

Memo

To: Craig Hupy
From: Raymond Hess, Cynthia Redinger, PE
Date: May 13, 2019
Re: Analysis of Road Diet on Traverwood Drive

The City's 2013 update of the Non-Motorized Plan included several recommendations for vehicular lane conversions to create space in the street cross-section for bicycle lanes. Although some of the recommended road diets have been implemented, several of the recommended segments have not been implemented to date. City staff have worked to determine if Traverwood Drive between Huron Parkway and Plymouth Road would be viable for conversion.

The following analysis provides the result of an updated analysis for this road segment and suggested next steps from staff. Analysis of the lane reduction was performed with the guidance from the [Federal Highway Administration Road Diet Information Guide](#) and the [Michigan Department of Transportation Road Diet Checklist](#).

The considerations from FHWA's guide used for this analysis were:

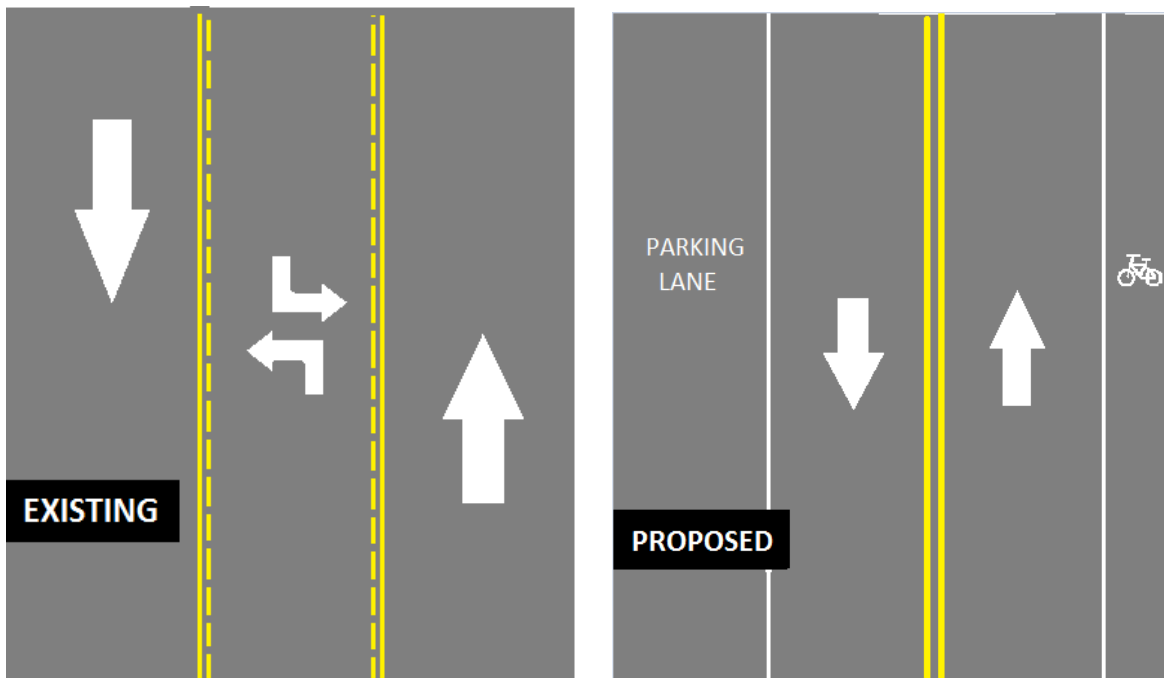
- ADT (<20,000)
- Peak Hour (<1750)
- Traffic signal density
- Peak hour directional volume (<750)
- Speed
- Transit usage
- Pedestrian and bike traffic
- Parking usage
- Effect on parallel routes
- Road width
- Railroad crossings
- Driveway/intersection conflicts
- Crash history

MDOT concerns not being reviewed are:

- Road segment status as a Freeway Emergency Route.
- Road segment status as CMAQ nonattainment or maintenance area status.
- Use of federal funds for road diet implementation.

The proposed changes will be implemented with paint and signing. The proposed project is not intended to require extensive redesign of the roadway or intersections.

The current lane configuration on Traverwood Dr. of one north bound lanes, one south bound lanes, and one two way left turn lane will be reconfigured to one north bound lane, one west bound lane, one bike lane on the east side of the road and one parking lane on the west side of the road. This lane conversion is being implemented in order to increase non-vehicular road user's perceived level of comfort.



Components of the road segment that were taken into consideration are presented for reference.

The characteristics of the road segment that support the implementation of a road diet are listed below.

- The daily, peak hour, and directional peak hour traffic volumes are within the acceptable ranges to maintain a reasonable level of service.
- All approaches at the intersection of Traverwood Dr. and Huron Pkwy. maintained at the level of service of A in a Synchro simulation of the proposed lane changes.
- In a Synchro analysis of the proposed lane changes all approaches at the intersection of Traverwood Dr. and Plymouth Rd., excluding the turning approaches from Plymouth Rd during the PM peak, maintained the same level of service during both PM and AM peak hours with

none exceeding a C. Turning approaches from Plymouth Rd. decreased from an A to a B during the PM peak.

- There is no potential for railway conflicts.
- There are no signalized intersections within the road segment that would cause design conflicts.
- There are no parallel routes that would be affected by the road diet.
- The surrounding area consists of mostly apartments, condos, and office buildings, as well as a library, whose residents and employees would benefit from the increased safety for bicyclists and pedestrians. The residents will also benefit from the additional parking.

There are no prevalent characteristics of the road segment that discourage the implementation of a road diet along this road segment.

Other characteristics that were noted during the study are listed below.

- No prevalent crash problem on the road segment that would be improved or worsened by reducing lanes.

Based on the analysis of the road segment it is recommended to implement the lane reduction. The lane reduction would increase the quality of life of citizens surrounding the road segment, while the potential negative results are minor.

The following project plan was implemented to ensure the lane reduction plan is successful:

- An open house was held on May 9th 2019.
- An online survey was available through May 24th 2019.
- The Transportation Commission reviewed the solution in spring 2019.
- Implementation of the lane reduction will be in summer 2019.
- An evaluation of the lane reduction will be conducted in fall 2020.

Analysis Guide: Traverwood Drive

Guidelines	Site information <small>*Collected by Grace Crowe (2018)</small>	Comments
ADT <20000	~2500-3500 (AADT)	A range of probable AADT values calculated based on turning movement counts and realistic “K factors” from the Traffic Engineering Handbook Seventh Edition (p.213). Turning movement counts obtained from Traverwood Apartments Traffic Impact Study (2013)
Peak Hour <1750	405	Based on turning movement counts obtained from Traverwood Apartments Traffic Impact Study (2013)
Peak Hour Directional <750	NB: 157 SB: 248	Based on turning movement counts obtained from Traverwood Apartments Traffic Impact Study (2013)
LOS	Intersection: Huron Pkwy (NB) AM: <ul style="list-style-type: none"> • Current: A • After: A PM: <ul style="list-style-type: none"> • Current: A • After: A Intersection: Plymouth (SB) AM: <ul style="list-style-type: none"> • Current: C • After: C PM: <ul style="list-style-type: none"> • Current: C • After: C 	Standard PHF values used in simulation (Highway Capacity Manual Edition 6). Turning movement counts obtained from Traverwood Apartments Traffic Impact Study (2013)
Delay (s/v)	Intersection: Huron Pkwy (NB) AM: <ul style="list-style-type: none"> • Current: 8.9 • After: 9.0 PM: <ul style="list-style-type: none"> • Current: 9.4 • After: 9.9 Intersection: Plymouth (SB) AM: <ul style="list-style-type: none"> • Current: 26.4 • After: 25.3 PM: <ul style="list-style-type: none"> • Current: 26.2 • After: 25.6 	Standard PHF values used in simulation (Highway Capacity Manual Edition 6). Turning movement counts obtained from Traverwood Apartments Traffic Impact Study (2013)

Analysis Guide: Traverwood Drive

Volume/Capacity (highest)	<p>Intersection: Huron Pkwy (NB)</p> <p>AM:</p> <ul style="list-style-type: none"> • Current: 0.03 • After: 0.05 <p>PM:</p> <ul style="list-style-type: none"> • Current: 0.10 • After: 0.19 <p>Intersection: Plymouth (SB)</p> <p>AM:</p> <ul style="list-style-type: none"> • Current: 0.16 • After: 0.17 <p>PM:</p> <ul style="list-style-type: none"> • Current: 0.57 • After: 0.68 	<p>Standard PHF values used in simulation (Highway Capacity Manual Edition 6).</p> <p>Turning movement counts obtained from Traverwood Apartments Traffic Impact Study (2013)</p>
Minimum Signals	None in road segment	
Parking Info	No parking for most of roadway, one lane of parking being added. Indented parking outside library on northern end, will be removed.	
Parallel Routes that might be effected	None	
Road Width	<p>Current: ~33ft</p> <p>Plan: 34ft</p> <ul style="list-style-type: none"> • 11ft lanes (x2) • 5ft bike lane (NWB) • 7ft parking lane (SEB) 	Lane widths not finalized.
Railroad Info	None	
Intersection/Driveway Conflicts	None	
Crashes	There is not a prevalent problem to be fixed or could be worsened by reducing lanes.	