Island Community Board 3, Tottenville High School, and other community groups came together to formulate a plan to make Lutten Avenue, which houses both Tottenville High School and Wolfes Pond Park, safer for the high volume of pedestrian users. It was formulated to implement a road diet that would convert Lutten Ave from four lanes to two lanes with parking and a center median. Pedestrian refuge islands, crosswalks, and a new signal at Deisius St. were installed in conjunction with the road diet. Since installment, NYCDOT has reported reduced speeds with the number of vehicles exceeding the speed limit decreasing by 34% southbound and 21% northbound. Crashes involving injuries to either vehicle occupants or pedestrians has decreased as well, numbers can be referenced below.

	Before* (3 previous years)			After
	2007	2008	2009	
Total Crashes with Injuries	6	2	2	2.3
Number of Crashes with Injuries to Motor Vehicle Occupants	5	1	0	1.7
Number of Crashes with Injuries to Pedestrians	1	1	2	0.6

* Before columns show the crash history for each of the 3 years immediately prior to project implementation. After column shows number of crashes since implementation (through January 2012) at annual rate.

This case study presents the unique situation surrounding a school and a location that produces a younger pedestrian demographic (park) and the need to address the safety concerns surrounding them. The road diet in this case not only increased safety conditions for motorized traffic, but also for pedestrians due to the newly installed crosswalks and pedestrian refuge islands. Road diets decrease the length of roadway a pedestrian has to cross where the threat of a vehicular crash is high, and allows space for pedestrian refuge islands as well making the installation of new or improved crosswalks more feasible. Both of these practices has been exemplified by the City of Ann Arbor in past road diet installations and are considered in all proposed road diets as well.

Los Angeles, California

Los Angeles has experienced a lot of political back and forth surrounding their road diets, and below are listed two locations. These road diets are not included in the FHWA case studies but are noted due the public, municipal, and political reaction to each. The City of Ann Arbor and many other municipalities have experienced similar back and forth in regards to road diets and noting the breadth of community fervor, quantitative results, and qualitative results of a larger city, and their response to it all, can be enlightening for all stakeholders.

As a part of the City of Los Angeles' Vision Zero plan, Mobility Plan 2035, and Great Streets Initiative, Venice Boulevard in the Mar Vista area underwent a road diet converting six lanes to four lanes with bike lanes (a short stretch of which has protected bike lanes). The road diet was implemented in order to increase safety along the roadway, promote non-motorized or public transit travel, and to help the commercial boulevard feel less like a freeway and more like a “Main Street”. Painful traffic jams in the early months sparked anger among drivers who utilize the roadway to commute in rush-hour, with some residents raising concerns about increase speeding cut-through traffic on side streets as well. Opposition has raised concerns that monarch butterfly and migratory bird populations may have been negatively affected but no evidence has been presented to support or debunk this sentiment. Opposition has also claimed that congestion caused by the road diet has harmed local business along the road segment. Though rent is at record highs, taxable revenue has risen, and more business have opened than closed since the road diet has been installed. Other community members have voiced support for the road diet saying the changes have improved overall livability and has made Venice Blvd more like the heart of the neighborhood. A study of the road segment since the road diet was implemented by LADOT presented the following information.

- Eastbound evening peak drive times had increased by more than four minutes in the first three months. A year after installation the travel time for eastbound evening peak had fallen about three minutes from the new delay time. This change was attributed to a modification to the original road diet that included a new turn lanes.
- Streets near Venice Blvd have experienced an increase in traffic during rush hour of about one to three vehicles per minute on each street.
- Pedestrian, bicycle and scooter volumes on the roadway have increased by 11%.
- Pedestrians using the roadway have increased 32%.
- The intersection of Venice Blvd. and Centinela Ave., the busiest interstation on the road segment, has seen crash rate reduction of 75%.
- A reduction in crashes due to speeding, bicyclist related injuries, and severe or fatal injuries resulting from crashes was noted although an overall increase in crashes (2%) has occured.

Though the road diet has gained political push back, the City of L.A. has backed the decision to maintain the road diet.

After the death of a pedestrian on Rowena Avenue a road diet was implemented to increase safety. The roadway experienced a reduction in lanes with the addition of bike lanes and a two way left turn lane. The road diet has gained much scrutiny and support from the public since its implementation in 2013, with most of it being anecdotal until Council funded a transportation study of the road segment and its surrounding side streets. The public had expressed concerns over the threat of gridlock and safety issues from cut-through vehicular traffic on side streets, while other members of public have claimed dramatic increases in safety and reduced crashes on the corridor. The transportation study, conducted by independent contractor Kimley Horn, found:

- The crashes had reduced from an average of 12.4 per year to an average of 7.8 per year five years after implementation.
- Traffic speeds reduced from 39 mph to 36 mph for eastbound traffic with westbound traffic staying at 39 mph.

- Adjacent residential streets Waverly Drive and Angus Street, the streets that concerns were raised about, experienced no discernable increase or decrease in collisions.
- Bicycle travel has increased along the road segment.

Though this road diet has been in the political spotlight over the past six years, LADOT has recommended that they maintain the lane configuration with the inclusion of cut-through traffic mitigation and further improvements to the existing bike lanes.

LA Sources:

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Green Rd between Plymouth Rd and Glazier Way

Crash Instance	Road Cond	Crash Month	Crash Type	Crash Day	Crash Year	Time of Day	Day of Week
2005292843	Dry	November	Angle	22	2005	1:00 PM - 2:00 PM	Tuesday
2005292848	Dry	November	Sideswipe opposite direction	29	2005	5:00 PM - 6:00 PM	Tuesday
2006198480	Dry	July	Angle	24	2006	3:00 PM - 4:00 PM	Monday
2006206447	Dry	August	Single motor vehicle	14	2006	7:00 AM - 8:00 AM	Monday
2006206448	Dry	August	Sideswipe same direction	9	2006	9:00 AM - 10:00 AM	Wednesday
2006254699	Dry	September	Angle	11	2006	5:00 PM - 6:00 PM	Monday
2006254700	Wet	September	Rear-end	5	2006	5:00 PM - 6:00 PM	Tuesday
2006283214	Dry	October	Rear-end	6	2006	9:00 AM - 10:00 AM	Friday
200634888	Dry	January	Rear-end	12	2006	7:00 AM - 8:00 AM	Thursday
200637738	Wet	January	Angle	20	2006	6:00 PM - 7:00 PM	Friday
200656772	Dry	February	Angle	6	2006	8:00 AM - 9:00 AM	Monday
200656790	Dry	February	Angle	21	2006	5:00 PM - 6:00 PM	Tuesday
2007114446	Dry	May	Rear-end	16	2007	5:00 PM - 6:00 PM	Wednesday
2007160752	Wet	July	Rear-end	17	2007	12:00 noon - 1:00 PM	Tuesday
2007168989	Wet	June	Angle	27	2007	5:00 PM - 6:00 PM	Wednesday
2007201224	Dry	August	Rear-end	31	2007	11:00 AM - 12:00 noon	Friday
2007203158	Dry	September	Angle	7	2007	5:00 PM - 6:00 PM	Friday
2007226236	Dry	October	Angle	4	2007	11:00 AM - 12:00 noon	Thursday
2007278967	Dry	October	Angle	31	2007	8:00 AM - 9:00 AM	Wednesday
2007281202	Dry	November	Single motor vehicle	24	2007	11:00 PM - 12:00 midnigh	Saturday
2007281696	Wet	November	Angle	20	2007	5:00 PM - 6:00 PM	Tuesday
2007309321	Dry	December	Head-on / left turn	8	2007	11:00 AM - 12:00 noon	Saturday
200712526	Dry	January	Rear-end	3	2007	6:00 AM - 7:00 AM	Wednesday
200854667	Dry	February	Head-on	11	2008	3:00 PM - 4:00 PM	Monday
200890499	Snow	March	Angle	1	2008	9:00 AM - 10:00 AM	Saturday
2008146371	Dry	June	Single motor vehicle	19	2008	5:00 PM - 6:00 PM	Thursday
2008157997	Wet	July	Sideswipe same direction	19	2008	1:00 PM - 2:00 PM	Saturday
2008165473	Dry	July	Rear-end left turn	26	2008	5:00 PM - 6:00 PM	Saturday
2008201043	Dry	September	Rear-end	9	2008	6:00 PM - 7:00 PM	Tuesday
2008225108	Dry	October	Head-on / left turn	12	2008	8:00 AM - 9:00 AM	Sunday
2008225109	Dry	October	Sideswipe opposite direction	12	2008	12:00 noon - 1:00 PM	Sunday
2008285699	Wet	November	Rear-end	25	2008	12:00 noon - 1:00 PM	Tuesday
2009127390	Dry	June	Angle	18	2009	5:00 PM - 6:00 PM	Thursday
2009143569	Dry	June	Angle	29	2009	7:00 PM - 8:00 PM	Monday
2009145898	Dry	July	Angle	16	2009	12:00 noon - 1:00 PM	Thursday
2009167847	Dry	August	Rear-end	18	2009	1:00 PM - 2:00 PM	Tuesday
2009247998	Dry	November	Angle	16	2009	11:00 AM - 12:00 noon	Monday
201010730	Dry	January	Single motor vehicle	9	2010	5:00 PM - 6:00 PM	Saturday
201012830	Wet	January	Rear-end	14	2010	10:00 AM - 11:00 AM	Thursday
201090135	Wet	May	Rear-end left turn	7	2010	9:00 AM - 10:00 AM	Friday
2010116190	Dry	June	Rear-end	11	2010	5:00 PM - 6:00 PM	Friday
2010133968	Dry	July	Sideswipe same direction	7	2010	1:00 PM - 2:00 PM	Wednesday
2010142126	Dry	July	Angle	14	2010	5:00 PM - 6:00 PM	Wednesday
2010154223	Dry	August	Angle	4	2010	2:00 PM - 3:00 PM	Wednesday
2010155095	Dry	July	Angle	22	2010	12:00 noon - 1:00 PM	Thursday
2010186272	Dry	September	Sideswipe same direction	22	2010	1:00 PM - 2:00 PM	Wednesday
2010194461	Dry	October	Sideswipe same direction	4	2010	9:00 AM - 10:00 AM	Monday
2010198321	Dry	September	Angle	20	2010	4:00 PM - 5:00 PM	Monday
2010223917	Dry	November	Rear-end	1	2010	2:00 PM - 3:00 PM	Monday
2010257188	Dry	November	Single motor vehicle	28	2010	10:00 PM - 11:00 PM	Sunday
2010269450	Ice	December	Rear-end	15	2010	7:00 AM - 8:00 AM	Wednesday
2010274625	Wet	December	Sideswipe opposite direction	19	2010	10:00 AM - 11:00 AM	Sunday
2011154513	Dry	July	Angle	19	2011	5:00 PM - 6:00 PM	Tuesday
2011159775	Wet	July	Angle	27	2011	10:00 PM - 11:00 PM	Wednesday
2011168189	Dry	July	Angle	31	2011	3:00 PM - 4:00 PM	Sunday
2011242861	Dry	November	Sideswipe same direction	5	2011	11:00 AM - 12:00 noon	Saturday
2011265839	Dry	December	Rear-end	1	2011	5:00 PM - 6:00 PM	Thursday
201114314	Snow	January	Single motor vehicle	7	2011	4:00 PM - 5:00 PM	Friday
201120766	Snow	January	Rear-end	7	2011	4:00 PM - 5:00 PM	Friday
201144629	Snow	January	Single motor vehicle	29	2011	5:00 AM - 6:00 AM	Saturday

Rear-end

Before	After
2.4	2.2

Sideswipe same direction

Before	After
1	0.8

Angle

Before	After
4	2.6

Sideswipe opposite direction

Before	After
0.4	0.4

Rear-end left turn

Before	After
0.4	0.4

Head-on/left turn

Before	After
0.6	0

Single Motor Vehicle

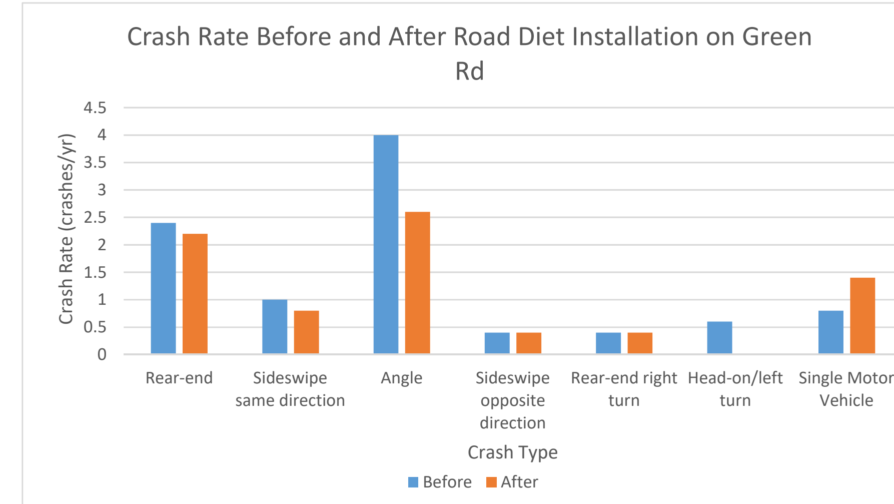
Before	After
0.8	1.4

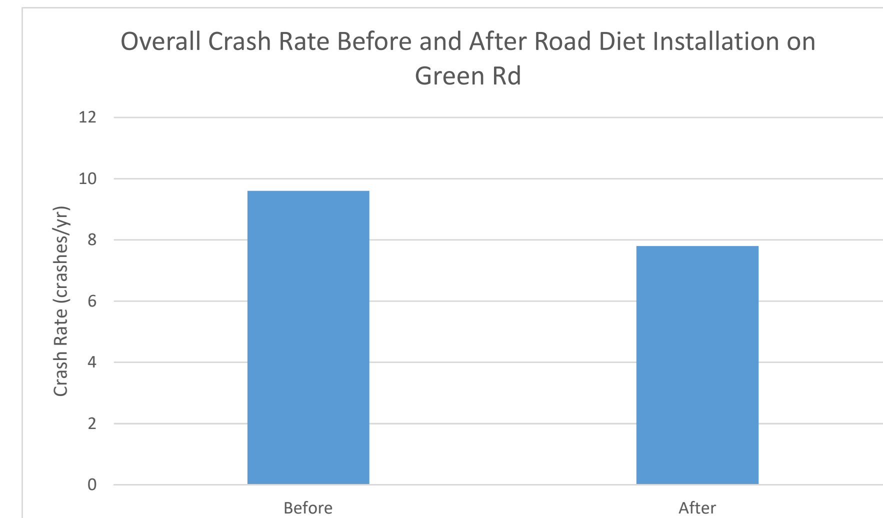
Other/Unknown

Before	After
0	0

Total Crashes

Before	After
9.6	7.8





Green Rd between Plymouth Rd and Glazier Way

Crash Instance	Road Cond	Crash Month	Crash Type	Crash Day	Crash Year	Time of Day	Day of Week	Rear-end
201172373	Wet	March	Angle	23	2011	4:00 PM - 5:00 PM	Wednesday	
201241867	Wet	February	Single motor vehicle	12	2012	9:00 AM - 10:00 AM	Sunday	
201263137	Dry	February	Angle	7	2012	6:00 PM - 7:00 PM	Tuesday	
2012107160	Dry	May	Rear-end	18	2012	5:00 PM - 6:00 PM	Friday	
2012138061	Dry	July	Rear-end	2	2012	2:00 PM - 3:00 PM	Monday	
2012151753	Dry	July	Sideswipe same direction	21	2012	4:00 PM - 5:00 PM	Saturday	
2012182639	Dry	September	Rear-end	7	2012	12:00 noon - 1:00 PM	Friday	
2012188228	Dry	September	Angle	14	2012	5:00 PM - 6:00 PM	Friday	
2012276498	Snow	December	Rear-end	26	2012	1:00 PM - 2:00 PM	Wednesday	
2013202485	Dry	September	Rear-end	24	2013	4:00 PM - 5:00 PM	Tuesday	
2013204215	Dry	September	Rear-end left turn	27	2013	12:00 noon - 1:00 PM	Friday	
2013205252	Dry	September	Single motor vehicle	28	2013	1:00 AM - 2:00 AM	Saturday	
2013252312	Dry	November	Angle	13	2013	2:00 PM - 3:00 PM	Wednesday	
2013291779	Wet	December	Sideswipe same direction	26	2013	3:00 PM - 4:00 PM	Thursday	
201332474	Ice	January	Angle	31	2013	7:00 AM - 8:00 AM	Thursday	
201349257	Dry	February	Angle	18	2013	10:00 AM - 11:00 AM	Monday	
201490356	Dry	March	Single motor vehicle	24	2014	6:00 AM - 7:00 AM	Monday	
201490361	Dry	March	Angle	24	2014	7:00 PM - 8:00 PM	Monday	
2014148091	Dry	June	Rear-end	13	2014	8:00 AM - 9:00 AM	Friday	
2014208625	Dry	September	Sideswipe opposite direction	11	2014	8:00 AM - 9:00 AM	Thursday	
2014292525	Dry	December	Rear-end left turn	3	2014	6:00 PM - 7:00 PM	Wednesday	
2014293310	Dry	December	Rear-end	10	2014	6:00 PM - 7:00 PM	Wednesday	
201520583	Snow	January	Angle	13	2015	7:00 AM - 8:00 AM	Tuesday	
201544628	Wet	February	Sideswipe same direction	11	2015	6:00 PM - 7:00 PM	Wednesday	
2015123064	Dry	May	Angle	21	2015	5:00 PM - 6:00 PM	Thursday	
2015124860	Dry	May	Angle	29	2015	8:00 AM - 9:00 AM	Friday	
2015207549	Dry	September	Single motor vehicle	12	2015	1:00 AM - 2:00 AM	Saturday	

Jackson Ave between Huron St and Maple Rd

Crash Instance	Road Conditions	Crash Month	Crash Type	Crash Day	Crash Year	Time of Day	Day of Week
201134658	Dry	January	Rear-end	31	2011	8:00 AM - 9:00 AM	Monday
201138121	Snow	February	Rear-end	5	2011	1:00 PM - 2:00 PM	Saturday
201152842	Dry	February	Sideswipe same direction	23	2011	4:00 PM - 5:00 PM	Wednesday
201158100	Ice	March	Rear-end	1	2011	7:00 AM - 8:00 AM	Tuesday
201166181	Dry	March	Angle	11	2011	4:00 PM - 5:00 PM	Friday
201175262	Dry	March	Single motor vehicle	26	2011	2:00 AM - 3:00 AM	Saturday
201185279	Dry	March	Rear-end	29	2011	6:00 AM - 7:00 AM	Tuesday
201194647	Wet	April	Rear-end	25	2011	2:00 PM - 3:00 PM	Monday
2011108035	Dry	May	Rear-end	18	2011	7:00 AM - 8:00 AM	Wednesday
2011123535	Dry	June	Rear-end	4	2011	4:00 PM - 5:00 PM	Saturday
2011124648	Dry	June	Rear-end	6	2011	5:00 PM - 6:00 PM	Monday
2011152804	Dry	July	Rear-end	7	2011	1:00 PM - 2:00 PM	Thursday
2011170181	Dry	August	Rear-end	11	2011	12:00 noon - 1:00 PM	Thursday
2011183516	Dry	July	Single motor vehicle	7	2011	1:00 PM - 2:00 PM	Thursday
2011194277	Dry	September	Rear-end	14	2011	3:00 PM - 4:00 PM	Wednesday
2011199592	Dry	September	Rear-end	21	2011	4:00 PM - 5:00 PM	Wednesday
2011199603	Dry	September	Rear-end	18	2011	11:00 AM - 12:00 noon	Sunday
2011211701	Dry	October	Rear-end	6	2011	3:00 PM - 4:00 PM	Thursday
2011215847	Dry	October	Sideswipe same direction	7	2011	12:00 noon - 1:00 PM	Friday
2011258934	Dry	November	Sideswipe opposite direction	21	2011	6:00 PM - 7:00 PM	Monday
2011270551	Dry	November	Rear-end	28	2011	2:00 PM - 3:00 PM	Monday
2011270556	Dry	December	Sideswipe same direction	3	2011	3:00 PM - 4:00 PM	Saturday
201267218	Dry	March	Rear-end right turn	21	2012	9:00 AM - 10:00 AM	Wednesday
201279976	Wet	April	Rear-end	10	2012	3:00 PM - 4:00 PM	Tuesday
201283255	Dry	April	Sideswipe same direction	2	2012	7:00 AM - 8:00 AM	Monday
201292163	Dry	April	Angle	23	2012	8:00 AM - 9:00 AM	Monday
2012101257	Dry	May	Angle	11	2012	6:00 PM - 7:00 PM	Friday
2012103647	Dry	May	Rear-end	11	2012	5:00 PM - 6:00 PM	Friday
2012114860	Dry	May	Rear-end right turn	28	2012	5:00 PM - 6:00 PM	Monday
2012114865	Dry	May	Sideswipe same direction	29	2012	11:00 AM - 12:00 noon	Tuesday
2012117949	Wet	June	Rear-end	1	2012	4:00 PM - 5:00 PM	Friday
2012123054	Dry	June	Rear-end	10	2012	9:00 PM - 10:00 PM	Sunday
2012124032	Wet	June	Rear-end	11	2012	12:00 noon - 1:00 PM	Monday
2012127521	Dry	June	Sideswipe opposite direction	15	2012	5:00 PM - 6:00 PM	Friday
2012127522	Dry	June	Rear-end	15	2012	6:00 PM - 7:00 PM	Friday
2012134684	Dry	June	Angle	26	2012	12:00 noon - 1:00 PM	Tuesday
2012141768	Dry	July	Sideswipe same direction	1	2012	8:00 PM - 9:00 PM	Sunday
2012150270	Dry	July	Rear-end	20	2012	7:00 PM - 8:00 PM	Friday
2012159506	Dry	August	Rear-end	3	2012	12:00 noon - 1:00 PM	Friday
2012167038	Wet	August	Rear-end	14	2012	6:00 AM - 7:00 AM	Tuesday
2012176200	Dry	August	Rear-end	28	2012	8:00 PM - 9:00 PM	Tuesday
2012191944	Dry	September	Rear-end	16	2012	12:00 noon - 1:00 PM	Sunday
2012198028	Wet	September	Rear-end	21	2012	5:00 PM - 6:00 PM	Friday
2012207981	Dry	October	Rear-end	7	2012	6:00 PM - 7:00 PM	Sunday
2012212995	Wet	October	Rear-end	13	2012	5:00 PM - 6:00 PM	Saturday
2012218531	Wet	October	Angle	19	2012	7:00 PM - 8:00 PM	Friday
2012235587	Dry	November	Rear-end	7	2012	2:00 PM - 3:00 PM	Wednesday
2012243964	Dry	November	Rear-end	15	2012	5:00 PM - 6:00 PM	Thursday
2012259543	Dry	November	Other / unknown	27	2012	3:00 PM - 4:00 PM	Tuesday
2012262963	Dry	December	Rear-end	6	2012	9:00 PM - 10:00 PM	Thursday
201333072	Wet	February	Rear-end	1	2013	4:00 PM - 5:00 PM	Friday
201337461	Dry	January	Head-on	18	2013	6:00 AM - 7:00 AM	Friday
201368579	Wet	March	Rear-end	18	2013	7:00 AM - 8:00 AM	Monday
201394184	Dry	April	Angle	23	2013	11:00 AM - 12:00 noon	Tuesday
201413467	Snow	January	Sideswipe same direction	3	2014	1:00 PM - 2:00 PM	Friday
201433156	Snow	January	Rear-end	16	2014	3:00 PM - 4:00 PM	Thursday
201438601	Ice	January	Angle	24	2014	4:00 PM - 5:00 PM	Friday
201443957	Snow	January	Sideswipe opposite direction	23	2014	10:00 AM - 11:00 AM	Thursday
201446043	Slush	February	Sideswipe same direction	1	2014	9:00 AM - 10:00 AM	Saturday

Rear-end

Before	After
9.5	3

Sideswipe same direction

Before	After
2	1.75

Angle

Before	After
2	1.25

Sideswipe opposite direction

Before	After
0.75	0

Rear-end right turn

Before	After
0.5	0

Head-on/left turn

Before	After
0.25	0.25

Single Motor Vehicle

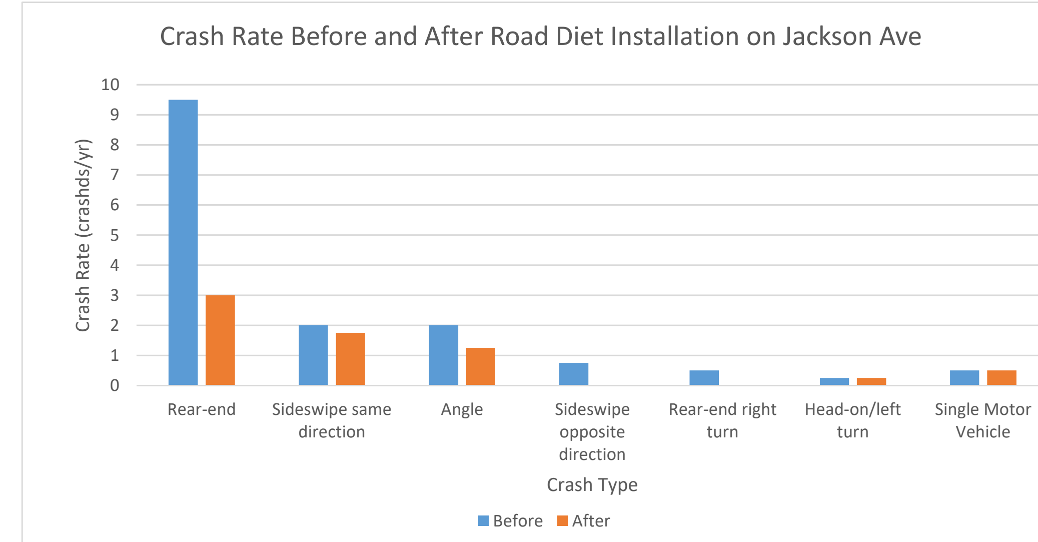
Before	After
0.5	0.5

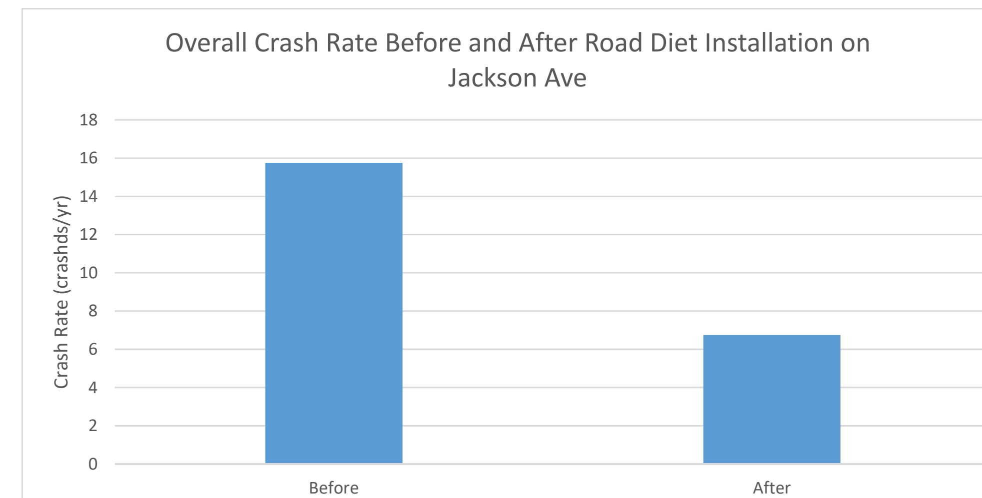
Other/Unknown

Before	After
0	0

Total Crashes

Before	After
15.5	6.75





Jackson Ave between Huron St and Maple Rd

Crash Instance	Road Conditions	Crash Month	Crash Type	Crash Day	Crash Year	Time of Day	Day of Week
201451033	Snow	February	Rear-end	5	2014	7:00 AM - 8:00 AM	Wednesday
201458023	Wet	February	Angle	10	2014	3:00 PM - 4:00 PM	Monday
201467572	Dry	February	Rear-end	21	2014	5:00 PM - 6:00 PM	Friday
201494959	Dry	April	Rear-end	1	2014	8:00 PM - 9:00 PM	Tuesday
201525865	Snow	January	Angle	21	2015	7:00 AM - 8:00 AM	Wednesday
201544668	Snow	February	Rear-end	14	2015	7:00 AM - 8:00 AM	Saturday
201551278	Dry	February	Head-on / left turn	24	2015	7:00 PM - 8:00 PM	Tuesday
201560060	Dry	March	Rear-end	6	2015	5:00 PM - 6:00 PM	Friday
201560072	Dry	March	Sideswipe same direction	9	2015	6:00 PM - 7:00 PM	Monday
201616614	Dry	January	Sideswipe same direction	6	2016	6:00 PM - 7:00 PM	Wednesday
201623965	Dry	January	Rear-end	13	2016	12:00 midnight - 1:00 AM	Wednesday
201660861	Snow	March	Angle	2	2016	6:00 AM - 7:00 AM	Wednesday
201665114	Snow	March	Rear-end	1	2016	5:00 PM - 6:00 PM	Tuesday
201665793	Wet	March	Sideswipe same direction	10	2016	3:00 PM - 4:00 PM	Thursday
201670262	Dry	March	Rear-end	11	2016	4:00 PM - 5:00 PM	Friday
201670263	Dry	March	Rear-end	11	2016	4:00 PM - 5:00 PM	Friday
201676447	Wet	March	Angle	24	2016	8:00 AM - 9:00 AM	Thursday
201688889	Dry	April	Sideswipe same direction	11	2016	3:00 PM - 4:00 PM	Monday
201689796	Dry	April	Rear-end	13	2016	6:00 PM - 7:00 PM	Wednesday
201694763	Dry	April	Angle	20	2016	5:00 PM - 6:00 PM	Wednesday
201698717	Dry	April	Rear-end	25	2016	4:00 PM - 5:00 PM	Monday
20175625	Dry	March	Sideswipe same direction	28	2017	7:00 AM - 8:00 AM	Tuesday
201745253	Dry	May	Angle	18	2017	5:00 PM - 6:00 PM	Thursday
201796361	Dry	July	Sideswipe same direction	19	2017	5:00 PM - 6:00 PM	Wednesday
201819184	Ice	January	Rear-end	9	2018	8:00 AM - 9:00 AM	Tuesday
201819185	Ice	January	Single motor vehicle	9	2018	8:00 AM - 9:00 AM	Tuesday
201830814	Dry	January	Single motor vehicle	20	2018	10:00 PM - 11:00 PM	Saturday
201848542	Dry	February	Sideswipe same direction	8	2018	5:00 PM - 6:00 PM	Thursday
201858540	Dry	February	Rear-end	21	2018	5:00 PM - 6:00 PM	Wednesday
201869731	Ice	March	Rear-end	7	2018	7:00 PM - 8:00 PM	Wednesday
201882330	Dry	March	Rear-end	23	2018	8:00 AM - 9:00 AM	Friday

Packard St between Stadium Blvd and Anderson Ave

Crash Instance	Road Conditions	Crash Month	Crash Type	Crash Day	Crash Year	Time of Day	Day of Week
200435993	Snow	January	Single motor vehicle	4	2004	10:00 PM - 11:00 PM	Sunday
200438561	Wet	January	Rear-end	15	2004	5:00 PM - 6:00 PM	Thursday
200444026	Snow	January	Angle	4	2004	5:00 PM - 6:00 PM	Sunday
200539223	Dry	January	Rear-end	18	2005	4:00 PM - 5:00 PM	Tuesday
200549089	Dry	January	Other / unknown	27	2005	6:00 PM - 7:00 PM	Thursday
2004109015	Dry	April	Rear-end	19	2004	5:00 PM - 6:00 PM	Monday
2004123425	Dry	March	Sideswipe opposite direction	12	2004	3:00 PM - 4:00 PM	Friday
2004141322	Dry	April	Angle	9	2004	4:00 PM - 5:00 PM	Friday
2004195345	Dry	July	Angle	10	2004	8:00 PM - 9:00 PM	Saturday
2004197505	Dry	July	Rear-end	21	2004	9:00 AM - 10:00 AM	Wednesday
2004310707	Dry	October	Angle	7	2004	7:00 AM - 8:00 AM	Thursday
2004317780	Wet	October	Rear-end left turn	15	2004	8:00 AM - 9:00 AM	Friday
2004363640	Dry	December	Rear-end	22	2004	2:00 PM - 3:00 PM	Wednesday
2004364040	Dry	December	Angle	27	2004	4:00 PM - 5:00 PM	Monday
2005132112	Dry	May	Angle	8	2005	5:00 PM - 6:00 PM	Sunday
2005133300	Dry	May	Rear-end	18	2005	5:00 PM - 6:00 PM	Wednesday
2005252953	Dry	October	Rear-end	14	2005	3:00 PM - 4:00 PM	Friday
2005259253	Dry	October	Angle	27	2005	4:00 PM - 5:00 PM	Thursday
2005274896	Dry	November	Angle	11	2005	5:00 PM - 6:00 PM	Friday
2005284711	Wet	November	Rear-end	15	2005	3:00 PM - 4:00 PM	Tuesday
2005332393	Ice	December	Rear-end	7	2005	7:00 AM - 8:00 AM	Wednesday
2005340539	Wet	December	Rear-end	21	2005	5:00 PM - 6:00 PM	Wednesday
2005340550	Wet	December	Single motor vehicle	23	2005	4:00 PM - 5:00 PM	Friday
200567500	Wet	February	Rear-end	25	2005	1:00 PM - 2:00 PM	Friday
200589657	Dry	March	Angle	17	2005	9:00 PM - 10:00 PM	Thursday
200656809	Dry	February	Single motor vehicle	15	2006	4:00 PM - 5:00 PM	Wednesday
200668058	Wet	March	Head-on	16	2006	11:00 PM - 12:00 midnight	Thursday
200676902	Wet	February	Rear-end	3	2006	4:00 PM - 5:00 PM	Friday
200696996	Dry	April	Angle	29	2006	7:00 PM - 8:00 PM	Saturday
200699208	Dry	May	Rear-end	1	2006	8:00 AM - 9:00 AM	Monday
2006122102	Wet	May	Angle	12	2006	2:00 PM - 3:00 PM	Friday
2006122530	Dry	May	Angle	23	2006	1:00 PM - 2:00 PM	Tuesday
2006134485	Dry	June	Rear-end	7	2006	7:00 AM - 8:00 AM	Wednesday
2006141912	Dry	June	Rear-end	13	2006	4:00 PM - 5:00 PM	Tuesday
2006173103	Dry	June	Rear-end	28	2006	11:00 AM - 12:00 noon	Wednesday
2006179199	Dry	June	Rear-end	30	2006	7:00 PM - 8:00 PM	Friday
2006187741	Dry	July	Angle	8	2006	4:00 PM - 5:00 PM	Saturday
2006198487	Dry	July	Angle	28	2006	3:00 PM - 4:00 PM	Friday
2006218642	Dry	August	Angle	24	2006	4:00 PM - 5:00 PM	Thursday
2006234173	Wet	September	Rear-end	12	2006	9:00 PM - 10:00 PM	Tuesday
2006285406	Dry	October	Rear-end	25	2006	8:00 AM - 9:00 AM	Wednesday
2006301372	Dry	November	Rear-end	28	2006	5:00 PM - 6:00 PM	Tuesday
2006306072	Dry	December	Rear-end	9	2006	10:00 AM - 11:00 AM	Saturday
2006309228	Dry	November	Rear-end	2	2006	8:00 AM - 9:00 AM	Thursday
2007118944	Dry	May	Sideswipe opposite direction	21	2007	9:00 PM - 10:00 PM	Monday
2007121076	Dry	May	Rear-end	24	2007	12:00 noon - 1:00 PM	Thursday
2007179360	Dry	August	Rear-end	2	2007	9:00 AM - 10:00 AM	Thursday
2007179368	Dry	July	Single motor vehicle	30	2007	1:00 PM - 2:00 PM	Monday
2007196612	Dry	August	Angle	28	2007	5:00 PM - 6:00 PM	Tuesday
2007197010	Dry	August	Single motor vehicle	24	2007	5:00 PM - 6:00 PM	Friday
2007197015	Dry	August	Rear-end	17	2007	4:00 PM - 5:00 PM	Friday
2007224177	Dry	August	Sideswipe same direction	29	2007	10:00 AM - 11:00 AM	Wednesday
2007227330	Dry	October	Single motor vehicle	9	2007	11:00 AM - 12:00 noon	Tuesday
2007294210	Wet	December	Sideswipe same direction	5	2007	6:00 PM - 7:00 PM	Wednesday
200725254	Snow	January	Rear-end	29	2007	8:00 PM - 9:00 PM	Monday
200725958	Dry	January	Rear-end	11	2007	2:00 PM - 3:00 PM	Thursday
200767945	Dry	March	Rear-end	12	2007	8:00 PM - 9:00 PM	Monday
200776216	Dry	March	Single motor vehicle	27	2007	5:00 AM - 6:00 AM	Tuesday
200776902	Dry	March	Rear-end	22	2007	4:00 PM - 5:00 PM	Thursday
200792165	Dry	April	Head-on / left turn	13	2007	11:00 PM - 12:00 midnight	Friday
200792916	Dry	April	Single motor vehicle	14	2007	6:00 AM - 7:00 AM	Saturday
200830889	Dry	January	Angle	15	2008	5:00 PM - 6:00 PM	Tuesday
200878906	Dry	March	Rear-end	14	2008	4:00 PM - 5:00 PM	Friday
200884669	Ice	March	Angle	21	2008	4:00 PM - 5:00 PM	Friday

Rear-end

Before	After
7	3.75

Sideswipe same direction

Before	After
0.5	0.75

Angle

Before	After
4	1.25

Sideswipe opposite direction

Before	After
2	0

Rear-end left turn

Before	After
0.25	0

Head-on/left turn

Before	After
0.25	0

Single Motor Vehicle

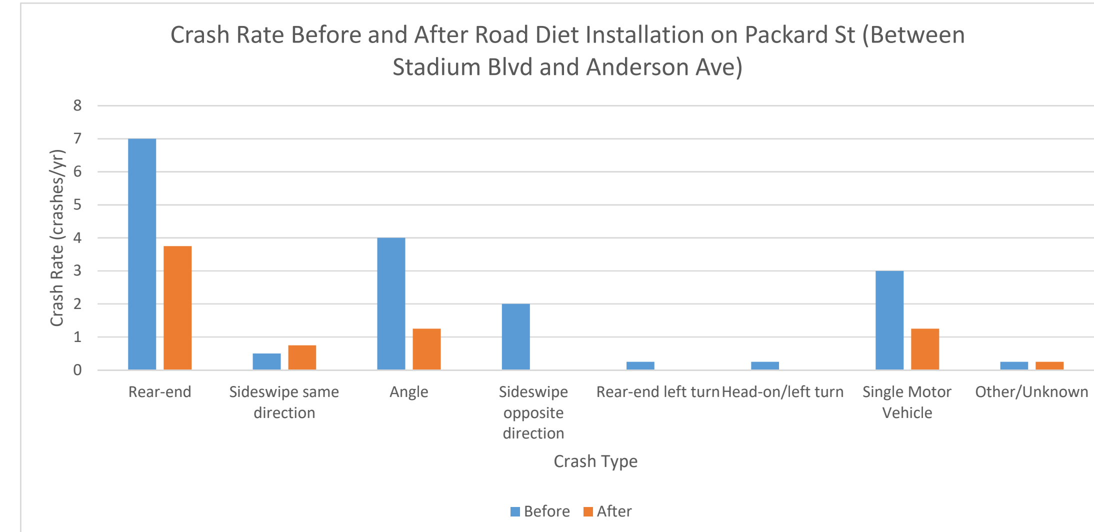
Before	After
3	1.25

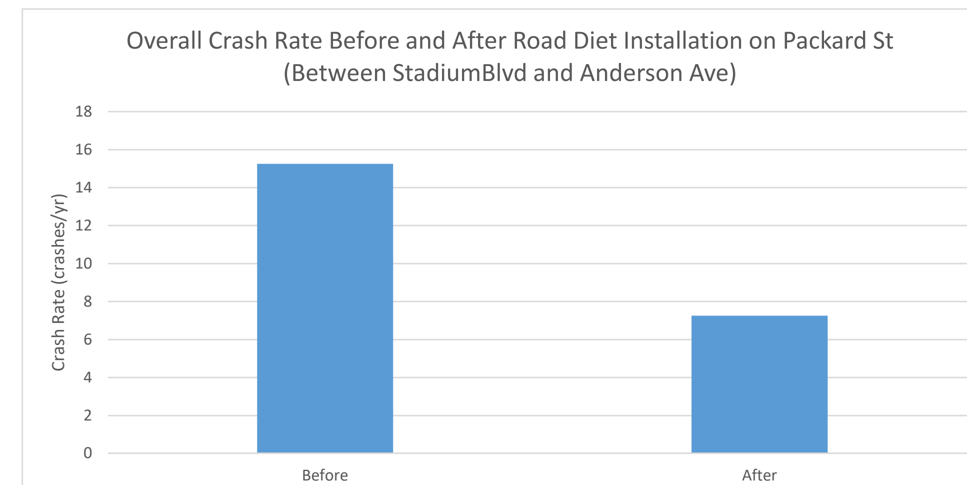
Other/Unknown

Before	After
0.25	0.25

Total Crashes

Before	After
15.25	7.25





Packard St between Stadium Blvd and Anderson Ave

Crash Instance	Road Conditions	Crash Month	Crash Type	Crash Day	Crash Year	Time of Day	Day of Week
200886030	Dry	March	Single motor vehicle	30	2008	4:00 AM - 5:00 AM	Sunday
200886043	Dry	March	Rear-end	24	2008	3:00 PM - 4:00 PM	Monday
200886049	Dry	March	Sideswipe same direction	25	2008	12:00 noon - 1:00 PM	Tuesday
200892710	Dry	April	Rear-end	8	2008	12:00 noon - 1:00 PM	Tuesday
2008109491	Dry	May	Single motor vehicle	9	2008	5:00 PM - 6:00 PM	Friday
2008120732	Dry	May	Rear-end	1	2008	7:00 PM - 8:00 PM	Thursday
2008124973	Dry	May	Rear-end	29	2008	6:00 PM - 7:00 PM	Thursday
2008130396	Dry	May	Rear-end	22	2008	8:00 PM - 9:00 PM	Thursday
2008225117	Dry	October	Rear-end	4	2008	8:00 PM - 9:00 PM	Saturday
2008225118	Dry	October	Rear-end	13	2008	4:00 PM - 5:00 PM	Monday
2008225128	Dry	October	Single motor vehicle	10	2008	5:00 PM - 6:00 PM	Friday
2008248061	Dry	October	Rear-end	28	2008	7:00 AM - 8:00 AM	Tuesday
2009124539	Dry	June	Rear-end	17	2009	6:00 PM - 7:00 PM	Wednesday
2009178104	Dry	September	Angle	3	2009	6:00 PM - 7:00 PM	Thursday
2009259981	Wet	December	Rear-end	2	2009	5:00 PM - 6:00 PM	Wednesday
200973558	Dry	March	Sideswipe same direction	26	2009	9:00 AM - 10:00 AM	Thursday
201020664	Dry	January	Other / unknown	23	2010	2:00 PM - 3:00 PM	Saturday
201074902	Dry	April	Angle	9	2010	6:00 PM - 7:00 PM	Friday
201082970	Dry	April	Single motor vehicle	19	2010	4:00 PM - 5:00 PM	Monday
201088272	Dry	May	Rear-end	4	2010	5:00 PM - 6:00 PM	Tuesday
201099351	Dry	May	Rear-end	14	2010	7:00 AM - 8:00 AM	Friday
2010116198	Dry	June	Single motor vehicle	7	2010	4:00 PM - 5:00 PM	Monday
2010128191	Dry	June	Sideswipe same direction	29	2010	10:00 AM - 11:00 AM	Tuesday
2010134216	Dry	July	Angle	5	2010	3:00 PM - 4:00 PM	Monday
2010134218	Dry	June	Rear-end	30	2010	11:00 PM - 12:00 midnight	Wednesday
201128826	Wet	January	Rear-end	25	2011	4:00 PM - 5:00 PM	Tuesday

Packard St between Anderson Ave and Eisenhower Pkwy

Crash Instance	Road Conditions	Crash Month	Crash Type	Crash Day	Crash Year	Time of Day	Day of Week
200915482	Dry	January	Rear-end	6	2009	5:00 PM - 6:00 PM	Tuesday
200917872	Slush	January	Angle	16	2009	12:00 noon - 1:00 PM	Friday
200922005	Snow	January	Sideswipe same direction	15	2009	6:00 PM - 7:00 PM	Thursday
200946485	Dry	February	Rear-end	19	2009	5:00 PM - 6:00 PM	Thursday
200985113	Wet	April	Angle	14	2009	11:00 AM - 12:00 noon	Tuesday
200992519	Dry	May	Rear-end	2	2009	2:00 PM - 3:00 PM	Saturday
2009124537	Dry	June	Sideswipe same direction	16	2009	5:00 PM - 6:00 PM	Tuesday
2009138084	Dry	June	Sideswipe same direction	25	2009	9:00 AM - 10:00 AM	Thursday
2009163921	Dry	August	Rear-end	12	2009	2:00 PM - 3:00 PM	Wednesday
2009168697	Dry	August	Rear-end	18	2009	11:00 AM - 12:00 noon	Tuesday
2009178102	Dry	September	Sideswipe same direction	2	2009	4:00 PM - 5:00 PM	Wednesday
2009190866	Dry	September	Rear-end	12	2009	9:00 PM - 10:00 PM	Saturday
2009199133	Dry	September	Rear-end	25	2009	8:00 PM - 9:00 PM	Friday
2009234350	Dry	November	Rear-end	5	2009	5:00 PM - 6:00 PM	Thursday
2009256776	Dry	November	Single motor vehicle	24	2009	4:00 PM - 5:00 PM	Tuesday
2009271019	Ice	December	Head-on	8	2009	9:00 PM - 10:00 PM	Tuesday
2009275723	Ice	December	Single motor vehicle	20	2009	7:00 AM - 8:00 AM	Sunday
2010124630	Dry	June	Angle	21	2010	2:00 PM - 3:00 PM	Monday
2010144528	Dry	July	Rear-end	15	2010	1:00 PM - 2:00 PM	Thursday
2010243609	Dry	November	Rear-end	18	2010	8:00 PM - 9:00 PM	Thursday
2010266553	Snow	December	Single motor vehicle	12	2010	8:00 PM - 9:00 PM	Sunday
2010269452	Dry	December	Single motor vehicle	1	2010	1:00 PM - 2:00 PM	Wednesday
2010276067	Snow	December	Angle	22	2010	8:00 AM - 9:00 AM	Wednesday
201019206	Dry	January	Rear-end	13	2010	6:00 PM - 7:00 PM	Wednesday
201026269	Snow	February	Rear-end	2	2010	6:00 PM - 7:00 PM	Tuesday
201026270	Snow	February	Rear-end	2	2010	6:00 PM - 7:00 PM	Tuesday
201032344	Snow	February	Single motor vehicle	2	2010	10:00 PM - 11:00 PM	Tuesday
201055146	Dry	March	Rear-end	2	2010	3:00 PM - 4:00 PM	Tuesday
201086079	Dry	May	Single motor vehicle	1	2010	3:00 PM - 4:00 PM	Saturday
201157664	Snow	February	Sideswipe same direction	20	2011	8:00 PM - 9:00 PM	Sunday
2011100529	Dry	May	Single motor vehicle	5	2011	11:00 AM - 12:00 noon	Thursday
2011102266	Dry	April	Rear-end	26	2011	6:00 PM - 7:00 PM	Tuesday
2011103016	Dry	May	Angle	3	2011	5:00 PM - 6:00 PM	Tuesday
2011108038	Wet	May	Rear-end	18	2011	5:00 PM - 6:00 PM	Wednesday
2011154518	Dry	July	Head-on / left turn	20	2011	9:00 AM - 10:00 AM	Wednesday
2011190061	Dry	September	Angle	9	2011	8:00 AM - 9:00 AM	Friday
2011197785	Dry	September	Rear-end left turn	4	2011	9:00 AM - 10:00 AM	Sunday
2011206182	Dry	September	Rear-end	28	2011	9:00 AM - 10:00 AM	Wednesday
2011252392	Dry	November	Rear-end	16	2011	7:00 AM - 8:00 AM	Wednesday
2011287988	Wet	December	Single motor vehicle	30	2011	6:00 PM - 7:00 PM	Friday
2012143037	Dry	July	Sideswipe same direction	7	2012	3:00 PM - 4:00 PM	Saturday
2012173609	Dry	August	Rear-end	24	2012	3:00 PM - 4:00 PM	Friday
2012216700	Dry	October	Sideswipe same direction	15	2012	12:00 noon - 1:00 PM	Monday
2012233349	Dry	November	Angle	2	2012	1:00 PM - 2:00 PM	Friday
2012239848	Dry	November	Rear-end left turn	10	2012	9:00 PM - 10:00 PM	Saturday
2012279180	Dry	December	Sideswipe same direction	31	2012	5:00 PM - 6:00 PM	Monday
201224807	Slush	January	Single motor vehicle	22	2012	2:00 PM - 3:00 PM	Sunday
201225671	Wet	January	Rear-end right turn	23	2012	12:00 noon - 1:00 PM	Monday
201230909	Wet	January	Rear-end	27	2012	5:00 AM - 6:00 AM	Friday
201238113	Dry	February	Rear-end	8	2012	8:00 AM - 9:00 AM	Wednesday
201254648	Dry	February	Rear-end	28	2012	5:00 PM - 6:00 PM	Tuesday
201255597	Snow	February	Single motor vehicle	25	2012	3:00 AM - 4:00 AM	Saturday
201258950	Dry	March	Angle	6	2012	8:00 AM - 9:00 AM	Tuesday
201313164	Dry	January	Single motor vehicle	5	2013	8:00 AM - 9:00 AM	Saturday
201333735	Wet	February	Angle	3	2013	1:00 AM - 2:00 AM	Sunday
2013103342	Dry	May	Rear-end	7	2013	8:00 AM - 9:00 AM	Tuesday
2013148193	Dry	June	Other / unknown	19	2013	1:00 AM - 2:00 AM	Wednesday
2013153198	Dry	July	Angle	18	2013	6:00 PM - 7:00 PM	Thursday
2013181452	Dry	August	Single motor vehicle	29	2013	4:00 PM - 5:00 PM	Thursday
2013186214	Dry	September	Rear-end	4	2013	9:00 AM - 10:00 AM	Wednesday
2013189560	Dry	September	Single motor vehicle	6	2013	9:00 PM - 10:00 PM	Friday
2013280361	Ice	December	Rear-end	9	2013	6:00 PM - 7:00 PM	Monday
2014100544	Dry	April	Rear-end	11	2014	4:00 PM - 5:00 PM	Friday
2014103958	Dry	April	Single motor vehicle	5	2014	4:00 PM - 5:00 PM	Saturday

Rear-end

Before	After
5	3.6

Sideswipe same direction

Before	After
1.6	0.2

Angle

Before	After
2	0.4

Sideswipe opposite direction

Before	After
0	0

Rear-end left turn

Before	After
0.6	0

Head-on/left turn

Before	After
0.4	0.2

Single Motor Vehicle

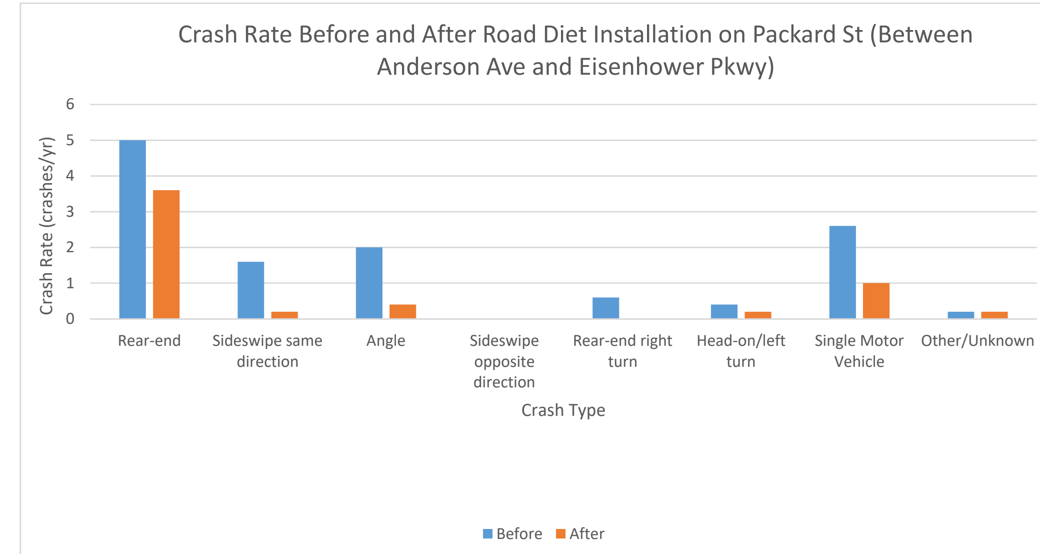
Before	After
2.6	1

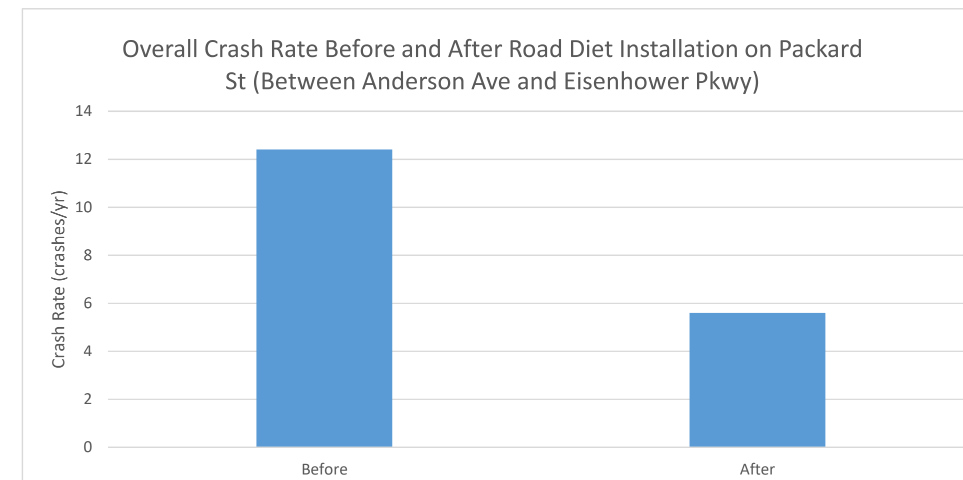
Other/Unknown

Before	After
0.2	0.2

Total Crashes

Before	After
12.4	5.6





Packard St between Anderson Ave and Eisenhower Pkwy

Crash Instance	Road Conditions	Crash Month	Crash Type	Crash Day	Crash Year	Time of Day	Day of Week
2014132223	Dry	May	Rear-end	23	2014	4:00 PM - 5:00 PM	Friday
2014142247	Dry	June	Rear-end	6	2014	4:00 PM - 5:00 PM	Friday
2014164992	Dry	July	Rear-end	11	2014	5:00 PM - 6:00 PM	Friday
2014178535	Dry	July	Rear-end	31	2014	5:00 PM - 6:00 PM	Thursday
2014206934	Dry	September	Rear-end	8	2014	8:00 AM - 9:00 AM	Monday
2014223572	Dry	September	Single motor vehicle	28	2014	2:00 AM - 3:00 AM	Sunday
2014275557	Dry	November	Sideswipe same direction	18	2014	4:00 PM - 5:00 PM	Tuesday
201437431	Dry	January	Rear-end	22	2014	7:00 AM - 8:00 AM	Wednesday
201535185	Slush	February	Single motor vehicle	5	2015	12:00 midnight - 1:00 AM	Thursday
201538056	Dry	February	Rear-end	12	2015	6:00 PM - 7:00 PM	Thursday
201554388	Snow	February	Head-on	13	2015	7:00 PM - 8:00 PM	Friday
201576918	Dry	April	Rear-end	4	2015	12:00 noon - 1:00 PM	Saturday
201579139	Dry	April	Rear-end	4	2015	3:00 PM - 4:00 PM	Saturday
201579159	Dry	March	Angle	20	2015	8:00 AM - 9:00 AM	Friday
201587799	Dry	April	Rear-end	21	2015	10:00 AM - 11:00 AM	Tuesday
2015102095	Wet	May	Single motor vehicle	10	2015	4:00 PM - 5:00 PM	Sunday
201612252	Snow	January	Rear-end	4	2016	1:00 PM - 2:00 PM	Monday
201629677	Dry	January	Rear-end	20	2016	7:00 PM - 8:00 PM	Wednesday
201661602	Snow	March	Rear-end	3	2016	6:00 PM - 7:00 PM	Thursday
201671189	Dry	March	Rear-end	17	2016	4:00 PM - 5:00 PM	Thursday
201747202	Dry	May	Single motor vehicle	19	2017	2:00 AM - 3:00 AM	Friday
201796369	Dry	July	Rear-end	19	2017	1:00 PM - 2:00 PM	Wednesday
201824763	Wet	January	Rear-end	16	2018	8:00 AM - 9:00 AM	Tuesday
201850524	Slush	February	Rear-end	11	2018	5:00 PM - 6:00 PM	Sunday
201865116	Ice	March	Other	2	2018	8:00 AM - 9:00 AM	Friday
201886891	Wet	March	Angle	29	2018	10:00 AM - 11:00 AM	Thursday

Platt Rd between Packard Rd and I-94 bridge

Crash Instance	Road Conditions	Crash Month	Crash Type	Crash Day	Crash Year	Time of Day	Day of Week
200475182	Wet	February	Sideswipe same direction	21	2004	11:00 AM - 12:00 noon	Saturday
200493909	Wet	February	Rear-end left turn	12	2004	8:00 AM - 9:00 AM	Thursday
2004139624	Dry	May	Sideswipe same direction	30	2004	1:00 PM - 2:00 PM	Sunday
2004141068	Dry	May	Head-on / left turn	20	2004	4:00 PM - 5:00 PM	Thursday
2004141332	Dry	April	Rear-end	14	2004	4:00 PM - 5:00 PM	Wednesday
2004163554	Dry	May	Angle	9	2004	8:00 AM - 9:00 AM	Sunday
2004163557	Dry	May	Rear-end	11	2004	7:00 PM - 8:00 PM	Tuesday
2004178011	Dry	May	Rear-end	26	2004	3:00 PM - 4:00 PM	Wednesday
2004179167	Wet	June	Angle	9	2004	1:00 PM - 2:00 PM	Wednesday
2004179188	Dry	May	Sideswipe opposite direction	21	2004	9:00 AM - 10:00 AM	Friday
2004195305	Other / unknown	July	Rear-end	22	2004	2:00 PM - 3:00 PM	Thursday
2004197511	Dry	July	Sideswipe same direction	28	2004	9:00 AM - 10:00 AM	Wednesday
2004208094	Dry	August	Angle	31	2004	8:00 PM - 9:00 PM	Tuesday
2004213375	Dry	August	Rear-end	26	2004	4:00 PM - 5:00 PM	Thursday
2004261330	Dry	August	Rear-end	14	2004	9:00 PM - 10:00 PM	Saturday
2004310959	Dry	September	Angle	3	2004	6:00 AM - 7:00 AM	Friday
2004325338	Dry	October	Angle	3	2004	5:00 PM - 6:00 PM	Sunday
2004331105	Dry	October	Rear-end	20	2004	6:00 AM - 7:00 AM	Wednesday
2004363547	Dry	December	Rear-end	2	2004	3:00 PM - 4:00 PM	Thursday
2004374163	Dry	December	Single motor vehicle	30	2004	3:00 PM - 4:00 PM	Thursday
200539808	Wet	January	Rear-end	8	2005	2:00 PM - 3:00 PM	Saturday
200539846	Snow	January	Angle	5	2005	11:00 AM - 12:00 noon	Wednesday
200548571	Dry	January	Single motor vehicle	21	2005	4:00 AM - 5:00 AM	Friday
2005132930	Dry	May	Single motor vehicle	19	2005	11:00 PM - 12:00 midnigh	Thursday
2005133235	Dry	May	Angle	1	2005	3:00 PM - 4:00 PM	Sunday
2005134966	Dry	May	Rear-end	20	2005	4:00 PM - 5:00 PM	Friday
2005158397	Dry	June	Single motor vehicle	22	2005	9:00 PM - 10:00 PM	Wednesday
2005201564	Dry	August	Rear-end	10	2005	3:00 PM - 4:00 PM	Wednesday
2005212989	Dry	September	Angle	2	2005	4:00 PM - 5:00 PM	Friday
2005214340	Wet	September	Angle	8	2005	5:00 PM - 6:00 PM	Thursday
2005221281	Dry	August	Angle	8	2005	12:00 noon - 1:00 PM	Monday
2005235296	Dry	September	Angle	24	2005	6:00 PM - 7:00 PM	Saturday
2005251136	Dry	October	Sideswipe same direction	8	2005	5:00 PM - 6:00 PM	Saturday
2005259241	Dry	October	Rear-end left turn	26	2005	4:00 PM - 5:00 PM	Wednesday
2005259246	Dry	October	Rear-end	26	2005	4:00 PM - 5:00 PM	Wednesday
2005314907	Dry	December	Sideswipe opposite direction	8	2005	2:00 PM - 3:00 PM	Thursday
2005327082	Wet	December	Angle	24	2005	12:00 noon - 1:00 PM	Saturday
2005332384	Wet	December	Other / unknown	16	2005	4:00 PM - 5:00 PM	Friday
200634765	Dry	January	Single motor vehicle	9	2006	7:00 AM - 8:00 AM	Monday
200655669	Dry	February	Sideswipe same direction	12	2006	1:00 PM - 2:00 PM	Sunday
200681400	Dry	April	Angle	11	2006	2:00 PM - 3:00 PM	Tuesday
200681401	Dry	April	Single motor vehicle	11	2006	6:00 PM - 7:00 PM	Tuesday
2006101058	Dry	May	Rear-end	4	2006	4:00 PM - 5:00 PM	Thursday
2006198171	Dry	July	Rear-end	18	2006	3:00 PM - 4:00 PM	Tuesday
2006198208	Dry	July	Sideswipe same direction	27	2006	5:00 PM - 6:00 PM	Thursday
2006256998	Wet	October	Single motor vehicle	27	2006	1:00 AM - 2:00 AM	Friday
2006301164	Ice	November	Single motor vehicle	2	2006	5:00 PM - 6:00 PM	Thursday
2006306010	Wet	December	Rear-end	22	2006	7:00 AM - 8:00 AM	Friday
2006306120	Dry	November	Rear-end	27	2006	2:00 PM - 3:00 PM	Monday
200782694	Dry	April	Angle	3	2007	7:00 PM - 8:00 PM	Tuesday
200797494	Dry	April	Rear-end	24	2007	2:00 PM - 3:00 PM	Tuesday
2007106796	Dry	May	Rear-end	7	2007	10:00 AM - 11:00 AM	Monday
2007109824	Dry	May	Rear-end	11	2007	12:00 noon - 1:00 PM	Friday
2007109830	Dry	May	Angle	7	2007	10:00 AM - 11:00 AM	Monday
2007117685	Wet	May	Angle	16	2007	8:00 AM - 9:00 AM	Wednesday
2007128750	Dry	June	Angle	1	2007	6:00 PM - 7:00 PM	Friday
2007155923	Dry	June	Rear-end	28	2007	5:00 PM - 6:00 PM	Thursday
2007155936	Dry	June	Other / unknown	20	2007	5:00 PM - 6:00 PM	Wednesday
2007158681	Dry	July	Sideswipe opposite direction	2	2007	5:00 PM - 6:00 PM	Monday
2007158686	Dry	July	Single motor vehicle	12	2007	4:00 PM - 5:00 PM	Thursday
2007160749	Dry	July	Angle	16	2007	7:00 AM - 8:00 AM	Monday
2007167993	Dry	July	Single motor vehicle	18	2007	6:00 PM - 7:00 PM	Wednesday
2007175833	Dry	July	Single motor vehicle	5	2007	7:00 PM - 8:00 PM	Thursday
2007214618	Wet	September	Sideswipe same direction	7	2007	5:00 PM - 6:00 PM	Friday
2007216070	Dry	September	Angle	16	2007	8:00 PM - 9:00 PM	Sunday

Rear-end

Before	After
5.75	2.75

Sideswipe same direction

Before	After
1.75	0

Angle

Before	After
4.75	1.5

Sideswipe opposite direction

Before	After
0.75	0

Rear-end left turn

Before	After
0.5	0

Head-on/left turn

Before	After
0.25	0

Single Motor Vehicle

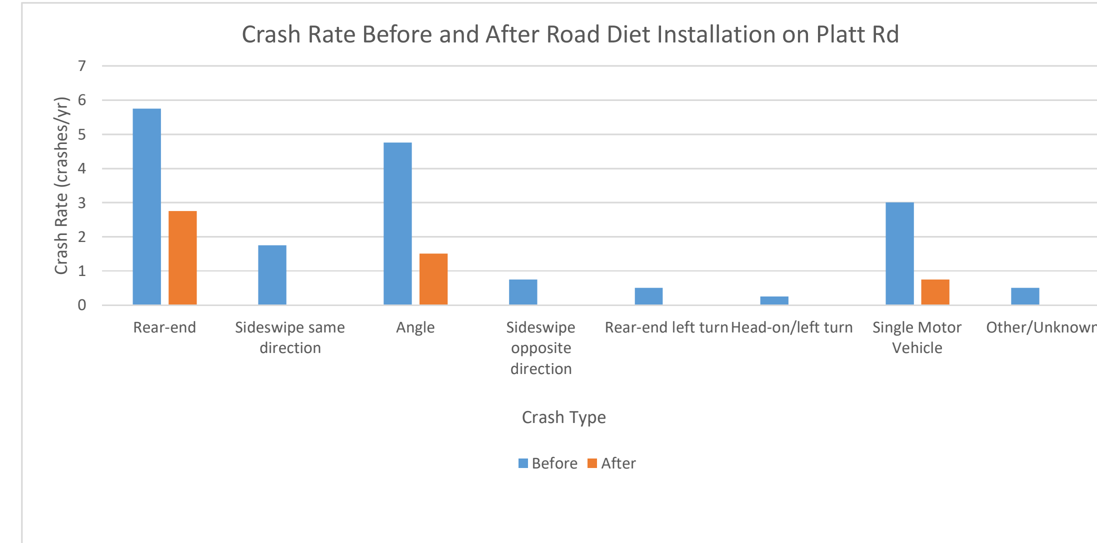
Before	After
3	0.75

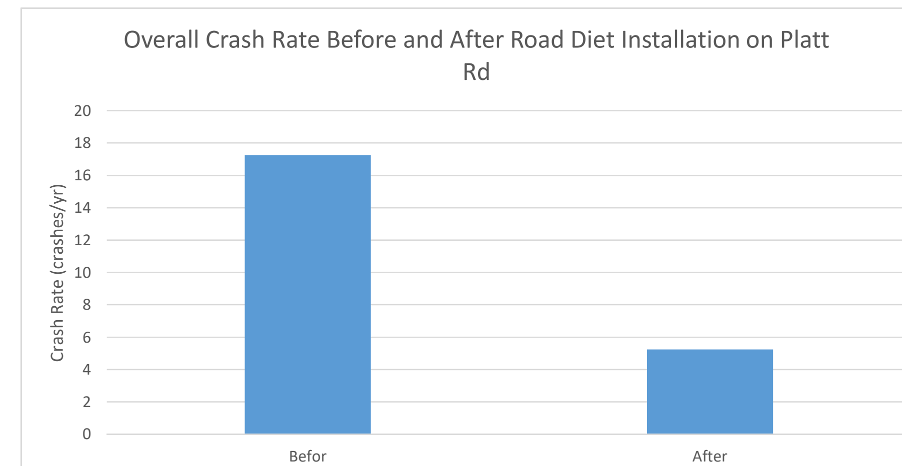
Other/Unknown

Before	After
0.5	0

Total Crashes

Before	After
17.25	5.25





Platt Rd between Packard Rd and I-94 bridge

Crash Instance	Road Conditions	Crash Month	Crash Type	Crash Day	Crash Year	Time of Day	Day of Week	Rear-end
2007231953	Dry	October	Rear-end	8	2007	12:00 noon - 1:00 PM	Monday	
2007233863	Dry	October	Rear-end	17	2007	5:00 PM - 6:00 PM	Wednesday	
2007263474	Dry	November	Rear-end	5	2007	1:00 PM - 2:00 PM	Monday	
2007285773	Dry	November	Single motor vehicle	9	2007	4:00 PM - 5:00 PM	Friday	
2008165471	Dry	July	Rear-end	28	2008	4:00 PM - 5:00 PM	Monday	
2008197437	Dry	September	Rear-end	5	2008	2:00 PM - 3:00 PM	Friday	
2008224928	Wet	October	Rear-end	8	2008	1:00 PM - 2:00 PM	Wednesday	
2008239826	Dry	October	Angle	21	2008	8:00 AM - 9:00 AM	Tuesday	
2008241631	Dry	October	Rear-end	17	2008	2:00 PM - 3:00 PM	Friday	
2008243381	Dry	October	Rear-end	17	2008	5:00 PM - 6:00 PM	Friday	
2008243382	Dry	October	Rear-end	28	2008	4:00 PM - 5:00 PM	Tuesday	
2008283206	Wet	November	Angle	24	2008	10:00 PM - 11:00 PM	Monday	
2008286857	Ice	December	Rear-end	1	2008	8:00 PM - 9:00 PM	Monday	
2008302696	Wet	December	Single motor vehicle	27	2008	7:00 AM - 8:00 AM	Saturday	
200984929	Dry	April	Single motor vehicle	15	2009	8:00 PM - 9:00 PM	Wednesday	
2009114378	Dry	June	Rear-end	3	2009	1:00 PM - 2:00 PM	Wednesday	
2009120947	Dry	June	Rear-end	5	2009	4:00 PM - 5:00 PM	Friday	
2009151576	Dry	July	Single motor vehicle	14	2009	7:00 AM - 8:00 AM	Tuesday	
2009182276	Wet	September	Rear-end	8	2009	8:00 AM - 9:00 AM	Tuesday	
2009275709	Dry	December	Rear-end	16	2009	9:00 AM - 10:00 AM	Wednesday	
20102796	Dry	January	Angle	3	2010	12:00 noon - 1:00 PM	Sunday	
201016782	Snow	January	Rear-end	13	2010	12:00 noon - 1:00 PM	Wednesday	
201080371	Dry	April	Angle	20	2010	6:00 PM - 7:00 PM	Tuesday	
201099438	Wet	May	Angle	13	2010	12:00 noon - 1:00 PM	Thursday	
201159338	Dry	March	Angle	2	2011	5:00 PM - 6:00 PM	Wednesday	

Breakdown By Residency

City Resident	Highly Support	Support	No Opinion	Low Support	Do Not Support	Total	Support Percentage	*Includes Highly Support, Support, Low Support*
Road Diet	70	43	12	26	33	184	76%	
Glazier Roundabout	72	41	10	25	37	185	75%	
Greenhills/Waldenwood Roundabout	59	30	17	27	50	183	63%	
Non-Resident								
Road Diet	6	5	2	0	3	16	69%	
Glazier Roundabout	6	6	1	1	2	16	81%	
Greenhills/Waldenwood Roundabout	5	4	4	0	4	17	53%	

Breakdown by Commuter

Commuter	Highly Support	Support	No Opinion	Low Support	Do Not Support	Total	Support Percentage
Road Diet	23	13	4	4	5	49	82%
Glazier Roundabout	23	16	3	5	4	51	86%
Greenhills/Waldenwood Roundabout	21	11	5	7	6	50	78%
Non-Commuter							
Road Diet	53	35	10	22	31	151	73%
Glazier Roundabout	55	31	8	21	35	150	71%
Greenhills/Waldenwood Roundabout	43	23	16	20	48	150	57%

Breakdown by Mode Use

Walking	Highly Support	Support	No Opinion	Low Support	Do Not Support	Total	Support Percentage
Road Diet	54	31	11	13	13	122	80%
Glazier Roundabout	56	29	5	14	20	124	80%
Greenhills/Waldenwood Roundabout	46	25	10	16	26	123	71%
Bicycling							
Road Diet	47	13	2	4	5	71	90%
Glazier Roundabout	43	14	4	5	5	71	87%
Greenhills/Waldenwood Roundabout	35	12	8	10	6	71	80%
Driving							
Road Diet	71	47	12	25	36	191	75%
Glazier Roundabout	74	44	10	26	38	192	75%
Greenhills/Waldenwood Roundabout	60	33	19	27	52	191	63%

Breakdown By Residency

City Resident	Highly Support	Support	No Opinion	Low Support	Do Not Support	Total	Support Percentage	*Includes Highly Support, Support, Low Support*
Road Diet	10	5	1	3	18	37	49%	
Option A	1	3	2	6	23	35	29%	
Option B	4	9	6	3	16	38	42%	
Option C	2	3	3	2	16	26	27%	
Non-Resident								
Road Diet	0	1	0	0	1	2	50%	
Option A	0	1	0	0	1	2	50%	
Option B	0	0	0	0	2	2	0%	
Option C	0	0	0	1	1	2	50%	

Breakdown by Commuter

Commuter	Highly Support	Support	No Opinion	Low Support	Do Not Support	Total	Support Percentage
Road Diet	0	1	0	0	1	2	50%
Option A	0	1	0	0	1	2	50%
Option B	0	0	0	0	2	2	0%
Option C	0	0	0	1	1	2	50%
Non-Commuter							
Road Diet	10	5	1	3	18	37	49%
Option A	1	3	2	6	23	35	29%
Option B	4	9	6	3	16	38	42%
Option C	2	3	3	2	16	26	27%

Breakdown by Mode Use

Walking	Highly Support	Support	No Opinion	Low Support	Do Not Support	Total	Support Percentage
Road Diet	7	2	0	0	6	15	60%
Option A	0	3	1	3	6	13	46%
Option B	4	1	2	2	7	16	44%
Option C	1	0	0	1	5	7	29%
Bicycling							
Road Diet	7	1	0	0	3	11	73%
Option A	1	1	1	3	3	9	56%
Option B	3	1	1	2	5	12	50%
Option C	1	0	0	1	3	5	40%
Driving							
Road Diet	9	6	1	3	19	38	47%
Option A	1	3	2	6	24	36	28%
Option B	4	9	5	3	18	39	41%
Option C	2	3	3	3	17	28	29%

Breakdown By Residency

	Highly Support	Support	No Opinion	Low Support	Do Not Support	Total	Support Percentage	*Includes Highly Support, Support, Low Support*
City Resident	9	2	0	0	8	19	58%	
Non-Resident	0	1	2	0	1	4	25%	

Breakdown by Commuter

	Highly Support	Support	No Opinion	Low Support	Do Not Support	Total	Support Percentage
Commuter	0	1	2	0	1	4	25%
Non-Commuter	9	2	0	0	8	19	58%

Breakdown by Mode Use

	Highly Support	Support	No Opinion	Low Support	Do Not Support	Total	Support Percentage
Walking	5	0	0	0	4	9	56%
Bicycling	5	0	0	0	2	7	71%
Driving	7	3	2	0	7	19	53%