



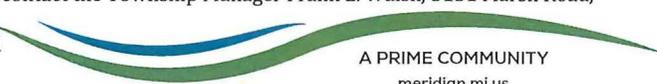
AGENDA
CHARTER TOWNSHIP OF MERIDIAN
MERIDIAN TRANSPORTATION COMMISSION
November 16, 2017 6:00 p.m.



1. CALL MEETING TO ORDER
2. APPROVAL OF AGENDA
3. APPROVAL OF MINUTES
 - A. October 19, 2017
4. PUBLIC REMARKS
5. COMMUNICATIONS
 - A. Received and on file
 - o Donna Rose-Redi-Ride
6. PUBLIC HEARING:
 - A. Lake Lansing Road (Hagadorn to Saginaw Highway) reduce existing 4 lanes to 3 lanes
7. COMMISSION COMMENTS
8. NEXT MEETING DATES
 - A. December 14, 2017 Meridian Municipal Building Town Hall Room
 - B. Township Board Meeting, December 12, 2017
 - C. 2018 Meeting Schedule
9. ADJOURNMENT

Individuals with disabilities requiring auxiliary aids or services should contact the Township Manager Frank L. Walsh, 5151 Marsh Road, Okemos, MI 48864 or 517.853.4258 - Ten Day Notice is Required.
Meeting Location: 5151 Marsh Road, Okemos, MI 48864 Township Hall

Providing a safe, welcoming, sustainable, prime community.



A PRIME COMMUNITY
meridian.mi.us

DRAFT

CHARTER TOWNSHIP OF MERIDIAN
MERIDIAN TRANSPORTATION COMMISSION (MTC)
MEETING MINUTES OF OCTOBER 19, 2017

PRESENT: Commissioners: Chair Hackbarth, Vice-Chair Potter, Hudson, Vagnozzi, Deschaine,
and Beavers

ABSENT: Commissioner Kolbasa

STAFF: Dave Hall, Chief of Police

Mark Kieselbach, Director of Community Planning and Development

1. Call Meeting to Order

Chair Hackbarth called the meeting to order at 6:07 p.m.

2. Approval of Agenda

Commissioner Deschaine moved to approve the agenda as written.

Seconded by Commissioner Vagnozzi.

VOICE VOTE: Motion carried unanimously

3. Approval of Minutes

Vice-Chair Potter asked to amend the minutes of September 28, 2017 for the public remark made by Leonard Provencher to add "MDOT" in the second sentence after proposed and in the third sentence add "included in the proposed changes" after improvements.

Commissioner Vagnozzi asked on page 3, Item 7, the eighth bullet point to add "net" after \$2000.

Commissioner Deschaine moved to approve the amended minutes of September 28, 2017

Seconded by Vice Chair Potter

VOICE VOTE: Motion carried unanimously

4. Public Remarks

Donna Rose stated CATA had issued a RFP (request for proposal) for Spec-Tran which included services such as Mason Redi-Ride but not Meridian Redi-Ride. She questioned if the Redi-Ride was needed as a large number of people using Redi-Ride could use a different means of transportation.

Ody Norkin asked that before the Commission makes any recommendation on Redi-Ride they seek public input. He also asked the Commission to allow public remarks at the end of the meeting.

5. Communications

The Commission accepted the communications that had been received and placed on file.

6. Presentation/Discussion

A. Continue Redi-Ride Discussion

- Liked the door to door ridesharing service in Ypsilanti. More attuned to rider needs.
- Need to know about services provided in other communities
- Need to know what the users want
- The Township provides more money than it gets in return for service
- The number of no-shows needs to be reduced
- Increase the penalties for no-shows
- The last collection for the millage is Winter Taxes 2018
- Improve communications with CATA
- Should have a specific person at CATA to work with
- Need improvements to technology for scheduling and tracking rides
- Expand service beyond Township border
- Check on service to the 425 areas

Chair Hackbarth moved for the remaining period of the existing millage, the Transportation Commission recommends the Township Board negotiate a formal agreement with CATA for Redi-Ride service (replacing the 2000 letter of agreement) that includes requirements for regular reporting, data collection, communication with the Township Board and Transportation Commission, service standards, updated technology tools for riders, and investigate options for designated cross border commerce center access.

Seconded by Vice-Chair Potter

Commissioner Hudson moved to amend the motion to include opportunities to increase capacity and/or existing hours of service.

Seconded by Vice-Chair Potter

VOICE VOTE ON AMENDMENT: Motion carried unanimously

VOICE VOTE ON AMENDED MOTION: Motion carried unanimously

Approved amended motion reads as follows "For the remaining period of the existing millage, the Transportation Commission recommends the Township Board negotiate a formal agreement with CATA for Redi-Ride service (replacing the 2000 letter of agreement) that includes requirements for regular reporting, data collection, communication with the Township Board and Transportation Commission, service standards, updated technology tools for riders, and investigate options for designated cross border commerce center access and opportunities to increase capacity and/or existing hours of service.

- The motion covers the remainder of the current relationship with CATA tied to the existing millage

- Commission expects to make additional recommendations regarding Redi-Ride service, 2018 millage renewal and a long term vision for a Redi-Ride type service within the Township
- Possible to have a community survey on Redi-Ride
- Consensus that a millage should be for a shorter time frame (3-4 years)

7. Commission Comments

- Request for staff to provide an audit of existing street lights
- Police regularly check to ensure street lights are working
- Can report street light outages on line at Consumers' Energy
- Possible link to Township webpage to report outages
- Street lights should be upgraded when replaced
- Working with Parks and Recreation Department and Communication Department to promote Pathway projects

8. Next Meeting Dates

- Commission's next meeting is November 16, 2017, Municipal Building Town Hall Room
- Township Board's next meeting is November 9, 2017

9. Adjournment

Chair Hackbarth moved to adjourn the meeting

Seconded by Vice-Chair Potter

VOICE VOTE: Motion carried unanimously

Meeting adjourned at 8:02 p.m.

Mark Kieselbach

From: Donna Rose <wild-rose@sbcglobal.net>
Sent: Sunday, November 05, 2017 2:03 AM
To: Mark Kieselbach; chackbarth@mml.org
Cc: Frank Walsh; Ronald Styka
Subject: Last TC meeting

Greetings Transportation Commissioners,

I was encouraged by some progress which was made at the October TC meeting regarding sending a recommendation to the Board of Trustees about Redi Ride and short-term goals. However, I really didn't have a chance to explain my opinion that grants wouldn't solve major issues with our Redi Ride service if distributed in the configuration presented to you by Meridian Trustee and CATA Board member Dan Opsommer. I also have some other comments regarding the discussion.

My greatest objection to the grants and their options are related to human factors. Grants are limited, in this case to three years. If no entity picks up the cost to keep running the original grant, then riders are affected. Riders perceive there is this extra service and they determine they can do more with it, until one day the rug is pulled out from under them when the grant ends. This is a fact that will come back and bite our township government and CATA just like it has with the discontinuation of Delta Redi Ride. We are dealing with human lives. In Delta Township, it has been heart wrenching because some people could no longer get to work and these were mainly people with disabilities who have difficulty finding work in the first place, and who don't get paid enough to use Uber or cab service. Additionally, once again we would not be addressing the main issue, which is children taking up all the seats in the afternoons. one of the grants is to help people get to work, but our service begins at 9AM, long after people are usually supposed to be at their jobs. Furthermore, if we add more service time in the morning, then we will have school kids using and consuming most rides in the morning hours too.

Let's not put ourselves in this position. It just lets people down and becomes a public relations nightmare for CATA. It isn't right to just grab money because it is there without thinking about the impact on real people's lives and real life impacts. Money isn't always everything! Riders don't understand grants! All the public knows is they had service and then they don't, and their individual lives have been affected. It creates great anger. We just don't need that, and riders don't deserve this.

People riding Redi Ride instead of Spectran do so for several reasons. These are in no particular order.

1. Lower fare
2. Possibility of spontaneity of same day service which is not available on Spectran.
3. Shorter ride times since the service is local.
4. A way to connect with other fixed routes.

So how could our town provide this to everyone without capacity limits, without raising prices or punishing people for no shows? It is my contention we are in need of more fixed route service for our residents. Right now our Redi Ride service is so popular because so much of our township is not served by fixed route bus service, despite the increase in housing density. I have spent almost my entire life involved in public transit issues, and this experience tells me people have more freedom and spontaneity when they can depend on a schedule of an excellent bus system. CATA CAN do that very well! When you raise the price for Redi Ride or start punishing riders for no shows, you will be limiting a large group of people, who if they had the money or the ability to drive, would already own a vehicle. You need to think about this. People are needing this service due to the lack of transit options in our Township. When I worked at CMH, I worked with people who were eligible for Spectran, but who couldn't use it due to the cost. There are a whole bunch of people with disabilities living in Meridian Township on about \$744 per month. Try and imagine that. Even with subsidized housing

and other public benefits, this isn't much money. If you disband Redi Ride and add fixed route service, then people will have options. If they are eligible for Spectran, they can still use that, or they can use the less expensive bus system. Fixed route buses could be more available to school students. What school system decides to end bus service for a certain number of children without making sure they have public transit to turn to instead? Fixed route bus service is the most humane thing to do for everyone.

If you are still interested in providing Redi Ride then ask CATA for same day service that actually works. You will eliminate almost all no shows and cancellations this way. People could call 30 minutes prior and get their ride. Imagine for yourself the convenience of having your own vehicle. Then think about all the times you are held up unexpectedly and can't leave exactly when you thought. It happens because life is unpredictable for everyone. You can't expect people to have to call at least a day ahead to plan their lives and expect it to work any better than it does.

Instead of Redi Ride we could begin a voucher system like East Lansing at least for seniors over 60 or so. A person can apply at the senior center and then certain vendors will accept the vouchers so the senior can get 10 rides per month at a reduced fare. They aren't limited to East Lansing or the time of day the voucher is used. So people have a type of subsidized safety net. If we did this and reorganized and/or added fixed route service, we would be serving everyone fairly. Right now I feel school children are getting an unfair advantage in the afternoons when they seem to use most all the resources. Others just don't have a chance.

You can do a survey, but remember people came to the Township Hall giving providing input over two years ago and said they wanted to be able to travel more in the afternoons, but couldn't get rides. I personally would rather spend money trying to fix this issue rather than studying it more.

If you really care about your constituents who do not or cannot drive, please listen to this link below. It is from a program called This American Life which plays on NPR every Saturday and Sunday on WUOM Radio. This particular program ran a few weeks back and is extremely pertinent to this discussion. It is only 11 minutes, so I hope you will take the time to become more acquainted with this issue. The story is entitled, The Longest Distance Between Two Points. It is excellent.

> <http://tal.fm/629/3>

Very sincerely,
Donna Rose
6207 Cobblers Drive
East Lansing, MI 48823
517-489-2233

Mark Kieselbach

From: Conklin, William <WConklin@ingham.org>
Sent: Thursday, November 02, 2017 11:49 AM
To: Mark Kieselbach
Cc: Peterson, Robert; Troia, Dan
Subject: Proposed Lake Lansing Road Diet, Traffic Report, Hagadorn Road to Saginaw Hwy (BL-69)
Attachments: Final Report.pdf

Mark,

For the upcoming Nov. 16, 2017, Public Hearing on the proposed Lake Lansing Road Diet, Hagadorn Road to Saginaw Hwy (BL-69), at the Meridian Township Transportation Commission meeting on that date, I am sending the attached final Traffic Report on this proposal done by Traffic Engineering Associates, TEA, which you may share with the Commission and others as may be necessary along with this email memo for discussion of this proposed road diet at the Public Hearing.

At this time, survey and design of the project is now underway, but plans have not yet been completed and thus will not be available in time for the Public Hearing. Therefore this email memo will describe the proposed improvements and summarize the pertinent findings and recommendations of the attached TEA Traffic Report.

In general the proposed Lake Lansing Road Diet, Hagadorn Road to Saginaw Hwy (BL-69), will have appearance and function very similar to that of Lake Lansing Road, Saginaw Hwy (BL-69) to Marsh Road on which a road diet was completed several years ago.

After planned milling and asphalt resurfacing, the road, which currently has 4 lanes, 2 in each direction, with left turns occurring from the inner "through-left lane" and right turns occurring from the outer "through-right lane", would be restriped to have 3 lanes, with the center lane being a dual direction exclusive left-turn lane, and one through-right lane in each direction, with the resulting extra pavement width split into paved shoulders for non-motorized use on both sides within the existing curb or edge of road.

As the attached TEA Traffic Report summarizes on page 18, there is not expected to be any significant reduction in Level of Service (increase in vehicle delay) with the proposed road diet. This report included expected traffic volumes heading to and from the new Costco store at Park Lake and Saginaw, south of Lake Lansing Road, in its analysis of the Lake Lansing/Hagadorn and Lake Lansing/Park Lake intersections.

The Report does however recommend the addition of an exclusive right-turn lane on eastbound Lake Lansing Road at Hagadorn Road, which ICRD plans to include in the project. Although not specifically recommend by the Report, subject to detailed survey and design now occurring, ICRD may also include an exclusive right-turn lane on eastbound Lake Lansing Road at Park Lake Road and short left turn lanes on Park Lake at Lake Lansing to better serve the expected minor increase in traffic making these turns going to and from the new Costco store. The Lake Lansing/Park Lake intersection is bound on three corners by wetlands, so the design is seeking to accommodate these turn lane additions with little or no impact to the adjacent wetlands.

At both the Lake Lansing/Hagadorn and Lake Lansing/Park Lake intersections, the design goal is also to have the westbound paved shoulder for non-motorized use continue uninterrupted through the intersections as there will not be any westbound exclusive right-turn lanes, however, given space and wetland limitations, the paved shoulder for non-motorized use would have to be interrupted by the proposed eastbound right-turn lanes at both intersections such that non-motorized users would have to share this lane with right-turning vehicles.

Also as recommended by the report, new traffic signals with cycle timings adjusted as necessary for the new configuration will also replace the existing traffic signals at both the Lake Lansing/Hagadorn and Lake Lansing/Park Lake intersections.

Please feel free to share both this email description of the project and the attached Traffic Report with the Transportation Commission and any others interested, and let us know if there is any questions. I will be present and prepared to discuss this project at the Nov. 16, 2017, Public Hearing at the Transportation Commission meeting.

Thank-you,
Bill Conklin, Manager,
Ingham County Road Department
517-676-9722



TRAFFIC IMPACT ASSESSMENT

For the Proposed

Road Diet for
Lake Lansing Road
Between Hagadorn Road and Saginaw Street

Meridian Charter Township, Ingham County, MI

October, 2017

Prepared by:
**Traffic Engineering
Associates, Inc.**

PO Box 100 • Saranac, Michigan 48881
517/627-6028 FAX: 517/627-6040

Table of Contents

	Page
Project Description	1
Scope of Work	1
Aerial Photo	2
Roadways and Intersections	3
Land Use	4
Existing Traffic Volumes	4
Level of Service Analysis for Existing Traffic	6
Level of Service Analysis with 3-Lane Cross Section (Road Diet)	9
Level of Service Analysis for Right Turn Lane at Hagadorn Road	12
Design Considerations	14
Future (Ten Year) Traffic Analysis	14
Population Growth Rate	14
Level of Service Analysis for Future (Ten Year) Traffic	15
Significant Findings	18
Recommendations	18
Supplemental Information	19

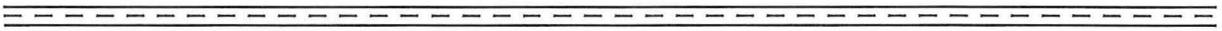


List of Tables

Table	Title	Page
1	Level of Service (LOS) Summary – Existing AM & PM Peak Hour Traffic	7
2	Level of Service (LOS) Summary – Proposed 3-Lane Cross Section AM & PM Peak Hour Traffic	10
3	Level of Service (LOS) Summary – Proposed 3-Lane Cross Section with Right Turn Lane at Hagadorn Road	13
4	Level of Service (LOS) Summary – Future (10 Year) AM & PM Peak Hour Traffic	16

List of Figures

Figure	Title	Page
1	Existing Traffic – AM & PM Peak Hours	5



PROJECT DESCRIPTION

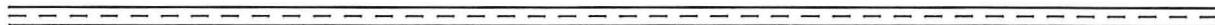
The purpose of this study is to determine the impact at the signalized intersections on Lake Lansing Road between Hagadorn Road and Saginaw Highway (BL69) with the proposed change in cross section on Lake Lansing Road from the existing 4-lane cross section to a proposed 3-lane cross section with a center, two-way, left turn lane.

This project will also include new traffic signal timing plans for the two (2) intersections with new center left turns lanes for eastbound and westbound traffic with a new flashing yellow arrow permissive/protective phasing.

SCOPE OF WORK

The scope of work contained in this report is as follows:

- Analysis of the existing traffic conditions with the current 4-lane cross section on Grand River Avenue (M-43) at the following intersections;
 - Lake Lansing Road and Hagadorn Road
 - Lake Lansing Road and Park Lake Road
 - Lake Lansing Road and Saginaw Highway (BL69)
- Analysis of future traffic conditions on the street system with a proposed 3-lane cross section on Lake Lansing Road at the above listed intersections.
- Analysis of future traffic conditions on the street system with a proposed 3-lane cross section on Lake Lansing Road for future 10 year traffic conditions at the above listed intersections.
- Determination of what roadway and traffic control improvements, if any, will be needed to accommodate the proposed 3-lane cross section on Lake Lansing Road.





Aerial Photo



ROADWAYS AND INTERSECTIONS

Roadway

Lake Lansing Road is a four-lane roadway from Hagadorn Road to Saginaw Street. Lake Lansing Road is a paved roadway with concrete curb and gutter with concrete sidewalks along both the north side and south side of the roadway. Lake Lansing Road is under the jurisdiction of the Ingham County Road Department. The posted speed limit is 35 mph from Hagadorn Road to a point approximately half way to Park Lake Road to the east, then the speed limit increases to 45 mph.

Intersections

Lake Lansing Road and Hagadorn Road

The intersection of Lake Lansing Road and Hagadorn Road is a 4-way intersection with a traffic signal. The east and west approaches on Lake Lansing Road are both four lanes with one (1) thru-right lane, one (1) thru-left lane and two (2) outbound lanes. The north and south approaches on Hagadorn Road are five (5) lanes with one (1) exclusive left turn lane and one (1) thru lane, one (1) thru-right lane and two (2) outbound lanes. There are concrete sidewalks on all four approaches with pedestrian crosswalks and pedestrian push button signals.

Lake Lansing Road and Park Lake Road

The intersection of Lake Lansing Road and Park Lake Road is a four-way intersection with a traffic signal. The east and west approaches on Lake Lansing Road are both four lanes with one (1) thru-right lane, one (1) thru-left lane and two (2) outbound lanes. The north and south approaches on Park Lake Road are two (2) lanes with one (1) left-thru-right lane and one (1) outbound lane. There is a concrete sidewalk on the north side of Lake Lansing Road west of Park Lake Road and sidewalk on the south side of Lake Lansing Road east of Park Lake Road. There is also a sidewalk along the east side of Park Lake Road south of Lake Lansing Road. There are no marked pedestrian crosswalks and no pedestrian traffic signals.

Lake Lansing Road and Saginaw Highway (BL69)

The intersection of Lake Lansing Road and Saginaw Highway (BL69) is a four-way intersection with a traffic signal. Saginaw Highway (BL69) is a northeast to southwest roadway with a grass boulevard separating the lanes. The east and west approaches on Lake Lansing Road are both four lanes with one (1) exclusive right turn lane, one (1) thru lane and two (2) outbound lanes. The north and south approaches on Saginaw Highway (BL69) are three (3) lanes with one (1) exclusive right turn lane, two (2) thru lanes and two (2) outbound lanes. There is a concrete sidewalk along the west side of Saginaw Highway (BL69), north of Lake Lansing Road; also along the south side of Lake Lansing Road, east of Saginaw Highway (BL69). There is a marked pedestrian crosswalk on the south approach with pedestrian push button signals.



Both Saginaw Highway (BL69) and Lake Lansing Road are signed for NO LEFT TURNS. All left turning traffic must turn right and use the north and south median turn arounds.

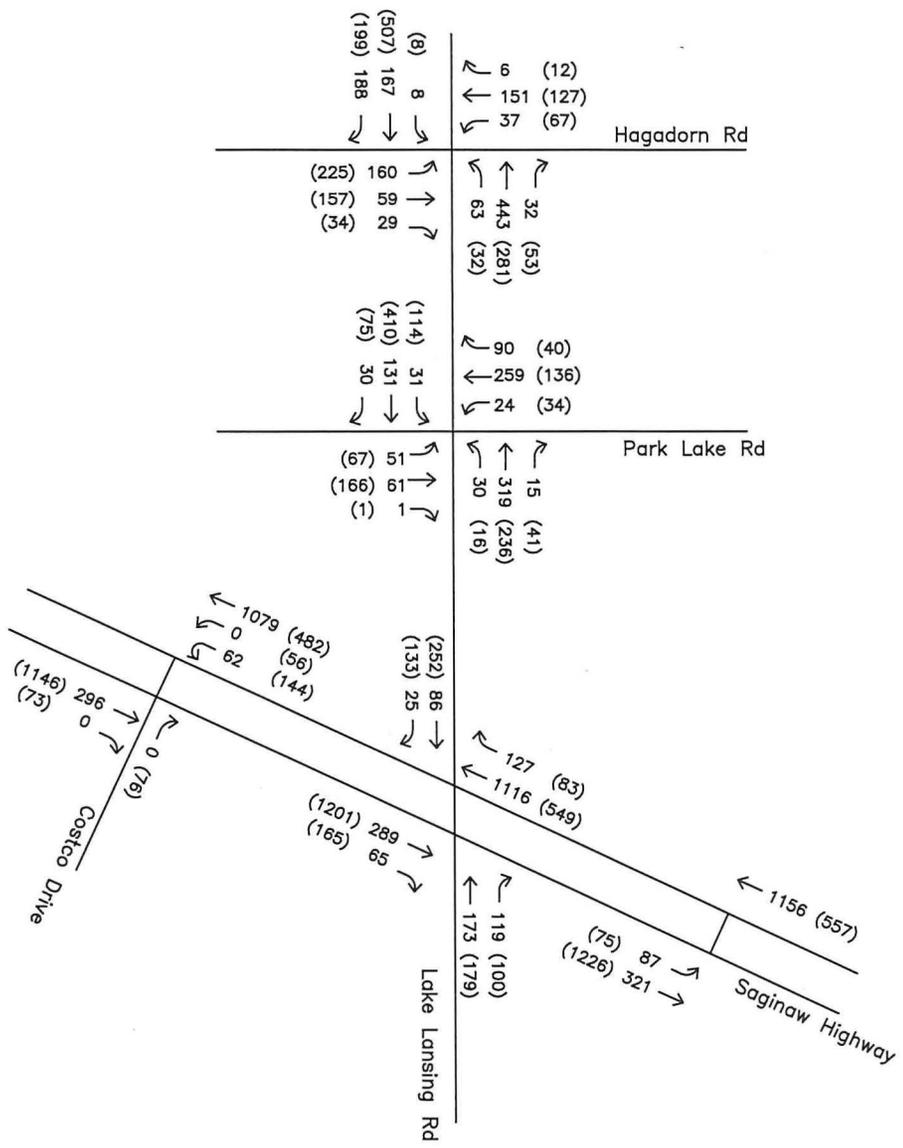
LAND USE

Surrounding land uses on Lake Lansing Road are predominantly residential between Hagadorn Road and Saginaw Highway (BL69).

EXISTING TRAFFIC VOLUMES

Traffic volumes provided by TEA, Inc. were conducted during the month of November, 2016. Counts provided by Hubble, Roth and Clark, Inc. were conducted during the month of March, 2016. The Ingham County Road Department conducted counts during the month of September, 2017. The weekday AM and PM peak hours of existing traffic on Grand River Avenue (M-43) are 7:30 – 8:30 AM and 5:00 – 6:00 PM, respectively. The existing volumes are illustrated in **Figure 1**.





TRAFFIC ENGINEERING ASSOCIATES, INC.
 PO Box 100
 Saranac, MI 48881
 PHONE: (517) 627-6028

LEGEND
 XXX AM Pk Hr (7:30-8:30 AM) Volumes
 (XXX) PM Pk Hr (5:00-6:00 PM) Volumes

Figure 1: Existing Traffic – Peak Hours

LEVEL OF SERVICE ANALYSIS FOR EXISTING TRAFFIC

The critical intersections defined for this study were analyzed according to the methodologies published in the most recent edition of the *Highway Capacity Manual*. The analysis determines the “Level of Service” of the intersections and is based on factors such as the number and types of lanes, signal timing, traffic volumes, pedestrian activity, etc. The level of service (LOS) is defined by average vehicle delay in seconds created by a traffic control device for a given traffic movement or intersection approach.

Level of Service	Delay per Vehicle (seconds)	
	Non-Signalized	Signalized
A	< 10	<10
B	10 to 15	10 to 20
C	15 to 25	20 to 35
D	25 to 35	35 to 55
E	35 to 50	55 to 80
F	> 50	> 80

Levels of Service are expressed in a range from “A” to “F,” with “A” being the highest LOS and “F” representing the lowest LOS. Level of service “D” is considered the minimum acceptable LOS in an urban area. The above table shows the thresholds for Levels of Service “A” through “F” for non-signalized and signalized intersections, respectively.

All Level of Service computations contained in this report were based upon the Synchro software package which is approved by the Michigan Department of Transportation (MDOT). Delay per vehicle includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

For the analysis of existing conditions, all existing geometrics and traffic control were used. The level of service analysis for existing AM and PM peak hour traffic is summarized in **Table 1**.

All existing turning movements at the studied intersections operate at an acceptable level of service (LOS D or better) during the AM and PM peak hours except for the following;

- During the AM peak hour the westbound Lake Lansing Road traffic at Saginaw Highway (BL69) operates at a LOS E with 60.0 seconds of vehicle delay.
- During the PM peak hour the eastbound Lake Lansing Road traffic at Saginaw Highway (BL69) operates at a LOS E with 59.0 seconds of vehicle delay.



Table 1
Level of Service (LOS) Summary
Existing AM and PM Peak Hour Traffic

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Lake Lansing Road and Hagadorn Road	EB Thru	7.3	A	17.3	B
	WB Thru	18.1	B	14.7	B
	NB Left	34.8	C	46.5	D
	NB Thru	15.2	B	20.1	C
	SB Left	28.2	C	29.0	C
	SB Thru	26.5	C	25.3	C
	Intersection	18.2	B	21.9	C
Lake Lansing Road and Park Lake Road	EB Thru	8.7	A	12.5	B
	WB Thru	11.2	B	9.3	A
	NB Left-Thru-Right	13.3	B	15.1	B
	SB Left-Thru-Right	17.5	B	12.0	B
	Intersection	13.0	B	12.0	B
Lake Lansing Road and Saginaw Highway (BL69)	EB Thru	47.7	D	<u>59.0</u>	<u>E</u>
	EB Right	13.5	B	8.1	A
	WB Thru	<u>60.0</u>	<u>E</u>	49.6	D
	WB Right	9.5	A	15.8	B
	NB Thru	6.6	A	12.2	B
	NB Right	1.9	A	1.7	A
	SB Thru	10.1	B	9.0	A
	SB Right	2.0	A	2.1	A
	Intersection	18.9	B	18.8	B

Note: Delay = Average control delay per vehicle in seconds.
LOS = Level of Service



Table 1 (continued)
Level of Service (LOS) Summary
Existing AM and PM Peak Hour Traffic

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Saginaw Highway (BL69) and North Turn Around	WB Left	16.2	C	10.7	B
Saginaw Highway (BL69) and South Turn Around	EB Left	9.8	A	18.4	C

Note: Delay = Average control delay per vehicle in seconds.
LOS = Level of Service



LEVEL OF SERVICE ANALYSIS WITH 3-LANE CROSS SECTION (ROAD DIET)

For the proposed road diet scenario, the existing traffic volumes, plus the future site volumes from the proposed new Costco as provided by Hubble, Roth and Clark, Inc., were utilized. All existing geometrics and traffic control on the cross streets were used except for the future new traffic signal at the south turn around to accommodate the new Costco driveway.

The cross-section on Lake Lansing Road was changed from the existing 4-lane roadway to the proposed 3-lane roadway with a two-way center left turn lane from Hagadorn Road to Saginaw Highway (BL69).

For analysis of the proposed 3-lane cross section, the existing traffic signal timing and phasing at Hagadorn Road and Park Lake Road was redesigned to accommodate the new 3-lane cross section and to install permissive/protective, flashing yellow arrow phasing. New timing permits were developed as part of this study.

The level of service analysis for the proposed 3-lane cross section for the AM and PM peak hour traffic is summarized in **Table 2**.

As with the existing conditions, all future turning movements at the studied intersections are expected to operate at an acceptable level of service (LOS D or better) during the AM and PM peak hours except for the following;

- During the AM peak hour the westbound Lake Lansing Road traffic at Saginaw Highway (BL69) is expected to operate at a LOS E with 60.0 seconds of vehicle delay.
- During the PM peak hour the eastbound Lake Lansing Road traffic at Saginaw Highway (BL69) is projected to operate at a LOS E with 57.8 seconds of vehicle delay.



Table 2
Level of Service (LOS) Summary
AM and PM Peak Hour Traffic
3-Lane Cross Section

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Lake Lansing Road and Hagadorn Road	EB Left	9.1	A	7.6	A
	EB Thru	19.9	B	54.5	D
	WB Left	9.9	A	14.1	B
	WB Thru	22.1	C	13.7	B
	NB Left	25.2	C	42.2	D
	NB Thru	20.2	C	30.5	C
	SB Left	18.0	B	25.8	C
	SB Thru	30.7	C	34.4	C
	Intersection	22.0	C	37.9	D
Lake Lansing Road and Park Lake Road	EB Left	7.3	A	9.0	A
	EB Thru	13.8	B	18.9	B
	WB Left	6.5	A	7.8	A
	WB Thru	23.4	C	19.9	B
	NB Left-Thru-Right	19.6	B	30.9	C
	SB Left-Thru-Right	25.7	C	21.9	C
	Intersection	21.3	C	20.6	C
Lake Lansing Road and Saginaw Highway (BL69)	EB Thru	47.7	D	<u>57.8</u>	<u>E</u>
	EB Right	13.5	B	7.9	A
	WB Thru	<u>60.0</u>	<u>E</u>	49.0	D
	WB Right	9.5	A	21.9	C
	NB Thru	7.3	A	7.5	A
	NB Right	4.7	A	0.9	A
	SB Thru	10.2	B	9.4	A
	SB Right	2.0	A	2.1	A
	Intersection	19.3	B	18.0	B

Note: Delay = Average control delay per vehicle in seconds.

LOS = Level of Service



Table 2 (continued)
Level of Service (LOS) Summary
AM and PM Peak Hour Traffic
3-Lane Cross Section

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Saginaw Highway (BL69) and North Turn Around	WB Left	16.3	C	11.2	B
Saginaw Highway (BL69) and South Turn Around	EB Left	0.2	A	10.9	B
	EB Thru	0.0	A	29.6	C
	WB Right	0.0	A	2.9	A
	NB Thru	5.5	A	20.4	C
	NB Right	0.0	A	2.6	A
	Intersection	4.6	A	18.0	B

Note: Delay = Average control delay per vehicle in seconds.

LOS = Level of Service



LEVEL OF SERVICE ANALYSIS FOR RIGHT TURN LANE AT HAGADORN ROAD

When analyzing the Synchro simulation model for the proposed 3-lane cross section, utilizing the new traffic signal timing and phasing, it was noticed that during the PM peak hour the eastbound queues on Lake Lansing Road at Hagadorn Road were excessive (641 feet). An analysis was conducted with the addition of a new eastbound exclusive right turn lane on Lake Lansing Road at Hagadorn Road which significantly reduced the eastbound queues for the thru lane to 281 feet, a reduction of 360 feet.

By adding the new exclusive right turn lane on Lake Lansing Road at Hagadorn Road, the cycle length for the new signal design could be reduced from the proposed 90 seconds to a new 80 second cycle length. The reduction in the cycle length reduced the vehicle delay and improved the level of service for the entire intersection. The level of service for the eastbound thru movement during the PM peak hour was reduced from a LOS D to a LOS C with a reduction of 22.6 seconds of vehicle delay. Also during the PM peak hour the level of service for the intersection was improved from a LOS D to a LOS C with the vehicle delay reduced by 14.5 seconds.

The level of service analysis for the Lake Lansing Road and Hagadorn Road intersection with the recommended new eastbound right turn lane for the AM and PM peak hour traffic is summarized in **Table 3**.

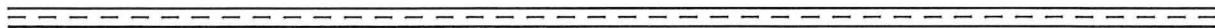


Table 3
Level of Service (LOS) Summary
AM and PM Peak Hour Traffic
3-Lane Cross Section at Hagadorn Road

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Lake Lansing Road and Hagadorn Road	EB Left	9.1	A	8.4	A
	EB Thru	17.7	B	31.9	C
	EB Right	4.0	A	3.7	A
	WB Left	8.6	A	10.3	B
	WB Thru	22.1	C	15.8	B
	NB Left	25.2	C	31.5	C
	NB Thru	20.2	C	25.4	C
	SB Left	18.0	B	20.4	C
	SB Thru	30.7	C	28.8	C
	Intersection	19.6	B	23.3	C

Note: Delay = Average control delay per vehicle in seconds.
LOS = Level of Service



DESIGN CONSIDERATIONS

The proposed change from the existing 4-lane cross section on Lake Lansing Road to the proposed 3-lane cross section with a two-way center left turn lane (road diet), between Hagadorn Road and Saginaw Highway, is not expected to significantly change the level of service or the vehicle delays at the any of the studied intersections.

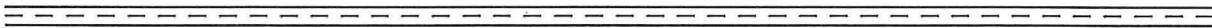
A review of the simulation model shows that there were projected to be significant queues for eastbound Lake Lansing Road at Hagadorn Road during the PM peak hours; however, with the installation of an exclusive eastbound right turn lane, the queues were reduced and the level of service improved for both the eastbound approach and the intersection as a whole.

FUTURE (TEN YEAR) TRAFFIC ANALYSIS

An analysis was conducted to determine the projected level of service (LOS) and the vehicle delays between the proposed 3-lane cross section (2017), and the future ten (10) year (2027) 3-lane cross section. This analysis used the exponential growth rate for Meridian Charter Township. All traffic control devices and geometrics used for the future traffic using a permissive/protected traffic signal design were used for the 10 year analysis.

POPULATION GROWTH RATE

According to the US Census Bureau population estimates, the exponential growth rate for Ingham County from 2010 to 2016 was zero point four two percent (0.42%). The US Census Bureau also shows that the exponential growth rate from 2010 to 2016 for Meridian Charter Township was one point one one (1.11%). The exponential growth rate for Meridian Township was utilized to determine the impacts on future traffic when applying the future population growth for the 3-lane cross section for year 2027.



LEVEL OF SERVICE ANALYSIS FOR FUTURE (TEN YEAR) TRAFFIC

The Synchro analysis shows that there is anticipated to be very little change in the level of service or the vehicle delays at the intersections located in the road diet project. The level of service analysis for the future (2027) traffic volumes is summarized in **Table 4**.

All the movements at the studied intersections are anticipated to operate at the same level of service, for the future ten (10) year period (2027), as the current year (2017) with the proposed 3-lane cross section road diet.

All future (10 Year) turning movements at the studied intersections are expected to operate at an acceptable level of service (LOS D or better) during the AM and PM peak hours except for the following;

- During the AM peak hour the westbound Lake Lansing Road traffic at Saginaw Highway (BL69) is expected to operate at a LOS E with 60.3 seconds of vehicle delay.
- During the PM peak hour the eastbound Lake Lansing Road traffic at Saginaw Highway (BL69) is projected to operate at a LOS E with 60.4 seconds of vehicle delay.



Table 4
Level of Service (LOS) Summary
Future (10 Year) AM and PM Peak Hour Traffic

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Lake Lansing Road and Hagadorn Road	EB Left	9.3	A	8.8	A
	EB Thru	18.3	B	44.0	D
	EB Right	4.0	A	4.7	A
	WB Left	8.9	A	13.4	B
	WB Thru	26.3	C	17.5	B
	NB Left	27.0	C	35.4	D
	NB Thru	20.1	C	25.8	C
	SB Left	18.2	B	20.8	C
	SB Thru	31.8	C	29.4	C
	Intersection	21.5	C	27.9	C
Lake Lansing Road and Park Lake Road	EB Left	8.9	A	10.1	B
	EB Thru	15.6	B	28.8	C
	WB Left	7.3	A	8.3	A
	WB Thru	26.0	C	21.8	C
	NB Left-Thru-Right	26.0	C	36.2	D
	SB Left-Thru-Right	33.5	C	23.0	C
	Intersection	25.8	C	25.8	C
Lake Lansing Road and Saginaw Highway (BL69)	EB Thru	46.9	D	<u>60.4</u>	<u>E</u>
	EB Right	12.7	B	7.6	A
	WB Thru	<u>60.3</u>	<u>E</u>	49.4	D
	WB Right	9.0	A	28.9	C
	NB Thru	7.9	A	8.7	A
	NB Right	4.9	A	0.8	A
	SB Thru	12.0	B	10.2	B
	SB Right	2.5	A	2.0	A
	Intersection	19.6	B	18.9	B

Note: Delay = Average control delay per vehicle in seconds.

LOS = Level of Service



Table 4
Level of Service (LOS) Summary
Future (10 Year) AM and PM Peak Hour Traffic

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Saginaw Highway (BL69) and North Turn Around	WB Left	18.7	C	11.7	B
Saginaw Highway (BL69) and South Turn Around	EB Left	0.2	A	12.7	B
	EB Thru	0.0	A	29.3	C
	WB Right	0.0	A	4.2	A
	NB Thru	5.6	A	23.9	C
	NB Right	0.0	A	3.2	A
	Intersection	4.7	A	21.0	C



SIGNIFICANT FINDINGS

There is not expected to be a significant change in the level of service between the existing 4-lane cross section and the proposed 3-lane cross section on Lake Lansing Road.

With the proposed 3-lane cross section and the new traffic signal timing and phasing, there are lengthy queues for eastbound Lake Lansing Road at Hagadorn Road during the PM peak hour. Adding an exclusive eastbound right turn lane on Lake Lansing Road at Hagadorn Road will significantly reduce the eastbound queues and the vehicle delays, and will improve the level of service for both the east approach and the intersection.

All the movements at the studied intersections are anticipated to operate at the same level of service during the future ten (10) year period (2027), as the current year (2017) with the proposed 3-lane cross section road diet.

RECOMMENDATIONS

Construct an exclusive right turn lane for eastbound Lake Lansing Road at Hagadorn Road. It is recommended that a minimum storage length of 250 feet be constructed. This will provide the right turning vehicles access to the right turn lane when stacking occurs for the eastbound through traffic.

Provide a new traffic signal system for the intersection of Lake Lansing Road and Hagadorn Road. The new phasing should include the flashing yellow arrow (permissive/protective) phasing for all four approaches. Semi-actuation for the left turn lanes and the northbound and southbound through movements on Hagadorn Road.

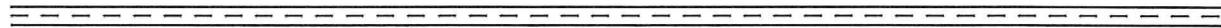
Provide a new traffic signal system for the intersection of Lake Lansing Road and Park Lake Road. The new phasing should include the flashing yellow arrow (permissive/protective) phasing for all four approaches. Semi-actuation for the left turn lanes and the northbound and southbound through movements on Park Lake Road.

New timing permits for the above recommended traffic signal changes are included with this report.



SUPPLEMENTAL

New Timing Permits



TRAFFIC SIGNAL TIMING PERMIT

APPROACH	PHASE	1	2	3	4	5	6	7	8	TIMING INSTALLED			
		WBL	EB	NBL	SB	EBL	WB	SBL	NB				
MINIMUM GREEN PASSAGE		5	10	5	7	5	10	5	7	REMARKS Semi-Actuated Operation with traffic loops in all four left turn lanes and the NB & SB thru lanes on Hagadorn Road. FYA for NB & SB Hagadorn Road and EB & WB Lake Lansing Road. Emergency preemption for all four approaches.			
MAXIMUM NO. 1		13	30	13	14	13	30	13	14				
MAXIMUM NO. 2		13	34	13	20	13	34	13	20				
YELLOW CHANGE		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5				
RED CLEARANCE		1.5	2.5	1.5	2.0	1.5	2.5	1.5	2.0				
WALK			11		7		11		7				
PEDESTRIAN CLEARANCE			19		21		19		21				
EXTENDED PED. CLEARANCE			2		2		2		2				
REST IN WALK			0				0						
INITIALIZATION		1	4	1	1	1	4	1	1				
NON-ACT RESPONSE		0	0	0	0	0	0	0	0				
VEHICLE RECALL		0	3	0	0	0	3	0	0				
PEDESTRIAN RECALL			4		0		4		0				
NON-LOCK MEMORY		1		1	0	1		1	0				
DUAL ENTRY			1		1		1		1				
DIAL 1 SPLIT 1	CYCLE	70	13	30	13	14	13	30	13	14	O1	O2	O3
DIAL 2 SPLIT 1		80	13	34	13	20	13	34	13	20			
DIAL 3 SPLIT 1													
DIAL SPLIT													
DIAL SPLIT													
DIAL SPLIT													
MODE		0	1	0	0	0	1	0	0				
PHASE	Hours of Operation:												
1 WBL Lake Lansing Road Lefts	D1/S1/01 - Normal												
2 EB Lake Lansing Road	D2/S2/01 - 16:30 to 18:30 PM, Monday thru Friday												
3 NBL Hagadorn Road Lefts													
4 SB Hagadorn Road													
5 EBL Lake Lansing Road Lefts													
6 WB Lake Lansing Road													
7 SBL Hagadorn Road Lefts													
8 NB Hagadorn Road													
OVERLAPS		Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN				
		A = WB Lefts FYA		0				1	2				
		B = NB Lefts FYA		0				3	4				
		C = EB Lefts FYA		0				5	6				
		D = SB Lefts FYA		0				7	8				
PREPARED BY: TEA, Inc. DATE: 10/25/17											FLASH HOURS:		
											<input type="text"/> to <input type="text"/> DAILY <input type="checkbox"/> NONE <input checked="" type="checkbox"/> <input type="text"/> to <input type="text"/>		
NIGHT FLASH:											FR =		
FR =											FR = All Directions		
CONFLICT FLASH:											FR = All Directions		
FR =											FR = All Directions		
CONTROLLER TYPE:											PRE-EMPT <input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> EPAC											COUNTDOWN PEDS <input checked="" type="checkbox"/>		
<input type="checkbox"/> Other:													
LOCATION:											Lake Lansing Road and Hagadorn Road		
CITY/TWP:											Meridian Township		
COUNTY :											Ingham		
MILE POINT											CONTROL SECTION-SPOT #		
Job # (If Applicable):													

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION	LEFT-TURN PHASING						RING AND BARRIER STRUCTURE													
	Phase # / Description	Permissive-Protected		Protected-Only		R1	B1		B2		B3		B4							
		Lead	Lag	Split	Lead		Lag													
Controller Type: <input checked="" type="checkbox"/> EPAC <input type="checkbox"/> Other:	1 - WB Lake Lansing Road Lefts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	R2	2		1		4		3						
	3 - NB Hagadorn Road Lefts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	R3	6		5		8		7						
	5 - EB Lake Lansing Road Lefts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	R4													
	7 - SB Hagadorn Road Lefts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
System Type: <input type="checkbox"/> Closed Loop <input type="checkbox"/> Stand By <input type="checkbox"/> Group 1 <input type="checkbox"/> Group 2 Address: <input type="checkbox"/> TBC <input type="checkbox"/> TBC/GPS <input type="checkbox"/> None <input type="checkbox"/> Other: If TBC, Synch by: <input type="checkbox"/> TOD <input type="checkbox"/> Event Interconnect Type: <input type="checkbox"/> Hardwire <input type="checkbox"/> Fiber-Optic <input type="checkbox"/> Radio <input type="checkbox"/> Phone Drop <input type="checkbox"/> None <input type="checkbox"/> Other: If Phone Drop, Phone #: Controller Status: <input type="checkbox"/> Master <input type="checkbox"/> Slave <input checked="" type="checkbox"/> Isolated <input type="checkbox"/> TBC If Slave, Master Location: Master Spot # :	VEHICULAR AND PEDESTRIAN DETECTION																			
	DISAPPEARING LEGEND CASE SIGNS																			
	ADDITIONAL DIAL SPLIT DATA																			
	COORDINATION DATA																			
				PHASE	1	2	3	4	5	6	7	8	O1	O2	O3	Operation Mode	1			
	DIAL	SPLIT	CYCLE													Coordination Mode	0			
																Maximum Mode	0			
																Correction Mode	2			
																Offset Mode	0			
																Force Mode	0			
															Max Dwell	0				
															Yield Period	0				
ADDITIONAL OVERLAP DATA																				
Overlap Phase											Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN			
E = EB Lake Lansing Rd RTGA												7	0.0	3.5	1.5					
=																				
=																				
=																				
REMARKS:											PREPARED BY: TEA, Inc DATE: 10/25/17						LOCATION: Lake Lansing Road and Hagadorn Road			
											<input type="checkbox"/> MDOT <input type="checkbox"/> County <input type="checkbox"/> City <input checked="" type="checkbox"/> Consultant						CONTROL SECTION-SPOT #			

CLEAR PAGE 2

PREEMPTION INFORMATION FORM

Preemption Description: Eastbound Lake Lansing Road Emergency Vehicle (Phase # 2): Fire Preemption																	Preempt System Data												
Preempt # =	1	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Ring	1	2	3	4			
SEL Ped CI	0		Vehicle	Track																	<input type="checkbox"/> Locking	MIN GRN/WLK (s)	7.0	7.0	0.0	0.0			
SEL Yellow	3.5			Dwell		G		R	G	R		R										<input checked="" type="checkbox"/> Non-Locking	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6
SEL Red CI	1.5			Cycle		NO		NO	NO	NO		NO										Status	0	0	0	0			
TRACK Green	0			Exit				1				1										Delay (s)	0						
TRACK Ped CI	0		Ped	Track																	Extend (s)	0							
TRACK Yellow	0.0			Dwell		DW		DW		DW		DW										Duration (s)	0						
TRACK Red CL	0.0			Cycle		0		0		0		0										Max Call (s)	180						
DWELL Green	10			Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		Lockout (s)	0						
RET Ped CI	11		Overlap Vehicle	Track																	Link PE #	0							
RET Yellow	3.5			Dwell			5																						
RET Red CI	1.5			Cycle																									
Preemption Description: Southbound Hagadorn Road Emergency Vehicle (PHASE # 4): Fire Preemption																													
Preempt # =	2	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Ring	1	2	3	4			
SEL Ped CI	0		Vehicle	Track																	<input type="checkbox"/> Locking	MIN GRN/WLK (s)	7.0	7.0	0.0	0.0			
SEL Yellow	3.5			Dwell		R		G		R	G	R										<input checked="" type="checkbox"/> Non-Locking	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6
SEL Red CI	2.0			Cycle		NO		NO		NO	NO	NO										Status	0	0	0	0			
TRACK Green	0			Exit		1				1												Delay (s)	0						
TRACK Ped CI	0		Ped	Track																	Extend (s)	0							
TRACK Yellow	0.0			Dwell		DW		DW		DW		DW										Duration (s)	0						
TRACK Red CL	0.0			Cycle		0		0		0		0										Max Call (s)	180						
DWELL Green	10			Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		Lockout (s)	0						
RET Ped CI	7		Overlap Vehicle	Track																	Link PE #	0							
RET Yellow	3.5			Dwell			5																						
RET Red CI	2.0			Cycle																									
Preemption Description: Westbound Lake Lansing Road Emergency Vehicle (PHASE # 6): Fire Preemption																													
Preempt # =	3	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Ring	1	2	3	4			
SEL Ped CI	0		Vehicle	Track																	<input type="checkbox"/> Locking	MIN GRN/WLK (s)	7.0	7.0	0.0	0.0			
SEL Yellow	3.5			Dwell		G	R		R		G		R									<input checked="" type="checkbox"/> Non-Locking	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6
SEL Red CI	2.0			Cycle		NO	NO		NO		NO	NO										Status	0	0	0	0			
TRACK Green	0			Exit				1				1										Delay (s)	0						
TRACK Ped CI	0		Ped	Track																	Extend (s)	0							
TRACK Yellow	0.0			Dwell		DW		DW		DW		DW										Duration (s)	0						
TRACK Red CL	0.0			Cycle		0		0		0		0										Max Call (s)	180						
DWELL Green	10			Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		Lockout (s)	0						
RET Ped CI	11		Overlap Vehicle	Track																	Link PE #	0							
RET Yellow	3.5			Dwell		5																							
RET Red CI	1.5			Cycle																									
Preemption Description: Northbound Hagadorn Road Emergency Vehicle (PHASE # 8): Fire Preemption																													
Preempt # =	4	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Ring	1	2	3	4			
SEL Ped CI	0		Vehicle	Track																	<input type="checkbox"/> Locking	MIN GRN/WLK (s)	7.0	7.0	0.0	0.0			
SEL Yellow	3.5			Dwell		R	G	R		R		G										<input checked="" type="checkbox"/> Non-Locking	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6
SEL Red CI	2.0			Cycle		NO	NO	NO		NO		NO										Status	0	0	0	0			
TRACK Green	0			Exit		1				1												Delay (s)	0						
TRACK Ped CI	0		Ped	Track																	Extend (s)	0							
TRACK Yellow	0.0			Dwell		DW		DW		DW		DW										Duration (s)	0						
TRACK Red CL	0.0			Cycle		0		0		0		0										Max Call (s)	180						
DWELL Green	10			Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		Lockout (s)	0						
RET Ped CI	7		Overlap Vehicle	Track																	Link PE #	0							
RET Yellow	3.5			Dwell		5																							
RET Red CI	2.0			Cycle																									

REMARKS :

PREPARED BY: TEA, Inc. DATE: 10/25/17
 LOCATION:
 Lake Lansing Road and Hagadorn Road
 CONTROL SECTION-SPOT #

TRAFFIC SIGNAL TIMING PERMIT

APPROACH	PHASE	1	2	3	4	5	6	7	8	TIMING INSTALLED		
		WBL	EB	NBL	SB	EBL	WB	SBL	NB			
MINIMUM GREEN		5	10	5	7	5	10	5	7	REMARKS Semi-Actuated Operation with traffic loops in all four left turn lanes and the NB & SB thru lanes on Hagadorn Road. FYA for NB & SB Hagadorn Road and EB & WB Lake Lansing Road. Emergency preemption for all four approaches.		
PASSAGE		3.0	0.0	3.0	3.0	3.0	0.0	3.0	3.0			
MAXIMUM NO. 1		13	30	13	14	13	30	13	14			
MAXIMUM NO. 2		13	34	13	20	13	34	13	20			
YELLOW CHANGE		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5			
RED CLEARANCE		1.5	2.5	1.5	2.0	1.5	2.5	1.5	2.0			
WALK			11		7		11		7			
PEDESTRIAN CLEARANCE			19		21		19		21			
EXTENDED PED. CLEARANCE			2		2		2		2			
REST IN WALK			0				0					
INITIALIZATION		1	4	1	1	1	4	1	1			
NON-ACT RESPONSE		0	0	0	0	0	0	0	0			
VEHICLE RECALL		0	3	0	0	0	3	0	0			
PEDESTRIAN RECALL			4		0		4		0			
NON-LOCK MEMORY		1		1	0	1		1	0			
DUAL ENTRY			1		1		1		1			
DIAL 1 SPLIT 1	CYCLE									O1	O2	O3
DIAL 2 SPLIT 1		70	13	30	13	14	13	30	13	14		
DIAL 3 SPLIT 1		80	13	34	13	20	13	34	13	20		
DIAL SPLIT												
DIAL SPLIT												
DIAL SPLIT												
DIAL SPLIT												
DIAL SPLIT												
	MODE	0	1	0	0	0	1	0	0			
<u>PHASE</u>		Hours of Operation:										
1 WBL Lake Lansing Road Lefts		D1/S1/01 - Normal										
2 EB Lake Lansing Road		D2/S2/01 - 16:30 to 18:30 PM, Monday thru Friday										
3 NBL Hagadorn Road Lefts												
4 SB Hagadorn Road												
5 EBL Lake Lansing Road Lefts												
6 WB Lake Lansing Road												
7 SBL Hagadorn Road Lefts												
8 NB Hagadorn Road												
OVERLAPS												
<i>Overlap Phase</i>		<i>Load Bays</i>	<i>Phases Overlapped</i>		<i>T.G. (s)</i>	<i>Y (s)</i>	<i>R (s)</i>	<i>-G/Y</i>	<i>+GRN</i>			
A = WB Lefts FYA			0					1	2			
B = NB Lefts FYA			0					3	4			
C = EB Lefts FYA			0					5	6			
D = SB Lefts FYA			0					7	8			
PREPARED BY: TEA, Inc. DATE: 10/25/17											FLASH HOURS:	
											<input type="text"/> to <input type="text"/> DAILY <input type="checkbox"/> NONE <input checked="" type="checkbox"/> <input type="text"/> to <input type="text"/>	
NIGHT FLASH:											FR =	
CONFLICT FLASH:											FR = All Directions	
CONTROLLER TYPE:											PRE-EMPT <input checked="" type="checkbox"/>	
											COUNTDOWN PEDS <input checked="" type="checkbox"/>	
LOCATION:											Lake Lansing Road and Hagadorn Road	
CITY/TWP:											Meridian Township	
COUNTY :											Ingham	
MILE POINT											CONTROL SECTION-SPOT #	
Job # (If Applicable):												

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION	LEFT-TURN PHASING						RING AND BARRIER STRUCTURE												
	Phase # / Description	Permissive-Protected		Protected-Only		R1	B1		B2		B3		B4						
		Lead	Lag	Split	Lead		Lag												
Controller Type: <input checked="" type="checkbox"/> EPAC <input type="checkbox"/> Other:	1 - WB Lake Lansing Road Lefts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	R2	2		1		4		3					
	3 - NB Hagadorn Road Lefts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	R3	6		5		8		7					
	5 - EB Lake Lansing Road Lefts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	R4												
	7 - SB Hagadorn Road Lefts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
System Type: <input type="checkbox"/> Closed Loop <input type="checkbox"/> Stand By <input type="checkbox"/> Group 1 <input type="checkbox"/> Group 2 Address: <input type="checkbox"/> TBC <input type="checkbox"/> TBC/GPS <input type="checkbox"/> None <input type="checkbox"/> Other: If TBC, Synch by: <input type="checkbox"/> TOD <input type="checkbox"/> Event Interconnect Type: <input type="checkbox"/> Hardwire <input type="checkbox"/> Fiber-Optic <input type="checkbox"/> Radio <input type="checkbox"/> Phone Drop <input type="checkbox"/> None <input type="checkbox"/> Other: If Phone Drop, Phone # Controller Status: <input type="checkbox"/> Master <input type="checkbox"/> Slave <input checked="" type="checkbox"/> Isolated <input type="checkbox"/> TBC If Slave, Master Location: Master Spot # :	VEHICULAR AND PEDESTRIAN DETECTION											DISAPPEARING LEGEND CASE SIGNS							
	Vehicle Detection																		
	Approach	Movements and Call Delay (s)						Type			Push-Button Crossing Locations								
		Left	Thru	Right	Loop	Video	Other	Loop	Video	Other									
	NB Hagadorn Road	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									Crossing Lake Lansing Rd. E			
	SB Hagadorn Road	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									Crossing Lake Lansing Rd. W			
	EB Lake Lansing Road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>												
	WB Lake Lansing Road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>												
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
ADDITIONAL DIAL SPLIT DATA																			
PHASE			1	2	3	4	5	6	7	8	O1	O2	O3	COORDINATION DATA					
DIAL	SPLIT	CYCLE												Operation Mode	1				
DIAL	SPLIT	CYCLE												Coordination Mode	0				
DIAL	SPLIT	CYCLE												Maximum Mode	0				
DIAL	SPLIT	CYCLE												Correction Mode	2				
DIAL	SPLIT	CYCLE												Offset Mode	0				
DIAL	SPLIT	CYCLE												Force Mode	0				
DIAL	SPLIT	CYCLE												Max Dwell	0				
DIAL	SPLIT	CYCLE												Yield Period	0				
REMARKS:							ADDITIONAL OVERLAP DATA												
							Overlap Phase						Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN
							E = EB Lake Lansing Rd RTGA							7	0.0	3.5	1.5		
							=												
							=												
PREPARED BY: TEA, Inc DATE: 10/25/17 <input type="checkbox"/> MDOT <input type="checkbox"/> County <input type="checkbox"/> City <input checked="" type="checkbox"/> Consultant							LOCATION:												
							Lake Lansing Road and Hagadorn Road												
							CONTROL SECTION-SPOT #												

CLEAR PAGE 2

PREEMPTION INFORMATION FORM

Preemption Description: Eastbound Lake Lansing Road Emergency Vehicle (Phase # 2): Fire Preemption																	Preempt System Data												
Preempt # =	1	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Ring	1	2	3	4			
SEL Ped Cl	0		Vehicle	Track																	<input type="checkbox"/> Locking	MIN GRN/WLK (s)	7.0	7.0	0.0	0.0			
SEL Yellow	3.5			Dwell		G		R	G	R		R										<input checked="" type="checkbox"/> Non-Locking	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6
SEL Red Cl	1.5			Cycle		NO		NO	NO	NO		NO											Status	0	0	0	0		
TRACK Green	0			Exit				1				1										Delay (s)	0						
TRACK Ped Cl	0		Ped	Track																	Extend (s)	0							
TRACK Yellow	0.0			Dwell		DW		DW		DW		DW										Duration (s)	0						
TRACK Red CL	0.0			Cycle		0		0		0		0										Max Call (s)	180						
DWELL Green	10			Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		Lockout (s)	0						
RET Ped Cl	11		Overlap Vehicle	Track																	Link PE #	0							
RET Yellow	3.5			Dwell			5																						
RET Red Cl	1.5			Cycle																									
Preemption Description: Southbound Hagadorn Road Emergency Vehicle (PHASE # 4): Fire Preemption																													
Preempt # =	2	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Ring	1	2	3	4			
SEL Ped Cl	0		Vehicle	Track																	<input type="checkbox"/> Locking								
SEL Yellow	3.5			Dwell		R		G		R	G	R										<input checked="" type="checkbox"/> Non-Locking							
SEL Red Cl	2.0			Cycle		NO		NO		NO	NO	NO																	
TRACK Green	0			Exit		1				1												Delay (s)	0						
TRACK Ped Cl	0		Ped	Track																	Extend (s)	0							
TRACK Yellow	0.0			Dwell		DW		DW		DW		DW										Duration (s)	0						
TRACK Red CL	0.0			Cycle		0		0		0		0										Max Call (s)	180						
DWELL Green	10			Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		Lockout (s)	0						
RET Ped Cl	7		Overlap Vehicle	Track																	Link PE #	0							
RET Yellow	3.5			Dwell			5																						
RET Red Cl	2.0			Cycle																									
Preemption Description: Westbound Lake Lansing Road Emergency Vehicle (PHASE # 6): Fire Preemption																													
Preempt # =	3	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Ring	1	2	3	4			
SEL Ped Cl	0		Vehicle	Track																	<input type="checkbox"/> Locking								
SEL Yellow	3.5			Dwell		G	R		R		G		R									<input checked="" type="checkbox"/> Non-Locking							
SEL Red Cl	2.0			Cycle		NO	NO		NO		NO		NO																
TRACK Green	0			Exit				1				1										Delay (s)	0						
TRACK Ped Cl	0		Ped	Track																	Extend (s)	0							
TRACK Yellow	0.0			Dwell		DW		DW		DW		DW										Duration (s)	0						
TRACK Red CL	0.0			Cycle		0		0		0		0										Max Call (s)	180						
DWELL Green	10			Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		Lockout (s)	0						
RET Ped Cl	11		Overlap Vehicle	Track																	Link PE #	0							
RET Yellow	3.5			Dwell		5																							
RET Red Cl	1.5			Cycle																									
Preemption Description: Northbound Hagadorn Road Emergency Vehicle (PHASE # 8): Fire Preemption																													
Preempt # =	4	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Ring	1	2	3	4			
SEL Ped Cl	0		Vehicle	Track																	<input type="checkbox"/> Locking								
SEL Yellow	3.5			Dwell		R	G	R		R		G										<input checked="" type="checkbox"/> Non-Locking							
SEL Red Cl	2.0			Cycle		NO	NO	NO		NO		NO																	
TRACK Green	0			Exit		1				1												Delay (s)	0						
TRACK Ped Cl	0		Ped	Track																	Extend (s)	0							
TRACK Yellow	0.0			Dwell		DW		DW		DW		DW										Duration (s)	0						
TRACK Red CL	0.0			Cycle		0		0		0		0										Max Call (s)	180						
DWELL Green	10			Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		Lockout (s)	0						
RET Ped Cl	7		Overlap Vehicle	Track																	Link PE #	0							
RET Yellow	3.5			Dwell			5																						
RET Red Cl	2.0			Cycle																									

REMARKS :

PREPARED BY: TEA, Inc. DATE: 10/25/17
 LOCATION:
 Lake Lansing Road and Hagadorn Road
 CONTROL SECTION-SPOT #

**Meridian Transportation Commission Meeting Dates
2018 Schedule**

RESOLUTION

At a regular meeting of the Meridian Transportation Commission of the Charter Township of Meridian, Ingham County, Michigan, held at the Meridian Municipal Building, in said Township on the 16th day of November, 2017 at 6:00pm., Local Time.

PRESENT: _____

ABSENT: _____

The following resolution was offered by _____ and supported by _____.

WHEREAS, Public Act 267 of the Public Acts of 1976 requires the publication of the meeting schedule of every municipal board at least once a year; and

WHEREAS, the Meridian Transportation Commission (MTC) desires to announce the time, date, and place of all regular meetings of the MTC, pursuant to the provisions of Act 267 of the Public Act of 1976.

NOW, THEREFORE, BE IT RESOLVED BY THE MERIDIAN TRANSPORTATION COMMISSION OF THE CHARTER TOWNSHIP OF MERIDIAN, INGHAM COUNTY, MICHIGAN as follows:

1. The Meridian Transportation Commission will meet for regular meetings on certain Thursdays, January through December in 2018 in the Community Room of the Central Fire Station, 5000 Okemos Road, Okemos, MI 48864,
2. The specific dates for meetings are as follows:

January	18
February	15
March	15
April	19
May	17
June	21
July	19
August	16
September	20
October	18
November	15
December	20

