

# CITY of NOVI CITY COUNCIL



**Agenda Item 1**  
**May 20, 2019**

**SUBJECT:** Consideration of the request of GPD group for JSP 18-75 Chick-Fil-A for approval of rezoning from Regional Center (RC) to Regional Center with a Planned Development 2 Option (PD-2) in order to effectuate a PD Option for the subject property. The subject property is located at the northwest corner of Novi Road and the I-96 service drive in Section 14. **FIRST READING**

**SUBMITTING DEPARTMENT:** Community Development Department - Planning *Barb*

**CITY MANAGER APPROVAL:** *[Signature]*

**BACKGROUND INFORMATION:**

The applicant is proposing to demolish the existing vacant building (old Denny's restaurant) to develop a Chick-Fil-A Restaurant located the northeast corner of Novi Road and the I-96 service drive. The new restaurant will be approximately 4,990 square feet and the applicant will be utilizing the Planned Development 2 (PD-2) option. The proposed restaurant includes a drive-through window and associated canopy over the drive-through lanes, and includes a play area inside the building. The restaurant proposes 114 indoor seats and 16 outdoor seats.

The intent of the PD Planned Development Options, as listed in Section 3.31 of the Zoning Ordinance, is to provide for alternative means of land use development within designated zoning districts, such as RC, Regional Center Zoning District, and to insure that alternative land development permitted under these options will allow site designs that create a desirable environment providing for the harmonious relationship between land use types with respect to: uses of land, the location of uses on the land and the architectural and functional compatibility between uses. The PD-2 Planned Development Option is intended to permit the limited application of (i) more extensive commercial uses in a district otherwise restricted to community and regional oriented shopping centers or **(ii) transitional uses on the periphery of regional oriented shopping centers.**

The PD options contained in Section 3.31 shall be considered only within those areas of the City which are specifically designated for their application on the City's Master Plan for Land Use Map. The subject property is currently not designated as PD-2 on the 2016 Future Land Use Map. The map recommends PD-2 for other outlots around the north and west side of the Twelve Oaks Mall, including the existing McDonald's Restaurant, and for properties in part of West Oaks Mall, and for the Hotel property on the west side of Novi Road, north of I-96 (see attached map). Use of the PD-2 Option for smaller parcels around

the Twelve Oaks Mall would improve the development potential of the lots, since the setbacks provided with the overlay are considerable smaller than in the RC, Regional Center District, and because the uses are expanded to allow additional uses, such as drive-through restaurants (subject to limitations as noted in the ordinance).

### **Rezoning Request**

The property is currently zoned RC, Regional Center. The existing building is currently vacant, but was previously used as a Denny's Restaurant. The existing building is considered a legal non-conforming structure and the parking does not meet the Ordinance requirements. The proposed redevelopment of the site would be required to conform to the Ordinance standards and is not allowed to follow the non-conforming setbacks that currently exist.

As noted in the rezoning review, the current RC, Regional Center zoning would limit the development potential for the site. The applicant is proposing to redevelop the site using PD-2 option which provides a greater flexibility for redevelopment. Per Section 3.31.2.B & C, the Planning Commission may proceed simultaneously with review and recommendation on applications for rezoning, PD Option and preliminary site plan approval. A copy of excerpt from Section 3.31 is attached for reference.

If the City Council approves the rezoning for this, the First Reading, the request will return for a Second Reading, with the Preliminary Site Plan, Planned Development Option, Special Land Use, and Stormwater Management Plan, including any noted deviations from the ordinance standards. Planning recommends approval for the reasons stated in the suggested motion.

### **Review Summary**

The Staff Engineer has reviewed the rezoning request and summarized that the requested rezoning to RC with a PD-2 Option will result in utility demands that are approximately equal to or less than the utility demand if the property were to be developed under the current zoning. The rezoning would have negligible impact on utility demands.

The applicant requested to waive the requirement for a rezoning traffic study as many other traffic related studies are provided. The City's Traffic consultants reviewed the Traffic Impact Study provided by the applicant and indicated that the changes of the impacts for the proposed rezoning would be minimal especially considering the small size of the parcel. Most of the potential uses that could have a negative impact for the rezoning would not fit on such a small site. The impacts of the development are not anticipated to degrade levels of services beyond those under existing conditions during either the AM or PM peak periods. Refer to Traffic study review for more details.

The project site does not contain City-Regulated Wetlands or Regulated Woodlands.

### **Planning Commission Meeting Summary**

The Planning Commission met on April 17, 2019 held a Public Hearing with regard to the rezoning request. Following a brief discussion of the request, the Planning Commission voted to **recommend approval** to the City Council to rezone the subject property from Regional Commercial (RC) to Regional Commercial with a Planned Development 2 Option (PD-2). A copy of the meeting minutes are attached to the memo.

At that meeting, Planning Commission also made a recommendation for approval for Preliminary Site Plan with a PD-2, Special Land Use and Stormwater Management Plan approval for Chick-Fil-A restaurant. If City Council tentatively approves the rezoning request, staff will bring forward the site plan request at the next City Council meeting for final approval.

**RECOMMENDED ACTION:**

Approval of the request of GPD group for JSP 18-75 Chick-Fil-A for approval of rezoning from Regional Center (RC) to Regional Center with a Planned Development 2 Options (PD-2) in order to effectuate a PD Option for the subject property. The subject property is located at the northwest corner of Novi Road and the I-96 service drive in Section 14.

**FIRST READING**

Approval is of the First Reading of the rezoning is granted, with a waiver of the required Rezoning Traffic Study, as the applicant has submitted a Traffic Impact Study that addresses the anticipated traffic impacts, for the following reasons:

1. The rezoning request fulfills the Master Plan for Land Use objective of fostering a favorable business climate.
2. The rezoning will be consistent with the surrounding zoning and existing developments.
3. The PD-2 Planned Development Option is intended to permit the limited application of (i) more extensive commercial uses in a district otherwise restricted to community and regional oriented shopping centers or **(ii) transitional uses on the periphery of regional oriented shopping centers, as this property is located.**
4. The rezoning would increase development potential of the subject property.
5. The rezoning provides a redevelopment opportunity for a challenging site in a visible location along the I-96/Novi Road corridor.
6. The rezoning will have a negligible impact on public utilities.

**MAPS**

Location

Zoning

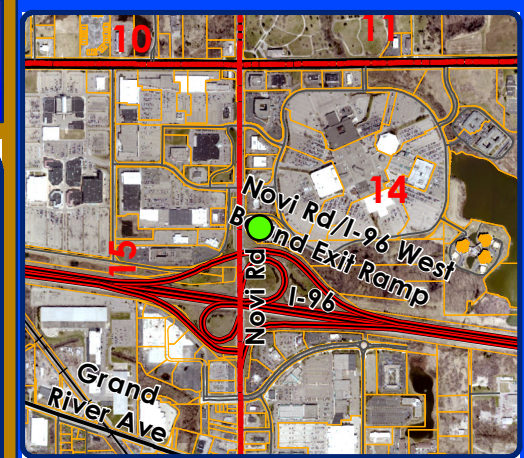
Future Land Use

Natural Features



# JSP 18-75:CHICK-FIL-A

Location



### LEGEND

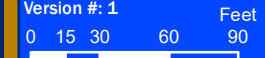
 Sections



## City of Novi

Dept. of Community Development  
City Hall / Civic Center  
45175 W Ten Mile Rd  
Novi, MI 48375  
cityofnovi.org

Map Author: Sri Komaragiri  
Date: 03/07/19  
Project: JSP 18-75: CHICK-FIL-A  
Version #: 1



1 inch = 83 feet



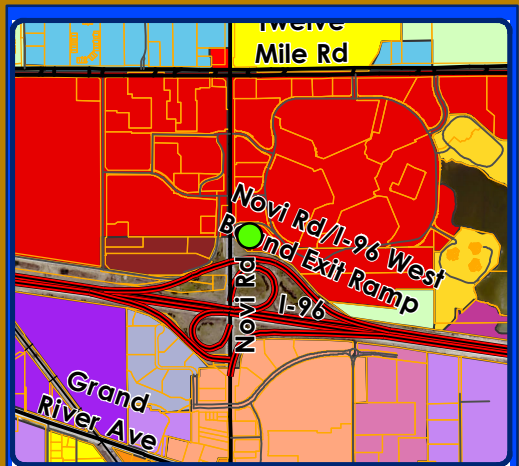
### MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.



# JSP 18-75:CHICK-FIL-A

Zoning



### LEGEND

- R-A: Residential Acreage
- R-1: One-Family Residential District
- R-4: One-Family Residential District
- RM-1: Low-Density Multiple Family
- B-3: General Business District
- C: Conference District
- EXPO: EXPO District
- I-1: Light Industrial District
- I-2: General Industrial District
- OS-1: Office Service District
- OSC: Office Service Commercial
- OST: Office Service Technology
- RC: Regional Center District
- TC: Town Center District
- TC-1: Town Center -1 District



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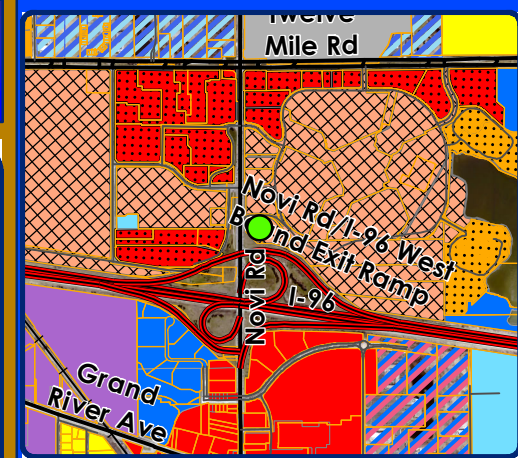
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# JSP 18-75:CHICK-FIL-A

## Futue Land Use



**LEGEND**

FUTURE LAND USE

- Single Family
- Multiple Family
- PD1
- Community Office
- Office RD Tech
- Office Commercial
- Industrial RD Tech
- Regional Commercial
- TC Commercial
- PD2
- Public
- Cemetery

**CITY OF NOVI**  
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0 15 30 60 90 Feet

1 inch = 83 feet

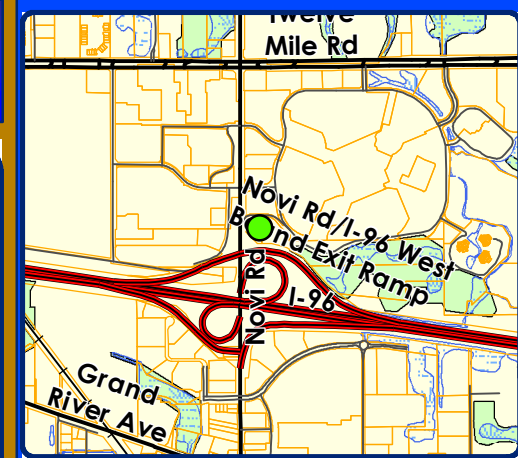
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# JSP 18-75:CHICK-FIL-A

N t F e t e



### LEGEND

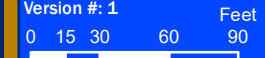
- WETLANDS
- WOODLANDS



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## PLANNING REVIEW: REZONING





# PLAN REVIEW CENTER REPORT

March 06, 2019

## Planning Review

Chick-Fil-A

JZ 18-75 with Rezoning 18.729

### PETITIONER

GPD Group

### REVIEW TYPE

Rezoning Request from Regional Commercial (RC) to Regional Commercial with a Planned Development 2 Options (PD-2)

### PROPERTY CHARACTERISTICS

Section	14	
Site Location	22-14-100-50; 27750 Novi Road; north of I-96, east of Novi Road	
Site School District	Novi Community School District	
Current Zoning	Regional Commercial (RC)	
Proposed Zoning	RC with a PD-2 Option (Planned Development)	
Adjoining Zoning	North	RC
	East	RC
	West	RC
	South	TC across I-96
Current Site Use	Vacant building and unused parking lot (Old Denny's restaurant)	
Adjoining Uses	North	Sit-down restaurant
	East	Twelve Oaks Mall
	West	West Oaks Mall
	South	Novi Town Center
Site Size	1.40 acres	
Plan Date	February 06, 2019	

### PROJECT SUMMARY

The petitioner is requesting a Zoning Map amendment for 1.40 acres of property located at the south east corner of Novi Road and Twelve Oaks Drive (Section 15) from Regional Commercial (RC) to Regional Commercial with a Planned Development 2 Options (PD-2). The applicant states that the rezoning request is necessary for a possible restaurant with a drive-thru, which could be considered as a Special Land Use under RC with a PD-2 Overlay once the rezoning is approved.

### MASTER PLAN FOR LAND USE

The Future Land Use Map of the 2016 City of Novi Master Plan for Land Use identifies this property as Gateway East. The proposal would address the general goal for "Economic Development" listed in Master Plan for Land Use by fulfilling the following objective:

1. **Objective:** Retain and support the growth of existing businesses and attract new businesses to the City of Novi.
2. **Objective:** I-96/Novi Road Study Area. Develop the I-96/Novi Road Study Area in a manner that reflects the importance of this important gateway to the City in terms of its location, visibility, and economic generation. Mitigate impacts to the City's infrastructure. (See page 125)

### DEVELOPMENT POTENTIAL

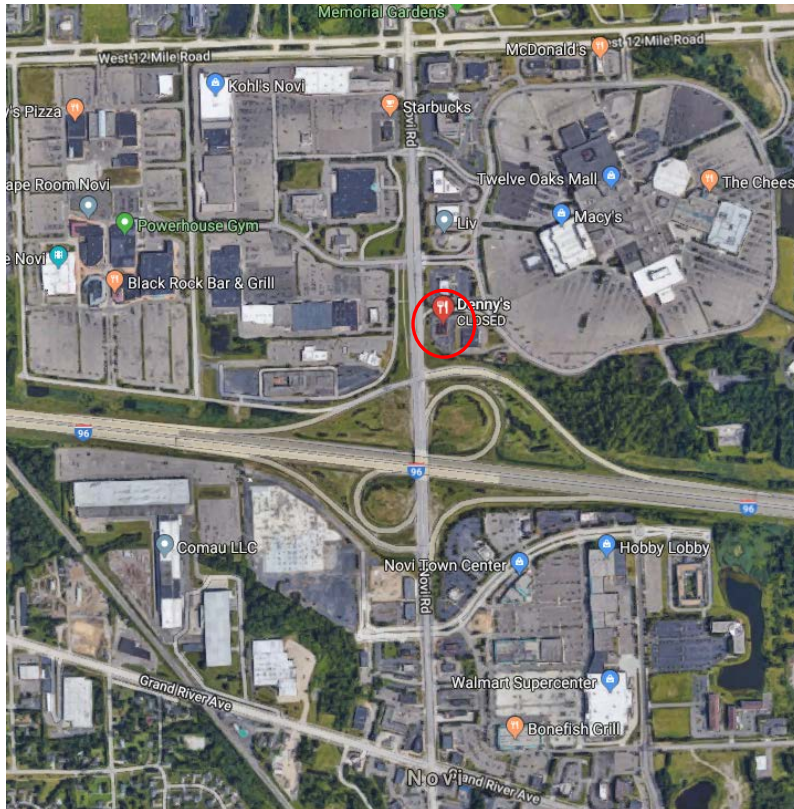
The property is currently zoned Regional Commercial. Existing building is considered a legal non-conforming structure and the parking lot does not meet the minimum Ordinance requirements for setbacks. Section 7.1.4. of our Zoning Ordinance restricts the redevelopment and/or alteration of non-conforming structures. The proposed redevelopment is required to conform to the Ordinance standards and is not allowed to follow the non-conforming setbacks.

Regional Commercial allows a variety of uses; however has a minimum building setback requirement for 100 feet for all yards. Community Development had couple of concept meetings with other developers and it is our understanding that the site size coupled with RC development standards could limit the redevelopment potential.

The applicant is proposing to redevelop the site using PD-2 option which provides a greater flexibility for redevelopment. RC does not allow a drive-thru. Rezoning to PD-2 would allow a drive-thru at that location. The applicant states that the proposed development will fit with the surrounding mall development and is similar to MC Donald's drive-thru nearby.

### COMPATIBILITY WITH SURROUNDING LAND USE

The following table summarizes the zoning and land use status for the subject property and surrounding properties.



As you can see from the aerial image from Google, the subject property is surrounded by existing uses that are well established. The chances for redevelopment are less. The current zoning and proposed zoning allow similar uses, which will result in similar use even when redeveloped.

Developments south of I-96 are zoned Town Center, which are intended to promote the development of a pedestrian accessible, commercial service district.

Developments north of I-96 zoned Regional Commercial which includes the subject property are intended to permit major planned commercial centers that will, by virtue of their size, serve not only the local community, but the surrounding market area as well.

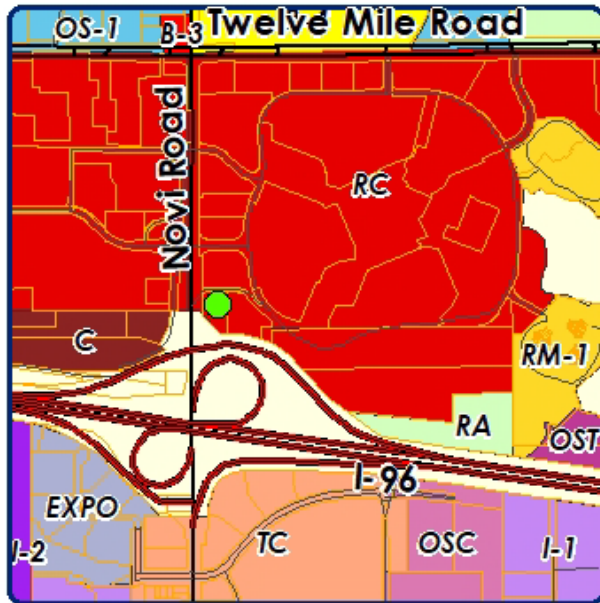
As noted in our Zoning Ordinance, the PD-2 Planned Development Option is intended to permit the limited application of (i) more extensive commercial uses in a district otherwise restricted to community and regional oriented shopping centers or (ii) transitional uses on the periphery of regional oriented shopping centers.

**Land Use and Zoning: For Subject Property and Adjacent Properties**

	Existing Zoning	Master Plan Land Use Designation	Existing Land Use
Subject Property	Regional Commercial	Regional Commercial	Vacant building and parking lot
Northern Parcels (across Twelve Oaks Mall Drive)	Regional Commercial	Regional Commercial	Red Lobster Restaurant
Eastern Parcels	Regional Commercial	Regional Commercial	Laz-A-Boy furniture store
Western Parcels (across Novi Road)	Regional Commercial	Regional Commercial	Carabba's Italian Grill Restaurant
Southern Parcels (across I-96 ROW)	Town Center	Town Center	Novi Town Center shopping center

The surrounding land uses are shown in the above chart. The compatibility of the proposed rezoning with the zoning and uses on the adjacent properties should be considered by the Planning Commission in making the recommendation to City Council on the rezoning request.

**Existing Zoning**



**Future Land Use**



**COMPARISON OF ZONING DISTRICTS**

Related sections of the zoning Ordinance that pertain to the existing zoning and proposed zoning are attached to this review letter for reference.

The PD Planned Development Options contained herein are intended to provide for alternative means of land use development within designated zoning districts. The options contained herein shall be considered only within those areas of the City which are specifically designated for their application on the City's Master Plan for Land Use Map.

**The subject property is currently not designated as PD-2 in the Land Use Map. However this is located in close proximity to the properties to the west across Novi Road and properties along Twelve Mile Road which are designated as PD-2. This is also located on the periphery of Twelve Oaks Mall similar to McDonalds drive-thru to the north.**

	Regional Commercial (Existing)	Planned Development- PD-2 Option (Proposed)
Principal Permitted Uses	See attached 3.1.24.	See attached Sec. 3.31.7.B
Special Land Uses	See attached 3.1.24.	All uses under PD-2 are subject to Special land use standards
Minimum Lot Size	Determined by off-street parking, loading, greenbelt screening, yard setback or usable open space requirements	Determined by off-street parking, loading, greenbelt screening, yard setback or usable open space requirements  1.25 Acres for banquet halls, restaurants and other uses listed in 3.31.B.v.
Minimum Lot Width		
Building Height	45 ft. or 3 stories whichever is less	Same as RC
Building Setbacks	Front: 100 feet Rear: 100 feet Side: 100 feet	Front: 50 feet Rear: 20 feet Side: 35 feet (total of two 70 ft.)
Parking Setbacks	Front: 20 feet Rear: 10 feet Side: 10 feet	Front: 20 feet Rear: 10 feet Side: 10 feet

**Engineering**

The Staff Engineer has reviewed the rezoning request and summarized that the requested rezoning to RC with a PD-2 will result in utility demands that are approximately equal to or less than the utility demand if the property were to be developed under the current zoning. The rezoning would have negligible impact on utility demands.

**Traffic**

The applicant requested to waive the requirement for a rezoning traffic study as many other traffic related studies are provided. The City's Traffic consultants reviewed the Traffic Impact Study provided by the applicant and indicated that the changes of the impacts for the proposed rezoning would be minimal especially considering the small size of the parcel. Most of the potential uses that could have a negative impact for the rezoning would not fit on such a small site. The impacts of the development are not anticipated to degrade levels of services beyond those under existing conditions during either the AM or PM peak periods. Refer to Traffic study review for more details.



## Natural Features

The project site does not contain both City-Regulated Wetlands and Regulated Woodlands.

## RECOMMENDATION

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Approval of the *Rezoning is recommended* because

- The rezoning request fulfills one of the Master Plan for Land Use objectives by fostering a favorable business climate.
- The rezoning is a recommended land use will be consistent with the surrounding zoning and existing developments.
- The rezoning would increase development potential of the subject property.
- The rezoning provides a redevelopment opportunity for a challenging site in a visible location along I-96/Novi corridor.
- The rezoning will not have impact on public utilities.

Per Section 3.31.2.C, the Planning Commission may proceed simultaneously with review and recommendation on applications for rezoning, PD Option and preliminary site plan approval. Staff review for the proposed site plan under PD-2 option is provided in a separate letter.

## NEXT STEP: MASTER PLANNING AND ZONING COMMITTEE (MPZ) MEETING

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Proposed Rezoning is currently not supported by our 2016 Master Plan for Land use. A Master Planning and Zoning Committee meeting is scheduled for March 13, 2019 to gather their input.

## PLANNING COMMISSION PUBLIC HEARING

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If the MPZ Committee provides favorable input for the plans to move forward without requiring additional revisions, staff will schedule a public hearing for **April 17, 2019** meeting. Please provide the following no later than **April 1, 2019**.

1. A rezoning sign should be installed on site as shown on the approved sign location plan.

The following should be provided in response to site plan reviews that were provided under separate cover.

2. A response addressing comments from staff and consultants review letters.
3. Original site plan submittal in PDF format. **No revisions made.**
4. A Physical Façade sample board
5. Color renderings of the site or building, if available for presentation purposes

## CITY COUNCIL MEETING

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If the Planning Commission makes a favorable recommendation, the plan will be scheduled for next available City Council meeting, date to be determined.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.735.5607 or [skomaragiri@cityofnovi.org](mailto:skomaragiri@cityofnovi.org).



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Sri Ravali Komaragiri – Planner



## ENGINEERING MEMO: REZONING

# MEMORANDUM



**TO:** SRI KOMARAGIRI, PLANNER  
**FROM:** KATE RICHARDSON, PLAN REVIEW ENGINEER  
**SUBJECT:** REVIEW OF REZONING IMPACT ON PUBLIC UTILITIES  
REZONING 18.729, CHICK-FIL-A  
**DATE:** MARCH 7, 2019

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The Engineering Division has reviewed a rezoning request for the 1.40 acres located north of I-96 and east of Novi Road. The applicant is requesting to rezone parcel 22-14-100-50 from the existing zoning of Regional Commercial (RC) to Regional Commercial with a Planned Development 2 Options (PD-2). The Master Plan for Land Use indicates a future land use of Regional Commercial.

### Utility Demands

A residential equivalency unit (REU) equates to the utility demand from one single family home. If the area were developed under the current zoning, demand on the utilities for the site would be 11.0 REUs per acre for Restaurants. Other acceptable uses under Regional Commercial zoning have lower REUs per acre, thus have less of an impact. The applicant intends to propose a restaurant with a drive-thru and a sit down option, as well as additional parking. This would have an approximate utility demand of 11.0 REUs per acre.

### Water System

The site is located within the Intermediate Pressure District. Water service is currently available from an eight-inch water main that runs parallel to Novi Road. The proposed rezoning would have minimal impact on available capacity, pressure and flows in the City's water distribution system.

### Sanitary Sewer

The site is located within the Hudson Sewer District. Sanitary service is available by connection to an existing six-inch sanitary sewer to the east of the property. The proposed rezoning is not anticipated to have an impact on the capacity of the downstream sanitary sewer within the City's infrastructure.

### Summary

The requested rezoning will result in utility demands that are approximately equal to or less than the utility demand if the property were to be developed under the current zoning. The requested rezoning is not consistent with the future land use for this location. However, it is compatible with the surrounding land uses. Therefore, the rezoning would have negligible impact on utility demands.

cc: Ben Croy, P.E.; Water & Sewer Senior Manager  
Barb McBeth, AICP; City Planner  
George Melistas; Engineering Senior Manager  
Darcy Rechtiem, P.E.; Construction Engineer

## TRAFFIC REVIEW



AECOM  
27777 Franklin Road  
Southfield  
MI, 48034  
USA  
aecom.com

**To:**  
Barbara McBeth, AICP  
City of Novi  
45175 10 Mile Road  
Novi, Michigan 48375

**Project name:**  
JSP18-0075 Chick-Fil-A Traffic Impact Study  
Review Letter

**From:**  
AECOM

**Date:**  
March 4, 2019

**CC:**  
Sri Komaragiri, Lindsay Bell, George Melistas, Darcy  
Rechtien, Hannah Smith, Kate Richardson

# Memo

**Subject:** JSP18-0075 Chick-Fil-A Traffic Impact Study Review Letter

The traffic impact study (TIS) for the proposed Chick-Fil-A was reviewed to the level of detail provided and AECOM **recommends approval** of the TIS as long as comments provided below are adequately addressed to the satisfaction of the City.

## GENERAL COMMENTS

1. The remainder of the memo will provide comments on a section-by-section basis following the format of the submitted report.

## PROJECT SETTING

1. The applicant identified one (1) signalized and five (5) unsignalized intersections as being within the area of study and of interest to the project.
2. Existing traffic volumes were collected by Traffic Data Collection, LLC, on Thursday, January 10<sup>th</sup>, 2019. Four of the six intersections of interest were counted, with the last two having volumes estimated based on the traffic volume moving up and downstream.
3. AM peak was determined to be 8:00 AM to 9:00 AM. PM peak was determined to be 4:30 PM to 5:30 PM.

## PROPOSED ACTION

1. The proposed development is a 4,990 SF Chick-fil-A restaurant. The study includes a preliminary site plan.

## TRIP GENERATION

1. The applicant should correct the Weekday PM Peak Hour trip numbers to match the ITE Trip Generation value of 163. If 164 was used instead of 163 due to 81.5 being rounded up for the pass-by and net primary trips, this should be explained on the calculations page.

## TRAFFIC VOLUMES

1. Existing traffic volumes for the 2019 'No-Build' condition were taken from the data collected on January 10<sup>th</sup>.
2. The applicant used the existing traffic patterns to distribute the trips entering and leaving the development.
3. The applicant included figures for both the No-Build 2019 traffic volumes and the Build 2019 traffic volumes in the appendix.

## TRAFFIC ANALYSIS

1. The applicant conducted an HCM analysis on each intersection for the No-Build and Build scenarios in Synchro.
2. At the intersection of Novi Road, West Oaks Drive, and Twelve Oaks Drive South, most turning movements/approaches operate between LOS A and LOS D for both AM and PM peaks, with the exception of the northbound left turn and northbound approach, which operates at LOS F in the PM peak for both the No-Build and Build conditions. The applicant notes that the movement likely does not operate as poorly as shown, due to the adaptive operations at the signal.
3. The unsignalized intersections included in the study area all maintain LOS between A and C. Delay at several approaches increased from A to B or B to C, however, B and C are still considered acceptable LOS for an approach.

## SUMMARY AND RECOMMENDATIONS

1. The applicant should address the inconsistent number of trips for the PM Peak hour.
2. In summary, the impacts of the development are not anticipated to degrade levels of services beyond those under existing conditions during either the AM or PM peak periods.


Should the City or applicant have questions regarding this review, they should contact AECOM for further clarification.

Sincerely,

**AECOM**



Patricia A. Thompson, EIT  
Traffic Engineer



Josh A. Bocks, AICP, MBA  
Senior Transportation Planner/Project Manager





AECOM  
27777 Franklin Road  
Southfield  
MI, 48034  
USA  
aecom.com

**Project name:**  
JSP18-0075 Chick-Fil-A Parking and Queueing  
Study Review Letter

**From:**  
AECOM

**Date:**  
March 4, 2019

**To:**  
Barbara McBeth, AICP  
City of Novi  
45175 10 Mile Road  
Novi, Michigan 48375

**CC:**  
Sri Komaragiri, Lindsay Bell, George Melistas, Darcy  
Rechtien, Hannah Smith, Kate Richardson

# Memo

**Subject:** JSP18-0075 Chick-Fil-A Parking and Queueing Study Review Letter

The Parking and Queueing study for the proposed Chick-Fil-A was reviewed to the level of detail provided and AECOM **recommends approval** of the study as long as comments provided below are adequately addressed to the satisfaction of the City.

## GENERAL COMMENTS

1. The remainder of the memo will provide comments on a section-by-section basis following the format of the submitted report.

## INTRODUCTION

1. The applicant identified three (3) sites similar to the proposed development. These sites are located throughout the metro Grand Rapids area.
  - a. 28<sup>th</sup> Street and East Beltline in Grand Rapids, MI
  - b. M-6 and Kalamazoo Avenue in Gaines Township, MI
  - c. US-131 and 54th Street in Wyoming, MI
2. The sites range from 140 SF to 19 SF smaller than the proposed development. Two (2) of the locations have additional shared parking spaces available.

## DATA COLLECTION

1. Data collection was conducted on 2 days. The times were selected based on peak site activity.
  - a. Weekend Midday data collection was done on Saturday, January 26<sup>th</sup> from 12:00 pm to 2:00 pm.
  - b. Weekday Midday and Evening data collection was done on Tuesday, February 5<sup>th</sup> from 11:00 am to 1:00 pm and 4:00 pm to 6:00 pm. Due to weather issues, no data was collected at the Wyoming location on the 5<sup>th</sup>.

## PARKING DEMAND

1. Parking quantities were collected on 15 minute intervals during the analysis periods. In the report, the applicant provides average and 95<sup>th</sup> percentile values for the number of vehicles parked in the lot. The maximum values are available in the appendix.
2. The Grand Rapids location had the highest 95<sup>th</sup> percentile value, at 77 parking spaces (which utilized 18 parking spaces in excess of the spaces available to just the restaurant). The maximum for that location was 79 vehicles parked at 1:00 pm on Saturday.
3. The other two locations peaked at 58 vehicles parked (Wyoming location) and 62 vehicles parked (Gaines Township location), also on Saturday.

## DRIVE-THRU QUEUE ANALYSIS

1. Queue length was collected in five (5) minute intervals during the analysis periods. The count includes only vehicles queued behind the vehicle ordering at the kiosk.
2. The Grand Rapids location had the highest 95<sup>th</sup> percentile queue length, at 20 vehicles during the weekday midday period and 16 vehicles during the weekend period. The peak queue lengths were 20 vehicles during the weekday midday period and 18 during the weekend period. These did exceed the available stacking at this location (10 spaces).
3. The Wyoming location had a peak vehicle queue of 11 on Saturday. This did not exceed the available stacking.
4. The Gaines Township location had a peak vehicle queue of 11 during the weekday evening period. The weekend peak was 7 vehicles. The weekday evening peak exceeded the available stacking.

## SUMMARY AND RECOMMENDATIONS

1. In most scenarios, the proposed development should not exceed the parking and vehicle queueing space provided by the site plan. However, should the development experience demand similar to the Grand Rapids location, the drive-thru will impede use of the parking spaces on the north side of the parking lot and there will be insufficient parking available.
2. The parking spaces on the north side of the site and the spillover area for the drive-thru queue could experience conflicts during high-volume periods. We recommend that the applicant consider allocating those spaces as planned employee parking, to prevent a high frequency of conflicts between customers exiting those spaces while others attempt to enter the drive-thru.
3. In instances when the demand for parking exceeds the available spaces, as the peak parked vehicles at the Grand Rapids location suggests can occur, customers will likely park in the adjacent La-Z-Boy Home Furnishings & Decor store parking lot. We recommend that the applicant pursue a shared parking agreement with this facility to alleviate issues with potential parking needs.

Should the City or applicant have questions regarding this review, they should contact AECOM for further clarification.

Sincerely,

**AECOM**



Patricia A. Thompson, EIT  
Traffic Engineer



Josh A. Bocks, AICP, MBA  
Senior Transportation Planner/Project Manager

AECOM

# TRAFFIC IMPACT STUDY



# **TRAFFIC IMPACT STATEMENT** **Proposed Chick-fil-A**

**City of Novi, Oakland County, Michigan**



**Prepared For:**



5200 Buffington Road  
Atlanta, Georgia 30349

**Prepared By:**

GPD Group, Professional Corporation  
520 South Main Street  
Suite 2531  
Akron, OH 44311

**January 2019**

**TRAFFIC IMPACT STATEMENT**  
**Proposed Chick-fil-A**

City of Novi, Oakland County, Michigan

Prepared For:



Chick-fil-A  
5200 Buffington Road  
Atlanta, Georgia 30349

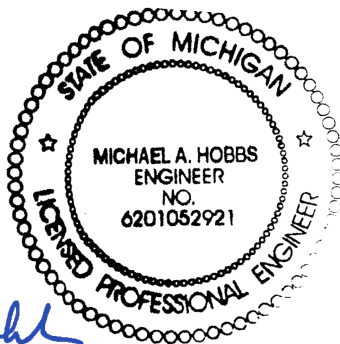
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January 2019

Engineer's Seal

Prepared By:





Michael A. Hobbs, P.E., PTOE  
Registration No. 6201052921  
Certification No. 1346

January 24, 2019

Date





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Appendix C:	Site Trip Distribution and Assignment
Appendix D:	HCM Intersection Capacity Analysis

## **I. Purpose:**

This Traffic Impact Statement is being prepared at the request of the City of Novi in association with the proposed construction of a Chick-fil-A restaurant to be located along Novi Road in the City of Novi, Michigan. The purpose of this particular Traffic Impact Statement is to analyze the vehicular operating conditions of the external roadways in the vicinity of the proposed development; both before and after its construction to determine what, if any, impact the proposed development will have on the surrounding roadway network. All internal traffic operations related to the drive-thru operation and on-site parking will be addressed as part of a separate study.

## **II. Project Setting:**

### ***Study Area***

The subject property currently contains one (1) vacated structure (former Denny's restaurant) and is located on the east side of Novi Road just north of the Interstate 96 / Novi Road interchange. The development within the study area consists solely of commercial land uses with the largest being the Twelve Oaks Mall located to the north east of the proposed site. See **Figure 1** for a project location map and **Figure 2** for an aerial photograph of the project area.

### ***Area Roadway System***

Currently, Novi Road exists as a six (6) lane asphalt roadway (three (3) travel lanes in each direction) with left and right turn lanes at various intersections. The current posted speed limit on Novi Road is 45 miles per hour (mph). According to information obtained from the Southeast Michigan Council of Governments (SEMCOG), Novi Road is classified as an 'Other Principal Arterial.'

There is one (1) existing signalized intersection and five (5) unsignalized intersections that are currently located within the study area that are of special interest to this project. The six (6) existing intersections included in this study are as follows:

Novi Road / West Oaks Drive / Twelve Oaks Drive South:

This intersection is currently signalized utilizing a mast arm configuration with signal poles located on each corner of the intersection. The intersection consists of four (4) approaches with the following lane configurations: NB Novi Road – six (6) lanes (left, left, thru, thru, thru, right), SB Novi Road – five (5) lanes (left, thru, thru, thru, right), EB West Oaks Drive – four (4) lanes (left, thru, right, right) and WB Twelve Oaks Drive South – three (3) lanes (left, left, thru-right).

Novi Road / One-Way Mall Drive (EB):

This intersection is currently unsignalized with the One-Way Mall Drive (EB) leg operating as a EB receiving-only lane. The intersection consists of two (2) approaches with the following lane configurations: NB Novi Road – five (5) lanes (thru, thru, thru, thru, thru-right) and SB Novi Road – three (3) lanes (thru, thru, thru). SB left turns are not permitted from Novi Road onto the One-Way Mall Drive.

One-Way Mall Drive (EB) / Commercial Drive #1:

This intersection is currently unsignalized and operates as a right-in / right-out with the Commercial Drive #1 approach operating under stop control. The intersection consists of two (2) approaches with the following lane configurations: NB Commercial Drive #1 – one (1) lane (right) and EB One-Way Mall Drive (EB) – two (2) lanes (thru, right). It should be noted that a third leg (east leg) of this intersection exists as a one (1) lane EB receiving-only lane.

Twelve Oaks Drive South / Twelve Oaks Mall Perimeter Road:

This intersection is currently unsignalized with all approaches operating under stop control. The intersection consists of three (3) approaches with the following lane configurations: NB Twelve Oaks Mall Perimeter Road – three (3) lanes (left, left-thru, thru), SB Twelve Oaks Mall Perimeter Road – two (2) lanes (thru, thru-right) and EB Twelve Oaks Drive South – two (2) lanes (left, right).

Twelve Oaks Mall Perimeter Road / One-Way Mall Drive (EB):

This intersection is currently unsignalized with the One-Way Mall Drive (EB) approach operating under yield control. The intersection consists of three (3) approaches with the following lane configurations: NB Twelve Oaks Mall Perimeter Road – two (2) lanes (thru, thru), SB Twelve Oaks Mall Perimeter Road – two (2) lanes (thru, thru) and EB One-Way Mall Drive (EB) – one (1) lane (right).

Twelve Oaks Mall Perimeter Road / Commercial Drive #2:

This intersection is currently unsignalized with the Commercial Drive #2 approach operating under stop control. The intersection consists of three (3) approaches with the following lane configurations: NB Twelve Oaks Mall Perimeter Road – two (2) lanes (left-thru, thru), SB Twelve Oaks Mall Perimeter Road – two (2) lanes (thru, thru-right) and EB Commercial Drive #2 – one (1) lane (left-right).

### ***Existing Traffic Volumes***

For this traffic study, Traffic Data Collection, LLC performed turning movement traffic counts at the following four (4) study intersections on Thursday, January 10, 2019:

- Novi Road / West Oaks Drive / Twelve Oaks Drive South
- Twelve Oaks Drive South / Twelve Oaks Mall Perimeter Road
- One-Way Mall Drive (EB) / Commercial Drive #1
- Twelve Oaks Mall Perimeter Road / Commercial Drive #2

Utilizing the data from the counted intersections above, traffic volumes for the remaining two (2) study intersections were calculated based on the upstream and downstream traffic volumes. From the count data, the AM peak hour of the study area was determined to occur from 8:00 AM to 9:00 AM while the PM peak hour was found to occur from 4:30 PM to 5:30 PM. See **Appendix A** for printouts of the turning movement counts.

### **III. Proposed Action:**

The proposed development will be a Chick-fil-A restaurant consisting of a total of 4,990 square feet (SF) of gross floor area. The proposed development will be constructed on the east side of Novi Road, north of the Interstate 96 / Novi Road interchange. See **Figure 3** for a preliminary site plan.

As shown on the site plan, the proposed development will continue to utilize the one (1) full movement driveway as well as the one (1) right-in / right-out driveway that currently serve the site. The right-in / right-out access point is provided along the One-Way Mall Drive (EB) and will be referred to as Commercial Drive #1 while the full movement access point is provided along Twelve Oaks Perimeter Mall Road and will be referred to as Commercial Drive #2. It should be noted that access to these two (2) driveways is currently provided, and will continue to be provided following the completion of this project, through two (2) shared access points with the neighboring business (La-Z-Boy) immediately to the east of the proposed site.

### **IV. Trip Generation:**

#### ***Trip Generation Calculations***

The trip generation calculations were performed for the proposed development utilizing the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10<sup>th</sup> Edition. This manual includes data from numerous trip generation studies of different land uses that have been performed by public agencies, developers, consulting firms and associations and submitted to ITE. It serves as a tool for estimating the number of vehicle trips generated by a proposed development. For this study, the trip generation calculations will evaluate the AM and PM peak periods.

According to information contained in the ITE Trip Generation Manual, 10<sup>th</sup> Edition, the proposed Chick-fil-A restaurant is expected to generate the following trip ends once constructed:

LAND USE 934 – Fast-Food Restaurant with Drive-Through Window

- i. Weekday AM Peak Hour (i.e. morning rush hour):
  - = 201 trip ends (102 enter and 99 exit)
  - a. Pass-By Trips (49%)
    - = 98 trip ends (50 enter and 48 exit)
  - b. Net Primary Trips
    - = 103 trip ends (52 enter and 51 exit)
  
- ii. Weekday PM Peak Hour (i.e. evening rush hour):
  - = 164 trip ends (86 enter and 78 exit)
  - a. Pass-By Trips (50%)
    - = 82 trip ends (43 enter and 39 exit)
  - b. Net Primary Trips
    - = 82 trip ends (43 enter and 39 exit)

Note that the variable utilized in the trip generation calculations was ‘square feet of gross floor area’, which in this particular case is 4,990 SF. See **Appendix B** for the detailed trip generation calculations for the proposed Chick-fil-A restaurant.

A certain portion of vehicles that will travel to and from the site will occur as pass-by traffic. Pass-by trips are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Since these trips are attracted from the traffic passing the site on the adjacent roadways, pass-by vehicles that are currently traveling along Novi Road will now be rerouted into and out of the site. Trip generation studies for a fast-food restaurant with a drive-thru window are documented in the ITE Trip Generation Handbook estimate that pass-by trips make up an average of 49% of the total site trips during the AM peak hour and 50% during the PM peak hour. The remaining trips traveling to and from the site are referred to as primary trips as they consist of new trips on the roadway network traveling directly between the origin and the primary trip destination. While the pass-by capture reduction was applied to the trip generation calculations for the proposed Chick-fil-A, it should be noted that these pass-by trips are still assigned as new turning movements entering and exiting the site at the proposed access locations.

**V. Traffic Volumes:**

***‘No-Build’ Traffic Volumes***

The construction of the proposed development is anticipated to be completed in the year 2019 which will serve as the Opening Year for the study. The existing traffic volumes from the turning movement traffic counts will be utilized as the Opening Year 2019 ‘No-Build’ traffic volumes. **Figure 4** displays the Opening Year 2019 ‘No-Build’ peak hour traffic volumes.

### ***Site Trip Distribution & Assignment***

The new trips discussed in the Trip Generation section were distributed and assigned to the roadway network based on existing travel volumes/patterns near the site, the surrounding land uses and roadway network, and engineering judgment. It was estimated that 45% of the projected site trips will travel to/from the south on Novi Road, 30% will travel to/from the north on Novi Road, 10% will travel to/from the west on West Oaks Drive, 10% will travel to/from the north on Twelve Oaks Mall Perimeter Road and the remaining 5% will travel to/from the south on Twelve Oaks Mall Perimeter Road.

It is expected that more traffic would likely utilize Commercial Drive #2 for both entering and exiting the site. For entering traffic, only traffic coming from the South on Novi Road will be able to utilize Commercial Drive #1 (right-in / right-out) as it connects to a one-way EB roadway that can only be accessed from vehicles traveling in the NB direction on Novi Road. Therefore, all other entering traffic will need to utilize Commercial Drive #2. For exiting traffic, all traffic not destined to travel south on Twelve Oaks Mall Perimeter Road will need to utilize Commercial Drive #2 as it is the only driveway that will allow vehicles to travel north on Twelve Oaks Mall Perimeter Road and to access Novi Road.

Pass-by trips, since they occur from traffic already traveling by the site, were developed and distributed based on the existing directional distribution of peak hour traffic volumes along Novi Road adjacent to the site. Due to the roadway configuration and limited access to the site from Novi Road, pass-by trips will technically occur as diverted link trips. The peak hour distribution and assignment of new site trips, including both primary and pass-by trips are included in **Appendix C**. An additional figure that combines both primary and pass-by trips to show the total net traffic from the proposed site was also provided.

### ***'Build' Traffic Volumes***

In order to create the 'Build' traffic volumes, the site trips discussed in the previous section were added to the Opening Year 2019 'No-Build' peak hour traffic volumes. The 'Build' traffic volumes will allow a direct comparison between the projected traffic conditions without the development and those following the completion of the proposed Chick-fil-A restaurant. **Figure 5** displays the Opening Year 2019 'Build' peak hour traffic volumes.

## **VI. Traffic Analysis:**

### ***HCM Intersection Capacity Analysis***

Intersection Capacity analyses were performed for the Opening Year 2019 'No-Build' and 'Build' traffic conditions in order to determine the operating conditions that would be expected to be experienced at each intersection. The quality of the operating conditions experienced by an intersection is measured in terms of Level-of-Service (LOS). Levels-of-Service can range from LOS A to LOS F. Level-of-Service ratings of A – D are considered to be in the acceptable range while Levels-of-Service E and F are considered to be below average with significant levels of delay experienced by vehicles. The Level-of-Service thresholds vary for signalized and unsignalized intersections. The thresholds related to average control delay for both signalized and unsignalized intersections are as follows:



Level-of-Service	Delay Threshold – Signalized (Sec)	Delay Threshold – Unsignalized (Sec)
A	< 10	< 10
B	> 10 - 20	> 10 – 15
C	> 20 - 35	> 15 – 25
D	> 35 - 55	> 25 - 35
E	> 55 - 80	> 35 - 50
F	> 80	> 50

The capacity analyses were performed for the weekday AM and PM peak hours utilizing the computer program *Synchro (Version 9)* developed by Trafficware. *Synchro* can provide a macroscopic analysis of an entire roadway system and take into account the interactions and impact of traffic which travels from one intersection to the next. Analysis results reported in the following tables are based on the Highway Capacity Manual (HCM) calculation outputs from the *Synchro* software. The existing signal timings (cycle lengths, splits and clearance intervals) for the Novi Road / West Oaks Drive / Twelve Oaks Drive South intersection were provided by the Oakland County Road Commission for use in this study. These timings were utilized for the capacity analysis of both the Opening Year 2019 ‘No-Build’ and ‘Build’ traffic conditions. It should be noted that this signalized intersection currently utilizes traffic adaptive operation and these timings represent the back-up timings as noted on the signal permit.

**Table 1** on the following page summarizes the HCM Intersection Capacity Analysis and details the Levels-of-Service and delay experienced under the Opening Year 2019 ‘No-Build’ vs. ‘Build’ traffic conditions for the signalized intersection of Novi Road / West Oaks Drive / Twelve Oaks Drive South. See **Appendix D** for the HCM analysis printouts.

Table 1: HCM Intersection Capacity Analysis Summary								
Opening Year 2019 'No-Build' vs. 'Build' Conditions – Signalized Intersection								
Intersection / Movement	'No-Build' Conditions				'Build' Conditions			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
<b>Novi Road / West Oaks Drive / Twelve Oaks Drive South</b>								
Eastbound Left	D	40.4	D	47.4	D	40.3	D	47.4
Eastbound Thru	D	40.0	D	43.2	D	40.2	D	43.5
Eastbound Right	D	36.9	D	49.8	D	36.9	D	49.8
<i>Eastbound Approach</i>	<i>D</i>	<i>37.6</i>	<i>D</i>	<i>48.8</i>	<i>D</i>	<i>37.7</i>	<i>D</i>	<i>48.8</i>
Westbound Left	D	41.4	D	42.1	D	41.7	D	43.1
Westbound Thru-Right	D	40.6	D	35.4	D	43.7	D	35.3
<i>Westbound Approach</i>	<i>D</i>	<i>41.3</i>	<i>D</i>	<i>41.0</i>	<i>D</i>	<i>42.4</i>	<i>D</i>	<i>41.6</i>
Northbound Left	D	42.8	F	213.9	D	42.8	F	213.9
Northbound Thru	B	19.7	C	33.0	B	19.6	C	32.8
Northbound Right	B	19.3	D	37.2	B	19.3	D	37.2
<i>Northbound Approach</i>	<i>C</i>	<i>22.8</i>	<i>F</i>	<i>80.5</i>	<i>C</i>	<i>22.8</i>	<i>F</i>	<i>81.1</i>
Southbound Left	B	12.6	C	21.4	B	14.2	C	24.2
Southbound Thru	B	10.3	B	19.4	B	11.1	C	20.2
Southbound Right	A	8.7	B	15.9	A	9.3	B	16.6
<i>Southbound Approach</i>	<i>B</i>	<i>10.3</i>	<i>B</i>	<i>19.3</i>	<i>B</i>	<i>11.2</i>	<i>C</i>	<i>20.3</i>
<b>Intersection Total</b>	<b>B</b>	<b>18.0</b>	<b>D</b>	<b>51.5</b>	<b>C</b>	<b>20.6</b>	<b>D</b>	<b>51.6</b>

Note: Red highlighted cells indicate a Level of Service F.

As shown in **Table 1**, all movements and approaches of the Novi Road / West Oaks Drive / Twelve Oaks Drive South intersection are projected to operate at an acceptable LOS D or better during the AM and PM peak hours under the Opening Year 2019 'No-Build' and 'Build' traffic conditions with the exception of the NB left-turn movement and approach during the PM peak hour (which likely operates better than shown due to the previously mentioned traffic adaptive operation). As can be seen in the capacity analysis results, the new traffic from the proposed development will have no additional impact on the operation of the NB left-turn movement and only a minimal impact to the NB approach overall. Most importantly, no movements are expected to degrade to an unacceptable Level-of-Service as a result of the additional site traffic. This indicates that the Novi Road / West Oaks Drive / Twelve Oaks Drive South intersection is anticipated to have sufficient vehicular capacity to accommodate the additional traffic generated by the proposed development.

**Table 2** on the following page summarizes the HCM Intersection Capacity Analysis and details the Levels-of-Service and delay experienced under the Opening Year 2019 'No-Build' vs. 'Build' traffic conditions for the unsignalized intersections within the study area. See **Appendix D** for the HCM analysis printouts. It should be noted that there are no capacity analysis results for the Novi Road / One-Way Mall Drive (EB) intersection as no movements at this intersection will incur any delay, from an isolated intersection analysis perspective.

Table 2: HCM Intersection Capacity Analysis Summary								
Opening Year 2019 'No-Build' vs. 'Build' Conditions – Unsignalized Intersections								
Intersection / Movement	'No-Build' Conditions				'Build' Conditions			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
<b>One-Way Mall Drive (EB) / Commercial Drive #1</b>								
Northbound Right	A	0.0	A	9.2	A	0.0	A	9.2
<i>Northbound Approach</i>	A	0.0	A	9.2	A	0.0	A	9.2
<b>Twelve Oaks Mall Perimeter Road / Twelve Oaks Drive South</b>								
Eastbound Left	A	9.1	B	12.3	A	9.9	B	12.8
Eastbound Right	A	7.3	B	10.8	A	8.5	B	12.5
<i>Eastbound Approach</i>	A	8.9	B	11.5	A	9.3	B	12.6
Northbound Left	A	8.4	B	12.7	A	9.5	B	14.6
Northbound Left-Thru	A	8.3	B	13.2	A	9.5	C	15.4
Northbound Thru	A	6.1	A	7.5	A	6.4	A	7.7
<i>Northbound Approach</i>	A	7.9	B	12.4	A	9.3	B	14.4
Southbound Thru	A	8.0	A	9.8	A	8.7	B	10.3
Southbound Thru-Right	A	7.5	B	12.3	A	8.2	B	13.4
<i>Southbound Approach</i>	A	7.6	B	12.0	A	8.4	B	13.0
<b>Intersection Total</b>	<b>A</b>	<b>8.5</b>	<b>B</b>	<b>12.0</b>	<b>A</b>	<b>9.2</b>	<b>B</b>	<b>13.5</b>
<b>Twelve Oaks Mall Perimeter Road / One-Way Mall Drive (EB)</b>								
Eastbound Right	A	8.7	A	9.5	A	8.9	A	9.7
<i>Eastbound Approach</i>	A	8.7	A	9.5	A	8.9	A	9.7
<b>Twelve Oaks Mall Perimeter Road / Commercial Drive #2</b>								
Eastbound Left-Right	A	0.0	B	11.1	B	10.4	C	15.6
<i>Eastbound Approach</i>	A	0.0	B	11.1	B	10.4	C	15.6
Northbound Left-Thru	A	0.0	A	0.0	A	7.6	A	8.0
Northbound Thru	A	0.0	A	0.0	A	0.0	A	0.0
<i>Northbound Approach</i>	A	0.0	A	0.0	A	1.1	A	0.1

Note: Red highlighted cells indicate a Level of Service F.

As shown in **Table 2**, all unsignalized intersections within the study area are anticipated to operate at an acceptable LOS C or better during the AM and PM peak hours under the Opening Year 2019 'No-Build' and 'Build' traffic conditions. This indicates that the unsignalized intersections within the study area are anticipated to provide sufficient vehicular capacity to accommodate the additional traffic generated by the proposed Chick-fil-A restaurant.

## **VII. Summary and Recommendations:**

This Traffic Impact Statement is being prepared at the request of the City of Novi in association with the proposed construction of a Chick-fil-A restaurant to be located along Novi Road in the City of Novi, Michigan. The purpose of this particular Traffic Impact Statement is to analyze the vehicular operating conditions of the external roadways in the vicinity of the proposed development; both before and after its construction to determine what, if any, impact the proposed development will have on the surrounding roadway network. All internal traffic operations related to the drive-thru operation and on-site parking will be addressed as part of a separate study.

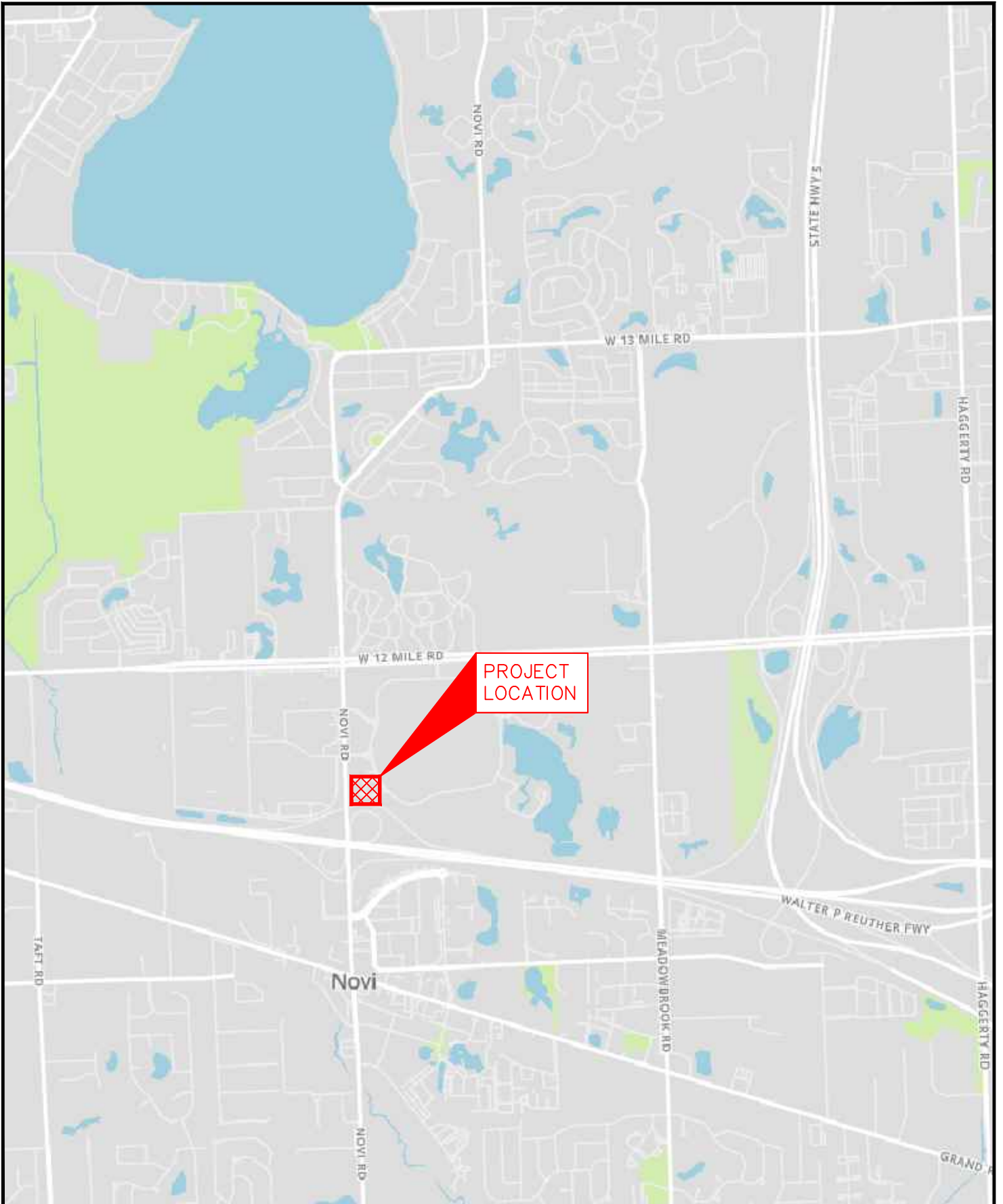
In Summary,

1. The proposed development will be a Chick-fil-A restaurant consisting of a total of 4,990 square feet of gross floor area.
2. According to the site plan, the proposed development will continue to utilize the one (1) full movement driveway as well as the one (1) right-in / right-out driveway that currently serve the site. The right-in / right-out access point is provided along One-Way Mall Drive (EB) and will be referred to as Commercial Drive #1 while the full movement access point is provided along Twelve Oaks Perimeter Mall Road and will be referred to as Commercial Drive #2. It should be noted that access to these two (2) driveways is currently provided, and will continue to be provided following the completion of this project, through two (2) shared access points with the neighboring business (La-Z-Boy) immediately to the east of the proposed development.
3. The proposed development is expected to generate 201 trip ends during the AM peak hour (102 entering and 99 exiting) and 164 trip ends during the PM peak hour (86 entering and 78 exiting).
4. The capacity analysis found that all movements and approaches of the Novi Road / West Oaks Drive / Twelve Oaks Drive South intersection are projected to operate at an acceptable LOS D or better during the AM and PM peak hours under the Opening Year 2019 'No-Build' and 'Build' traffic conditions with the exception of the NB left-turn movement and approach during the PM peak hour. However, the additional traffic from the proposed development will have no additional impact on the operation of the NB left-turn movement and only a minimal impact to the NB approach overall. Most importantly, no movements are expected to degrade to an unacceptable Level-of-Service as a result of the additional project traffic. This indicates that the Novi Road / West Oaks Drive / Twelve Oaks Drive South intersection is anticipated to have sufficient vehicular capacity to accommodate the additional traffic generated by the proposed development.
5. The capacity analysis determined that all unsignalized intersections within the study area are anticipated to operate at an acceptable LOS C or better during the AM and PM peak hours under the Opening Year 2019 'No-Build' and 'Build' traffic conditions.

Based on the information and analyses in this study, GPD Group recommends the following:

1. The proposed development should be constructed as planned utilizing the two (2) existing driveways that currently serve the site.

## **FIGURES**



CAD FILE: G:\2018\20180231\5. TWELVE OAKS, MI\TRAFFIC\FIGURES\1. FIGURE 1\_LOCATION MAP.DWG  
 DATE: 1/21/2019 TIME: 8:44:43 AM



N.T.S.

FIGURE 1

PROJECT LOCATION MAP

JANUARY 2019



TECHNICIAN: DDOMBROSKY





CAD FILE: G:\2018\20180223\15. TWELVE OAKS. M\TRAFFIC\FIGURES\2. FIGURE 2\_AERIAL.DWG  
DATE: 1/18/2019 TIME: 10:12:28 AM



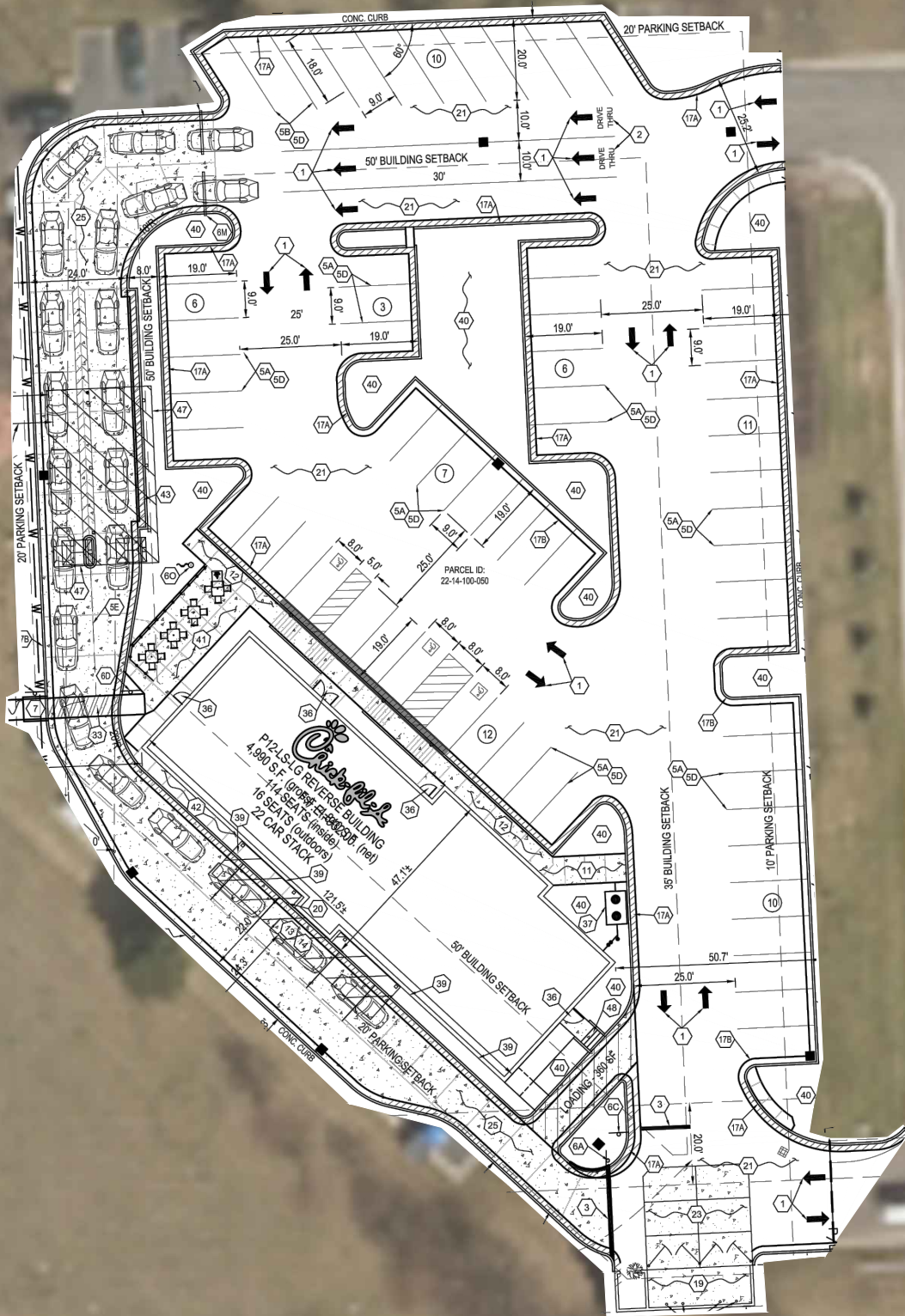
N.T.S.

FIGURE 2

AERIAL PHOTOGRAPH

JANUARY 2019





CAD FILE: G:\2018\20180223\15 TWELVE OAKS, MN\TRAFFIC\FIGURES\3, FIGURE 3 PRELIMINARY SITE PLAN.DWG  
 DATE: 1/21/2019 TIME: 8:49:34 AM  
 TECHNICIAN: DDOMBROSKY



N.T.S.

FIGURE 3

PRELIMINARY SITE PLAN

JANUARY 2019







CAD FILE: G:\2018\201823\15\_TWELVE\_OAKS\_MALL\TRAFFIC\FIGURES\5\_FIGURE\_5\_2019\_BUILD\_VOLUMES.DWG  
 DATE: 1/19/2019 TIME: 10:21:37 AM

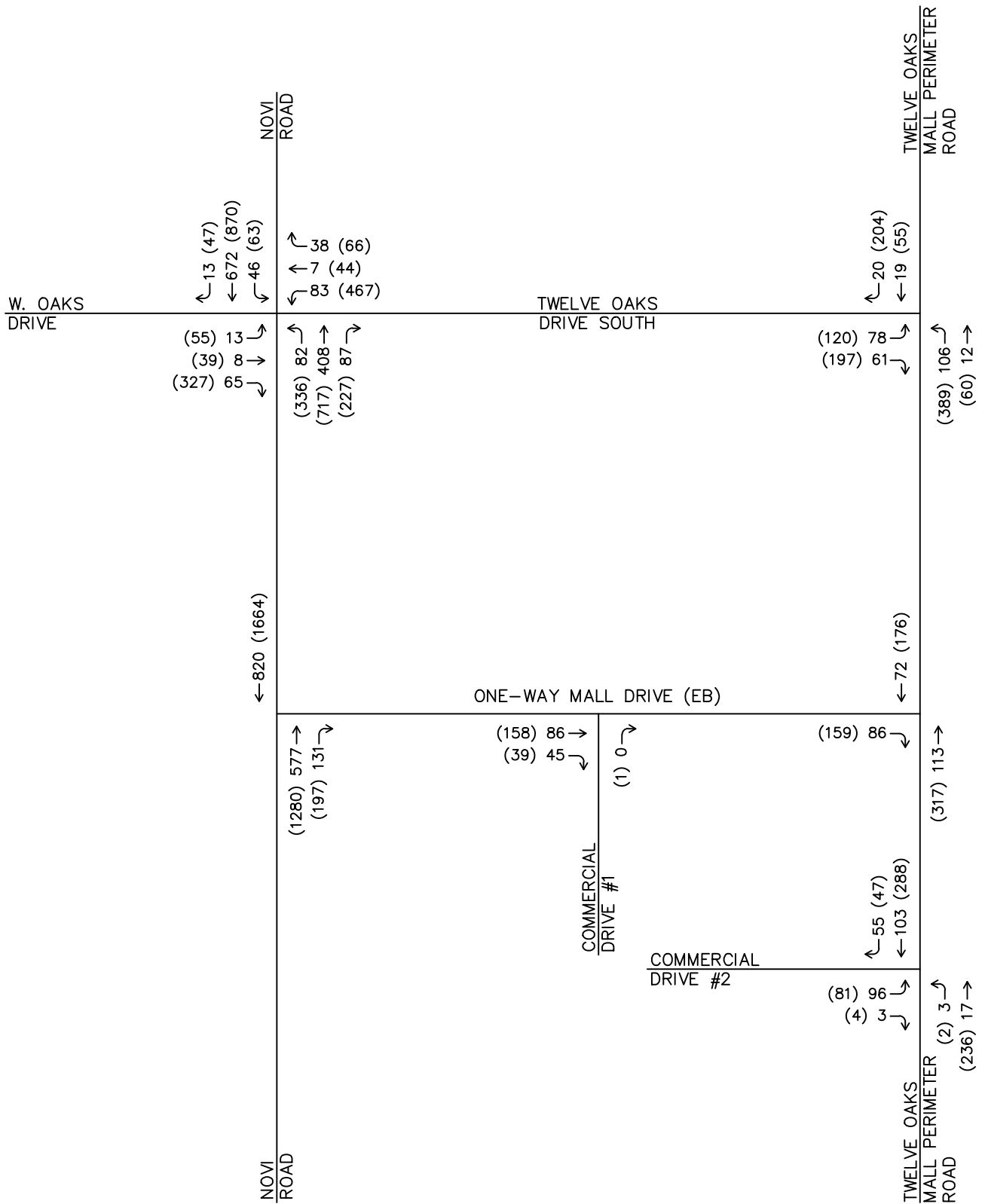


N.T.S.

FIGURE 5  
 OPENING YEAR 2019  
 'BUILD'  
 TRAFFIC VOLUMES  
 JANUARY 2019



LEGEND  
 ## - AM PEAK  
 (##) - PM PEAK



**APPENDIX A:  
TURNING MOVEMENT COUNTS**

# Traffic Data Collection, LLC

www.tdccounts.com

Phone: 586.786-5407

Traffic Study Performed For:

**GPD Group**



**Project: Novi Traffic Impact Study**  
**Study: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg's 30's**  
**Count By Miovision Video VCU 4G2 & 5RA**

**File Name : TMC\_1 Novi & Twelve Oaks\_S\_1-10-19**  
**Site Code : TMC\_1**  
**Start Date : 1/10/2019**  
**Page No : 1**

4 Hour video traffic study was conducted during typical weekday (Tuesday-Thursday) from 7:00 AM - 9:00 AM morning & 4:00 PM - 6:00 PM afternoon peak hours, while school was in session.

Groups Printed- Pass Cars - Single Units - Heavy Trucks - Peds

Start Time	Novi Road Southbound					Twelve Oaks Drive South Westbound					Novi Road Northbound					W. Oaks Drive Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	124	0	0	124	1	0	4	0	5	14	59	8	0	81	16	1	0	0	17	227
07:15 AM	1	139	0	0	140	0	0	2	0	2	8	88	11	0	107	14	0	0	0	14	263
07:30 AM	0	149	0	0	149	1	1	3	0	5	18	78	19	0	115	9	1	0	0	10	279
07:45 AM	7	174	0	0	181	0	0	3	0	3	22	132	16	0	170	23	0	0	0	23	377
<b>Total</b>	<b>8</b>	<b>586</b>	<b>0</b>	<b>0</b>	<b>594</b>	<b>2</b>	<b>1</b>	<b>12</b>	<b>0</b>	<b>15</b>	<b>62</b>	<b>357</b>	<b>54</b>	<b>0</b>	<b>473</b>	<b>62</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>64</b>	<b>1146</b>
08:00 AM	2	167	0	0	169	0	0	1	0	1	13	120	18	0	151	14	1	5	0	20	341
08:15 AM	5	146	1	0	152	1	0	6	0	7	26	104	26	0	156	17	1	3	0	21	336
08:30 AM	1	194	0	0	195	1	0	12	0	13	12	108	17	0	137	18	0	3	0	21	366
08:45 AM	5	193	1	0	199	0	2	14	0	16	36	98	21	0	155	16	1	2	0	19	389
<b>Total</b>	<b>13</b>	<b>700</b>	<b>2</b>	<b>0</b>	<b>715</b>	<b>2</b>	<b>2</b>	<b>33</b>	<b>0</b>	<b>37</b>	<b>87</b>	<b>430</b>	<b>82</b>	<b>0</b>	<b>599</b>	<b>65</b>	<b>3</b>	<b>13</b>	<b>0</b>	<b>81</b>	<b>1432</b>
*** BREAK ***																					
04:00 PM	13	211	3	0	227	8	8	115	0	131	67	178	91	0	336	94	8	11	0	113	807
04:15 PM	9	192	7	0	208	9	10	104	0	123	67	166	70	0	303	94	10	14	0	118	752
04:30 PM	7	213	6	0	226	8	11	86	0	105	65	167	67	0	299	70	12	17	0	99	729
04:45 PM	16	202	4	0	222	11	10	121	0	142	60	164	100	0	324	73	9	11	0	93	781
<b>Total</b>	<b>45</b>	<b>818</b>	<b>20</b>	<b>0</b>	<b>883</b>	<b>36</b>	<b>39</b>	<b>426</b>	<b>0</b>	<b>501</b>	<b>259</b>	<b>675</b>	<b>328</b>	<b>0</b>	<b>1262</b>	<b>331</b>	<b>39</b>	<b>53</b>	<b>0</b>	<b>423</b>	<b>3069</b>
05:00 PM	12	227	10	0	249	11	10	121	0	142	47	188	80	0	315	81	12	9	0	102	808
05:15 PM	12	252	6	0	270	7	9	100	0	116	55	217	89	0	361	103	2	18	0	123	870
05:30 PM	14	169	5	0	188	6	6	104	0	116	29	152	75	0	256	73	7	10	0	90	650
05:45 PM	14	246	3	1	264	9	10	99	1	119	55	179	95	0	329	76	6	9	0	91	803
<b>Total</b>	<b>52</b>	<b>894</b>	<b>24</b>	<b>1</b>	<b>971</b>	<b>33</b>	<b>35</b>	<b>424</b>	<b>1</b>	<b>493</b>	<b>186</b>	<b>736</b>	<b>339</b>	<b>0</b>	<b>1261</b>	<b>333</b>	<b>27</b>	<b>46</b>	<b>0</b>	<b>406</b>	<b>3131</b>
<b>Grand Total</b>	<b>118</b>	<b>2998</b>	<b>46</b>	<b>1</b>	<b>3163</b>	<b>73</b>	<b>77</b>	<b>895</b>	<b>1</b>	<b>1046</b>	<b>594</b>	<b>2198</b>	<b>803</b>	<b>0</b>	<b>3595</b>	<b>791</b>	<b>71</b>	<b>112</b>	<b>0</b>	<b>974</b>	<b>8778</b>
Apprch %	3.7	94.8	1.5	0		7	7.4	85.6	0.1		16.5	61.1	22.3	0		81.2	7.3	11.5	0		
Total %	1.3	34.2	0.5	0	36	0.8	0.9	10.2	0	11.9	6.8	25	9.1	0	41	9	0.8	1.3	0	11.1	
Pass Cars	117	2952	46	0	3115	73	76	887	0	1036	587	2167	788	0	3542	779	70	111	0	960	8653
% Pass Cars	99.2	98.5	100	0	98.5	100	98.7	99.1	0	99	98.8	98.6	98.1	0	98.5	98.5	98.6	99.1	0	98.6	98.6
Single Units	1	34	0	0	35	0	1	6	0	7	5	24	12	0	41	9	1	1	0	11	94
% Single Units	0.8	1.1	0	0	1.1	0	1.3	0.7	0	0.7	0.8	1.1	1.5	0	1.1	1.1	1.4	0.9	0	1.1	1.1
Heavy Trucks	0	12	0	0	12	0	0	2	0	2	2	7	3	0	12	3	0	0	0	3	29
% Heavy Trucks	0	0.4	0	0	0.4	0	0	0.2	0	0.2	0.3	0.3	0.4	0	0.3	0.4	0	0	0	0.3	0.3
Peds	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
% Peds	0	0	0	100	0	0	0	0	100	0.1	0	0	0	0	0	0	0	0	0	0	0

TDC Traffic Comments: Signalized intersection with push button ped. signals for west, north & east legs. Overhead NTOR electronic case for all approach legs. Video VCU cameras were located within NW & SE intersection quadrants. Note: Peds. are excluded from peak hour reports. Traffic study was performed for Novi Traffic Impact Study (Formerly Denny's @ 27750 Novi Road for GPD Group, Youngstown Ohio.

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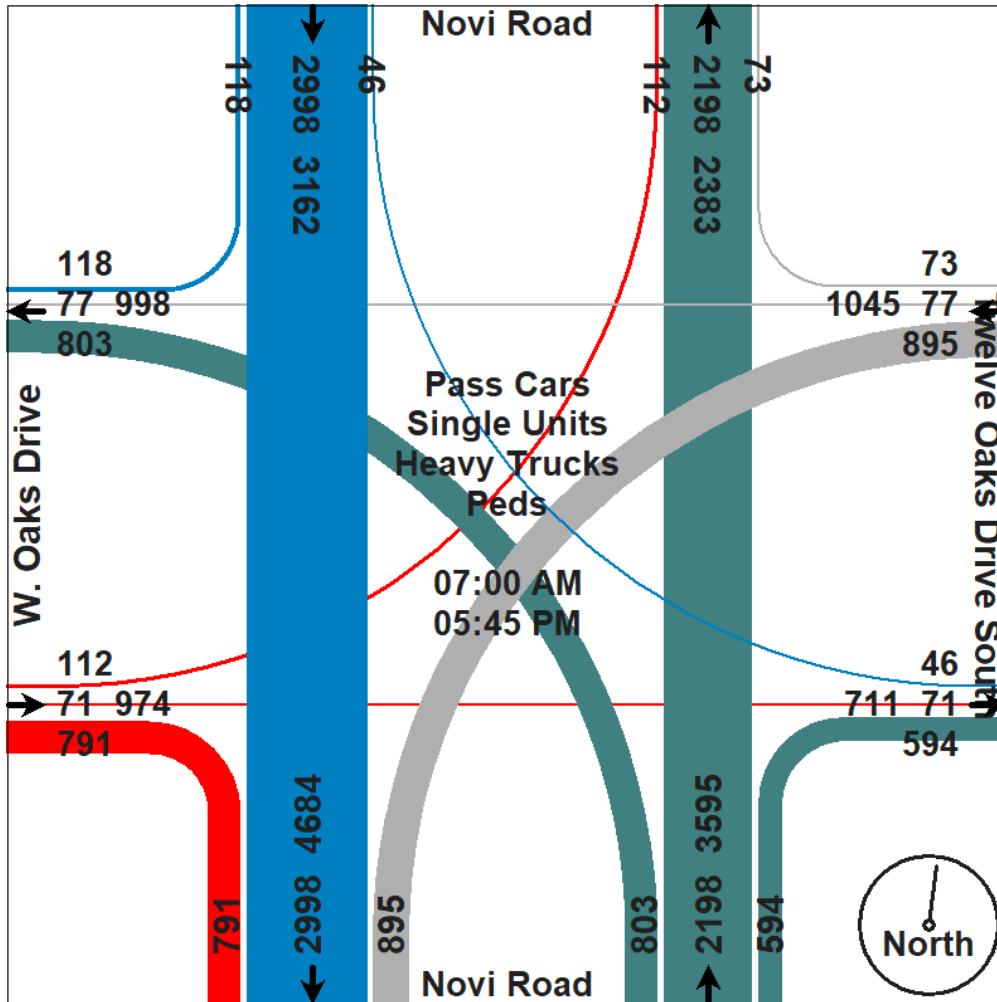
Traffic Study Performed For:

**GPD Group**



Project: Novi Traffic Impact Study  
Study: 4 Hr. Video Turning Movement Count  
Weather: Sunny/Cldy, Dry Deg's 30's  
Count By Miovision Video VCU 4G2 & 5RA

File Name : TMC\_1 Novi & Twelve Oaks\_S\_1-10-19  
Site Code : TMC\_1  
Start Date : 1/10/2019  
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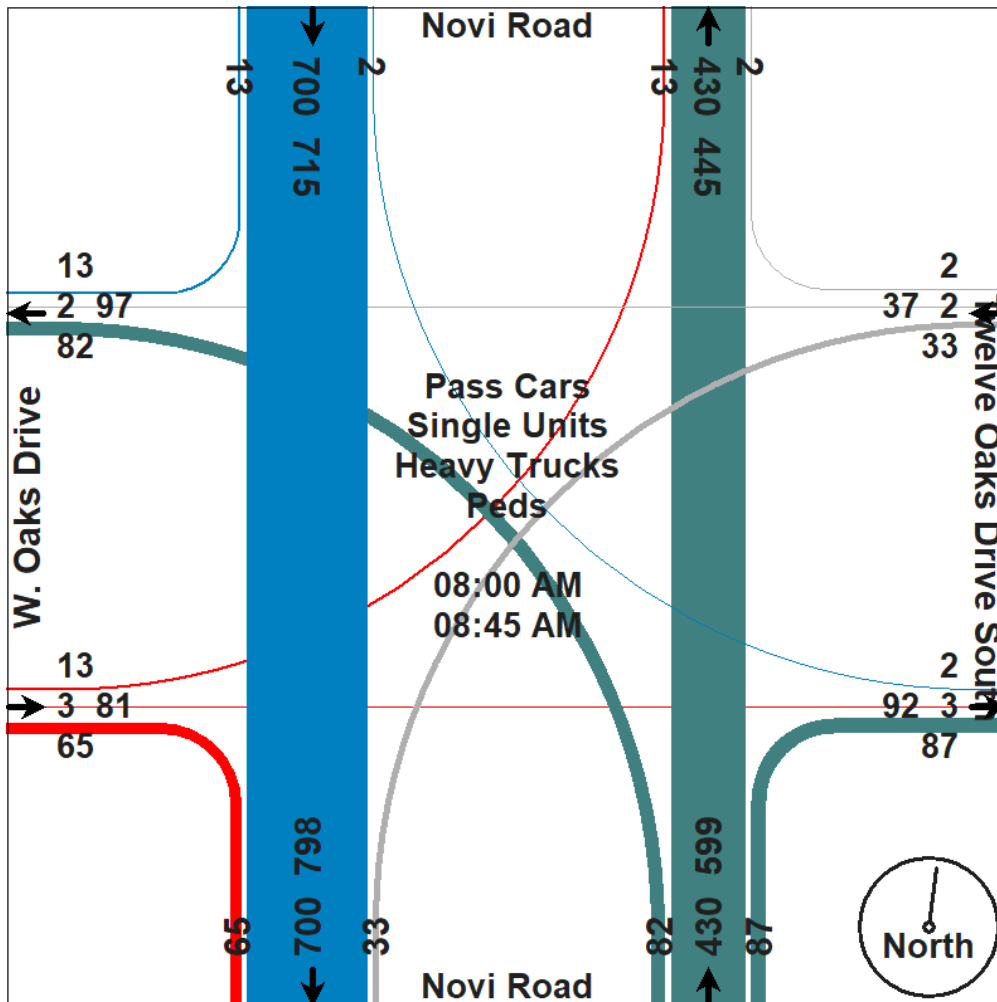
**GPD Group**



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**Start Date : 1/10/2019**  
**Page No : 3**

Start Time	Novi Road Southbound				Twelve Oaks Drive South Westbound				Novi Road Northbound				W. Oaks Drive Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	2	167	0	169	0	0	1	1	13	120	18	151	14	1	5	20	341
08:15 AM	5	146	1	152	1	0	6	7	26	104	26	156	17	1	3	21	336
08:30 AM	1	194	0	195	1	0	12	13	12	108	17	137	18	0	3	21	366
08:45 AM	5	193	1	199	0	2	14	16	36	98	21	155	16	1	2	19	389
Total Volume	13	700	2	715	2	2	33	37	87	430	82	599	65	3	13	81	1432
% App. Total	1.8	97.9	0.3		5.4	5.4	89.2		14.5	71.8	13.7		80.2	3.7	16		
PHF	.650	.902	.500	.898	.500	.250	.589	.578	.604	.896	.788	.960	.903	.750	.650	.964	.920
Pass Cars	13	684	2	699	2	2	32	36	85	418	77	580	60	2	13	75	1390
% Pass Cars	100	97.7	100	97.8	100	100	97.0	97.3	97.7	97.2	93.9	96.8	92.3	66.7	100	92.6	97.1
Single Units	0	12	0	12	0	0	0	0	2	8	4	14	3	1	0	4	30
% Single Units	0	1.7	0	1.7	0	0	0	0	2.3	1.9	4.9	2.3	4.6	33.3	0	4.9	2.1
Heavy Trucks	0	4	0	4	0	0	1	1	0	4	1	5	2	0	0	2	12
% Heavy Trucks	0	0.6	0	0.6	0	0	3.0	2.7	0	0.9	1.2	0.8	3.1	0	0	2.5	0.8
Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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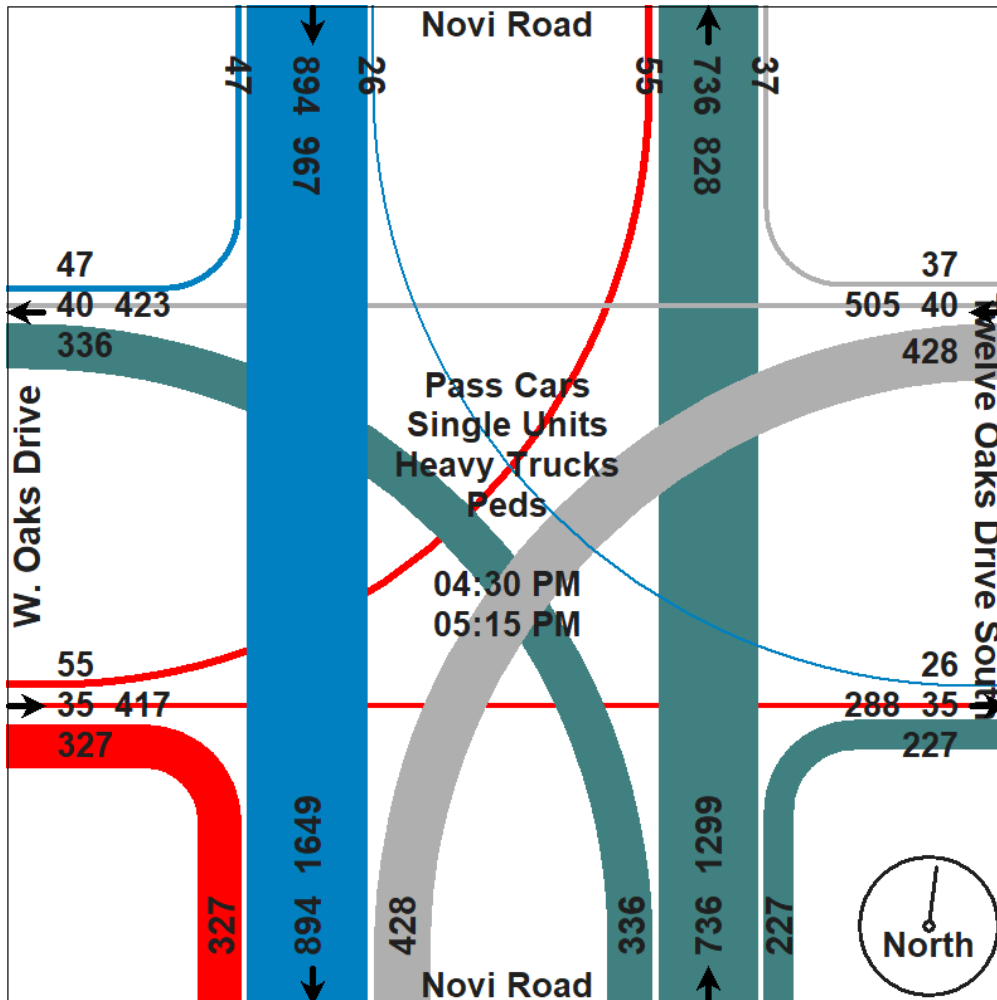
**GPD Group**



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**Start Date : 1/10/2019**  
**Page No : 4**

Start Time	Novi Road Southbound				Twelve Oaks Drive South Westbound				Novi Road Northbound				W. Oaks Drive Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	7	213	6	226	8	11	86	105	65	167	67	299	70	12	17	99	729
04:45 PM	16	202	4	222	11	10	121	142	60	164	100	324	73	9	11	93	781
05:00 PM	12	227	10	249	11	10	121	142	47	188	80	315	81	12	9	102	808
05:15 PM	12	252	6	270	7	9	100	116	55	217	89	361	103	2	18	123	870
Total Volume	47	894	26	967	37	40	428	505	227	736	336	1299	327	35	55	417	3188
% App. Total	4.9	92.5	2.7		7.3	7.9	84.8		17.5	56.7	25.9		78.4	8.4	13.2		
PHF	.734	.887	.650	.895	.841	.909	.884	.889	.873	.848	.840	.900	.794	.729	.764	.848	.916
Pass Cars	46	885	26	957	37	40	423	500	226	733	335	1294	326	35	55	416	3167
% Pass Cars	97.9	99.0	100	99.0	100	100	98.8	99.0	99.6	99.6	99.7	99.6	99.7	100	100	99.8	99.3
Single Units	1	6	0	7	0	0	4	4	1	3	0	4	1	0	0	1	16
% Single Units	2.1	0.7	0	0.7	0	0	0.9	0.8	0.4	0.4	0	0.3	0.3	0	0	0.2	0.5
Heavy Trucks	0	3	0	3	0	0	1	1	0	0	1	1	0	0	0	0	5
% Heavy Trucks	0	0.3	0	0.3	0	0	0.2	0.2	0	0	0.3	0.1	0	0	0	0	0.2
Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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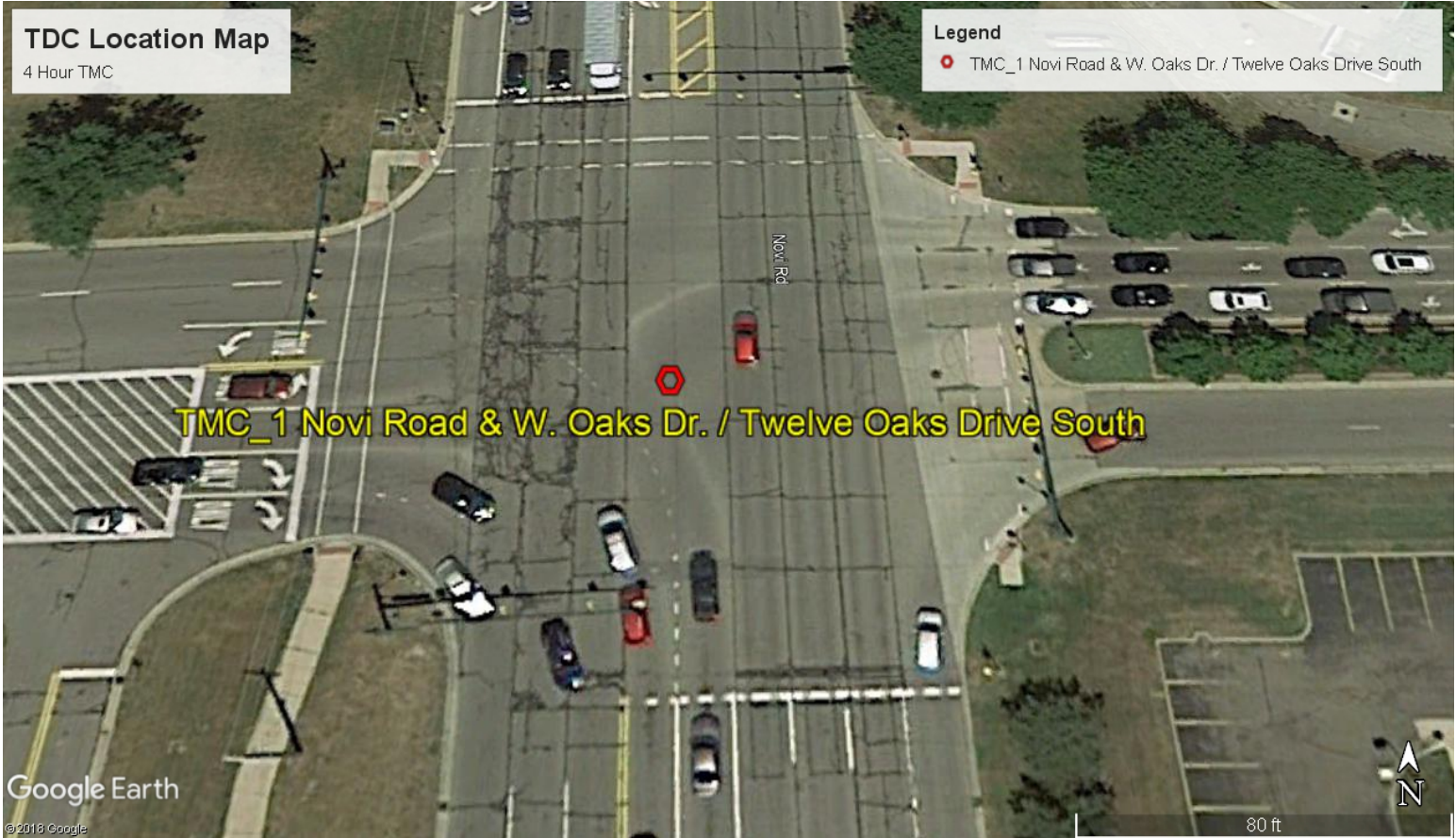
**GPD Group**



**Project:** Novi Traffic Impact Study  
**Study:** 4 Hr. Video Turning Movement Count  
**Weather:** Sunny/Cldy, Dry Deg's 30's  
**Count By:** Miovision Video VCU 4G2 & 5RA

**File Name :** TMC\_1 Novi & Twelve Oaks\_S\_1-10-19  
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**Start Date :** 1/10/2019  
**Page No :** 5

## Aerial Photo



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Traffic Study Performed For:

**GPD Group**



**Project: Novi Traffic Impact Study**  
**Study: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg's 30's**  
**Count By GH Jamar Ultra Board #22**

**File Name : TMC\_2 Twelve Oaks Mall\_S & Twelve Oak Mall\_1-10-19**  
**Site Code : TMC\_2**  
**Start Date : 1/10/2019**  
**Page No : 1**

4 Hour video traffic study was conducted during typical weekday (Tuesday-Thursday) from 7:00 AM - 9:00 AM morning & 4:00 PM - 6:00 PM afternoon peak hours, while school was in session.

Groups Printed- Pass Cars - Single Units - Heavy Trucks

Start Time	Twelve Oaks Mall Drive Southbound			Twelve Oaks Mall Drive Northbound			Twelve Oaks Drive South Eastbound			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	
07:00 AM	1	1	2	1	4	5	2	14	16	23
07:15 AM	1	2	3	1	1	2	0	9	9	14
07:30 AM	4	1	5	1	1	2	0	18	18	25
07:45 AM	1	4	5	1	2	3	3	19	22	30
<b>Total</b>	<b>7</b>	<b>8</b>	<b>15</b>	<b>4</b>	<b>8</b>	<b>12</b>	<b>5</b>	<b>60</b>	<b>65</b>	<b>92</b>
08:00 AM	1	3	4	2	1	3	1	12	13	20
08:15 AM	1	5	6	2	4	6	2	23	25	37
08:30 AM	9	4	13	1	3	4	5	10	15	32
08:45 AM	9	2	11	2	7	9	4	33	37	57
<b>Total</b>	<b>20</b>	<b>14</b>	<b>34</b>	<b>7</b>	<b>15</b>	<b>22</b>	<b>12</b>	<b>78</b>	<b>90</b>	<b>146</b>
*** BREAK ***										
04:00 PM	50	0	50	18	82	100	38	39	77	227
04:15 PM	44	8	52	14	80	94	42	47	89	235
04:30 PM	44	17	61	14	75	89	38	38	76	226
04:45 PM	52	13	65	23	81	104	41	26	67	236
<b>Total</b>	<b>190</b>	<b>38</b>	<b>228</b>	<b>69</b>	<b>318</b>	<b>387</b>	<b>159</b>	<b>150</b>	<b>309</b>	<b>924</b>
05:00 PM	59	8	67	12	81	93	42	31	73	233
05:15 PM	49	13	62	7	80	87	35	25	60	209
05:30 PM	52	17	69	12	58	70	15	23	38	177
05:45 PM	35	13	48	16	78	94	42	23	65	207
<b>Total</b>	<b>195</b>	<b>51</b>	<b>246</b>	<b>47</b>	<b>297</b>	<b>344</b>	<b>134</b>	<b>102</b>	<b>236</b>	<b>826</b>
<b>Grand Total</b>	<b>412</b>	<b>111</b>	<b>523</b>	<b>127</b>	<b>638</b>	<b>765</b>	<b>310</b>	<b>390</b>	<b>700</b>	<b>1988</b>
Apprch %	78.8	21.2		16.6	83.4		44.3	55.7		
Total %	20.7	5.6	26.3	6.4	32.1	38.5	15.6	19.6	35.2	
Pass Cars	408	107	515	124	635	759	306	386	692	1966
% Pass Cars	99	96.4	98.5	97.6	99.5	99.2	98.7	99	98.9	98.9
Single Units	2	4	6	2	3	5	4	2	6	17
% Single Units	0.5	3.6	1.1	1.6	0.5	0.7	1.3	0.5	0.9	0.9
Heavy Trucks	2	0	2	1	0	1	0	2	2	5
% Heavy Trucks	0.5	0	0.4	0.8	0	0.1	0	0.5	0.3	0.3

TDC Traffic Comments: Non-signalized "T" intersection, with right turn slip lanes. Note: Westbound traffic queued within intersection to Novi Road during 4:45 PM - 5:00 PM peak hour. Traffic study was performed for Novi Traffic Impact Study (Formerly Denny's @ 27750 Novi Road for GPD Group, Youngstown Ohio.



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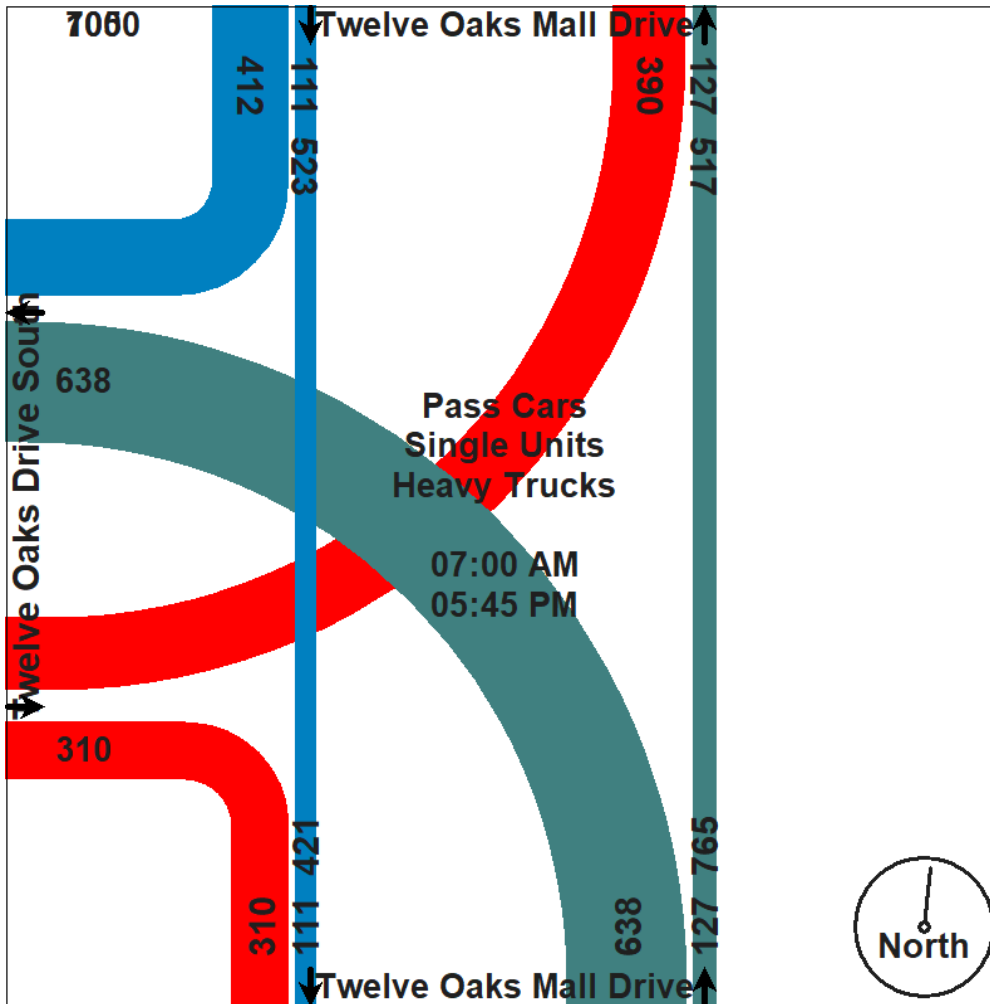
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Count By GH Jamar Ultra Board #22

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Site Code : TMC\_2  
Start Date : 1/10/2019  
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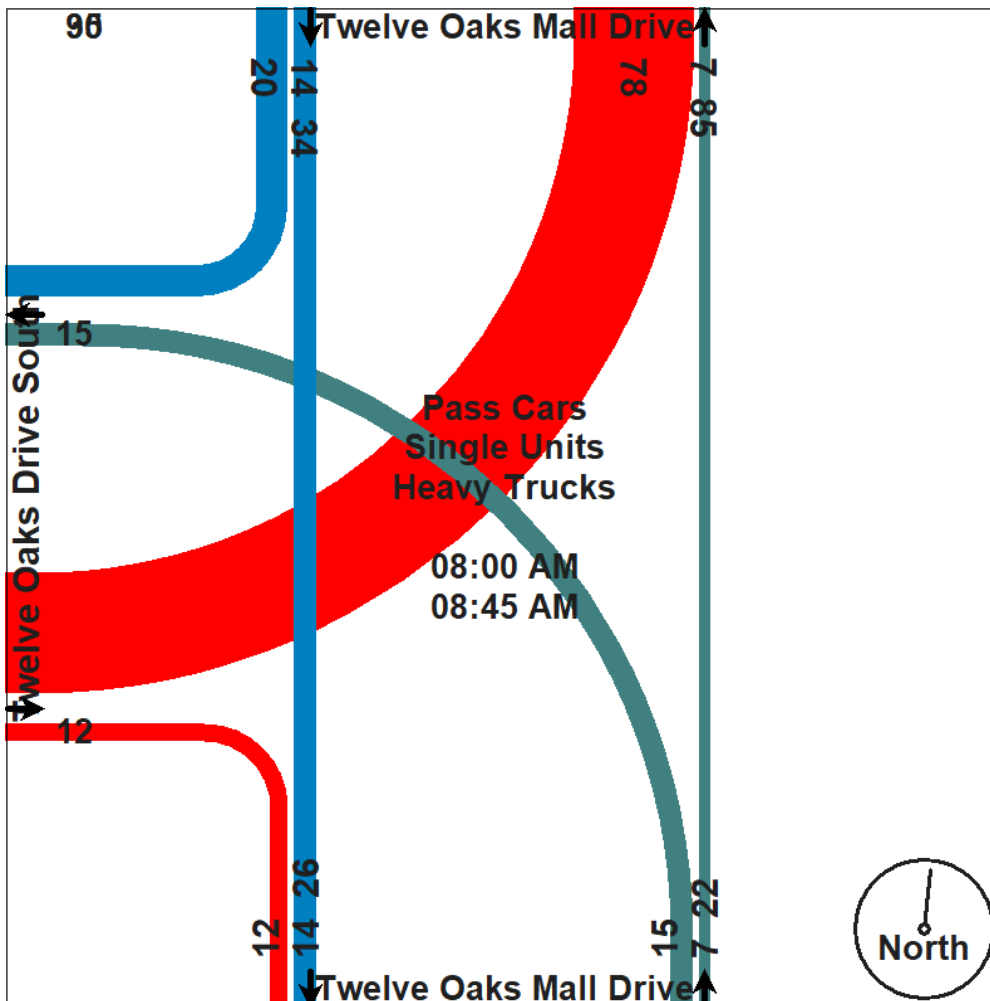
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	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	1	3	4	2	1	3	1	12	13	20
08:15 AM	1	5	6	2	4	6	2	23	25	37
08:30 AM	9	4	13	1	3	4	5	10	15	32
08:45 AM	9	2	11	2	7	9	4	33	37	57
Total Volume	20	14	34	7	15	22	12	78	90	146
% App. Total	58.8	41.2		31.8	68.2		13.3	86.7		
PHF	.556	.700	.654	.875	.536	.611	.600	.591	.608	.640
Pass Cars	19	13	32	7	15	22	9	78	87	141
% Pass Cars	95.0	92.9	94.1	100	100	100	75.0	100	96.7	96.6
Single Units	0	1	1	0	0	0	3	0	3	4
% Single Units	0	7.1	2.9	0	0	0	25.0	0	3.3	2.7
Heavy Trucks	1	0	1	0	0	0	0	0	0	1
% Heavy Trucks	5.0	0	2.9	0	0	0	0	0	0	0.7



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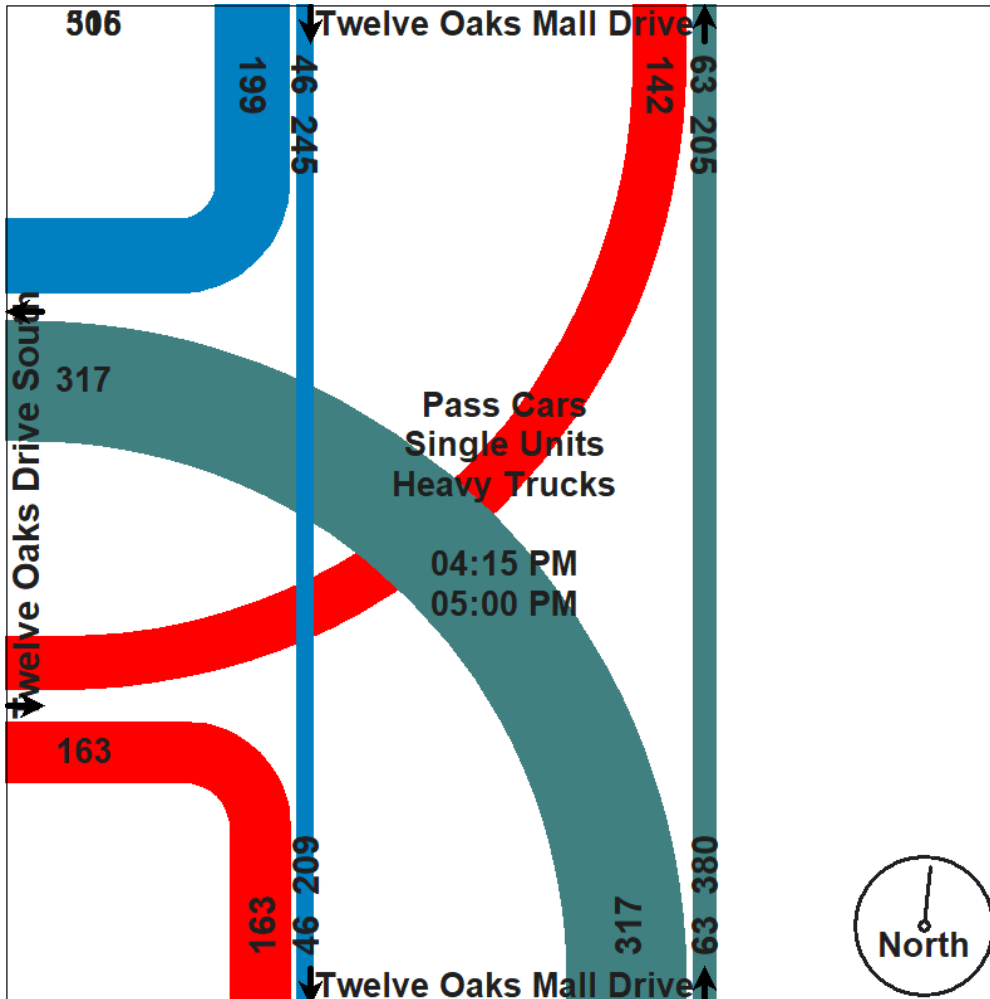
Traffic Study Performed For:  
**GPD Group**



**Project:** Novi Traffic Impact Study  
**Study:** 4 Hr. Video Turning Movement Count  
**Weather:** Sunny/Cldy, Dry Deg's 30's  
**Count By:** GH Jamar Ultra Board #22

**File Name :** TMC\_2 Twelve Oaks Mall\_S & Twelve Oak Mall\_1-10-19  
**Site Code :** TMC\_2  
**Start Date :** 1/10/2019  
**Page No :** 4

Start Time	Twelve Oaks Mall Drive Southbound			Twelve Oaks Mall Drive Northbound			Twelve Oaks Drive South Eastbound			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1 Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	44	8	52	14	80	94	42	47	89	235
04:30 PM	44	17	61	14	75	89	38	38	76	226
04:45 PM	52	13	65	23	81	104	41	26	67	236
05:00 PM	59	8	67	12	81	93	42	31	73	233
Total Volume	199	46	245	63	317	380	163	142	305	930
% App. Total	81.2	18.8		16.6	83.4		53.4	46.6		
PHF	.843	.676	.914	.685	.978	.913	.970	.755	.857	.985
Pass Cars	197	46	243	62	316	378	163	140	303	924
% Pass Cars	99.0	100	99.2	98.4	99.7	99.5	100	98.6	99.3	99.4
Single Units	1	0	1	0	1	1	0	1	1	3
% Single Units	0.5	0	0.4	0	0.3	0.3	0	0.7	0.3	0.3
Heavy Trucks	1	0	1	1	0	1	0	1	1	3
% Heavy Trucks	0.5	0	0.4	1.6	0	0.3	0	0.7	0.3	0.3



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Traffic Study Performed For:

**GPD Group**



**Project:** Novi Traffic Impact Study  
**Study:** 4 Hr. Video Turning Movement Count  
**Weather:** Sunny/Cldy, Dry Deg's 30's  
**Count By:** GH Jamar Ultra Board #22

**File Name :** TMC\_2 Twelve Oaks Mall\_S & Twelve Oak Mall\_1-10-19  
**Site Code :** TMC\_2  
**Start Date :** 1/10/2019  
**Page No :** 5

## Aerial Photo





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Traffic Study Performed For:

**GPD Group**



**Project: Novi Traffic Impact Study**  
**Study: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg's 30's**  
**Count By MM Jamar Ultra Board #23**

**File Name : TMC\_3 Mall Entry Dw & La-Z-Boy\_1-10-19**  
**Site Code : TMC\_3**  
**Start Date : 1/10/2019**  
**Page No : 1**

4 Hour video traffic study was conducted during typical weekday (Tuesday-Thursday) from 7:00 AM - 9:00 AM morning & 4:00 PM - 6:00 PM afternoon peak hours, while school was in session.

Groups Printed- Pass Cars - Single Units - Heavy Trucks

Start Time	EB One-Way Mall Entry Drive Westbound			La-Z-Boy Driveway Northbound			EB One-Way Mall Entry Drive Eastbound			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
07:00 AM	0	0	0	0	0	0	0	10	10	10
07:15 AM	0	0	0	0	0	0	0	13	13	13
07:30 AM	0	0	0	0	0	0	0	10	10	10
07:45 AM	0	0	0	0	0	0	0	24	24	24
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>57</b>	<b>57</b>	<b>57</b>
08:00 AM	0	0	0	0	0	0	0	24	24	24
08:15 AM	0	0	0	0	0	0	0	16	16	16
08:30 AM	0	0	0	0	0	0	0	13	13	13
08:45 AM	0	0	0	0	0	0	0	33	33	33
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>86</b>	<b>86</b>	<b>86</b>
*** BREAK ***										
04:00 PM	0	0	0	0	0	0	0	51	51	51
04:15 PM	0	0	0	1	0	1	0	40	40	41
04:30 PM	0	0	0	0	0	0	0	31	31	31
04:45 PM	0	0	0	0	0	0	0	38	38	38
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>160</b>	<b>160</b>	<b>161</b>
05:00 PM	0	0	0	1	0	1	0	46	46	47
05:15 PM	0	0	0	0	0	0	0	43	43	43
05:30 PM	0	0	0	0	0	0	0	52	52	52
05:45 PM	0	0	0	0	0	0	0	47	47	47
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>188</b>	<b>188</b>	<b>189</b>
<b>Grand Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>491</b>	<b>491</b>	<b>493</b>
Apprch %	0	0		100	0		0	100		
Total %	0	0		0.4	0	0.4	0	99.6	99.6	
Pass Cars	0	0	0	2	0	2	0	490	490	492
% Pass Cars	0	0	0	100	0	100	0	99.8	99.8	99.8
Single Units	0	0	0	0	0	0	0	0	0	0
% Single Units	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	1	1	1
% Heavy Trucks	0	0	0	0	0	0	0	0.2	0.2	0.2

TDC Traffic Comments: Non-signalized "T" intersection. Traffic study was performed for Novi Traffic Impact Study (Formerly Denny's @ 27750 Novi Road for GPD Group, Youngstown Ohio.

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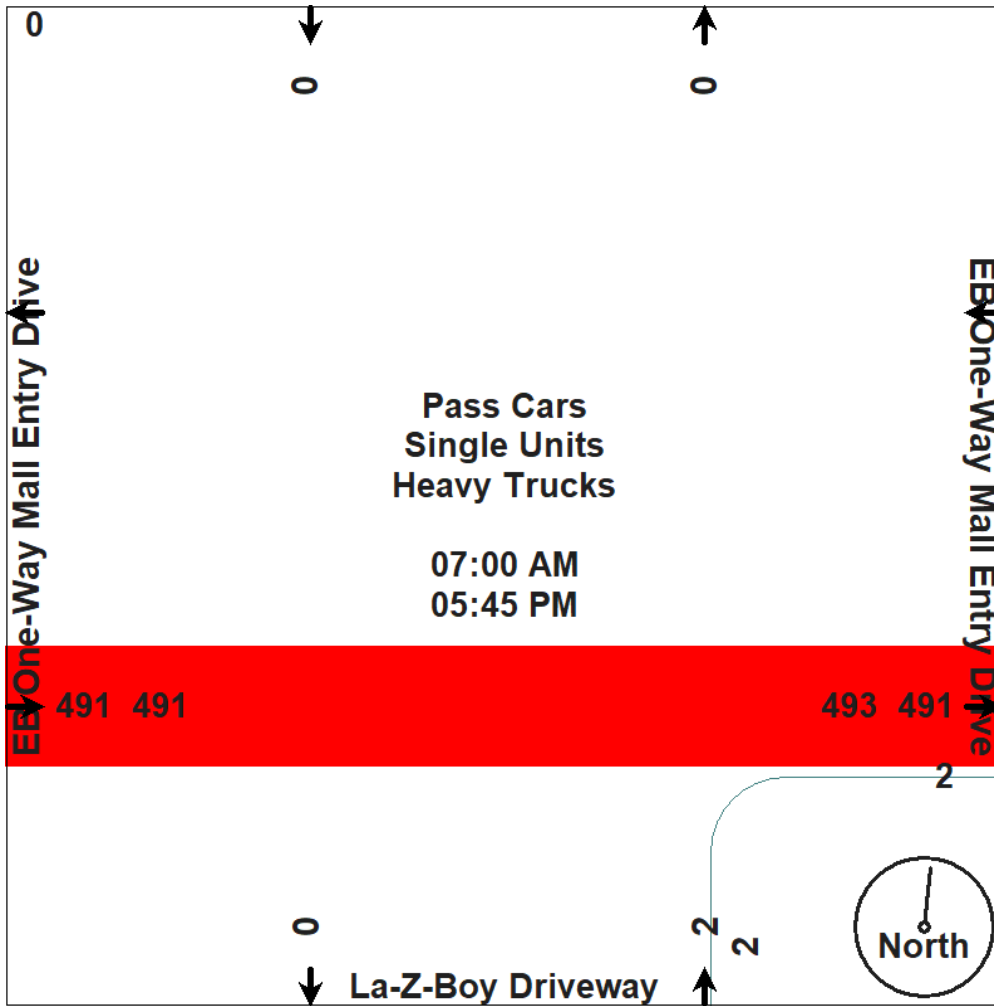
Traffic Study Performed For:

**GPD Group**



Project: Novi Traffic Impact Study  
Study: 4 Hr. Video Turning Movement Count  
Weather: Sunny/Cldy, Dry Deg's 30's  
Count By MM Jamar Ultra Board #23

File Name : TMC\_3 Mall Entry Dw & La-Z-Boy\_1-10-19  
Site Code : TMC\_3  
Start Date : 1/10/2019  
Page No : 2



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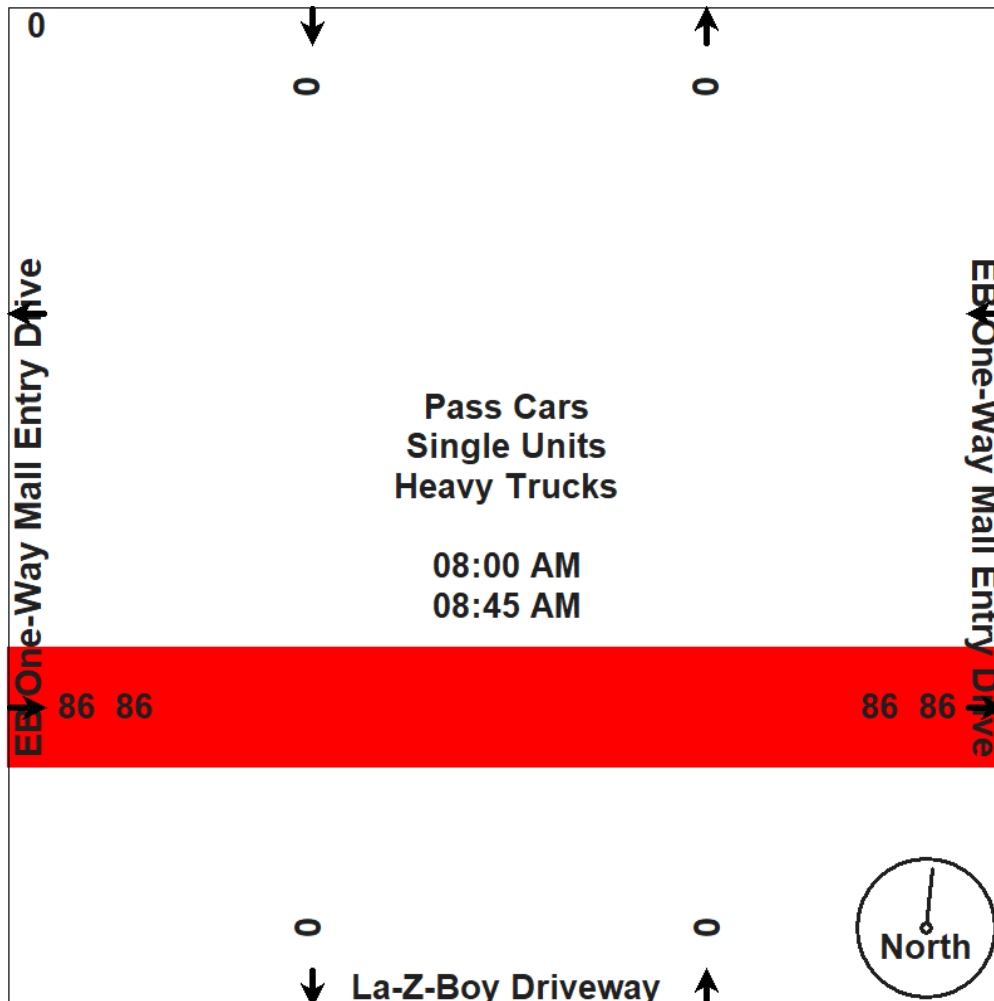
Traffic Study Performed For:  
**GPD Group**



**Project: Novi Traffic Impact Study**  
**Study: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg's 30's**  
**Count By MM Jamar Ultra Board #23**

**File Name : TMC\_3 Mall Entry Dw & La-Z-Boy\_1-10-19**  
**Site Code : TMC\_3**  
**Start Date : 1/10/2019**  
**Page No : 3**

Start Time	EB One-Way Mall Entry Drive Westbound			La-Z-Boy Driveway Northbound			EB One-Way Mall Entry Drive Eastbound			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	0	0	0	0	0	0	24	24	24
08:15 AM	0	0	0	0	0	0	0	16	16	16
08:30 AM	0	0	0	0	0	0	0	13	13	13
08:45 AM	0	0	0	0	0	0	0	<b>33</b>	<b>33</b>	<b>33</b>
Total Volume	0	0	0	0	0	0	0	86	86	86
% App. Total	0	0	0	0	0	0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.652	.652	.652
Pass Cars	0	0	0	0	0	0	0	86	86	86
% Pass Cars	0	0	0	0	0	0	0	100	100	100
Single Units	0	0	0	0	0	0	0	0	0	0
% Single Units	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0



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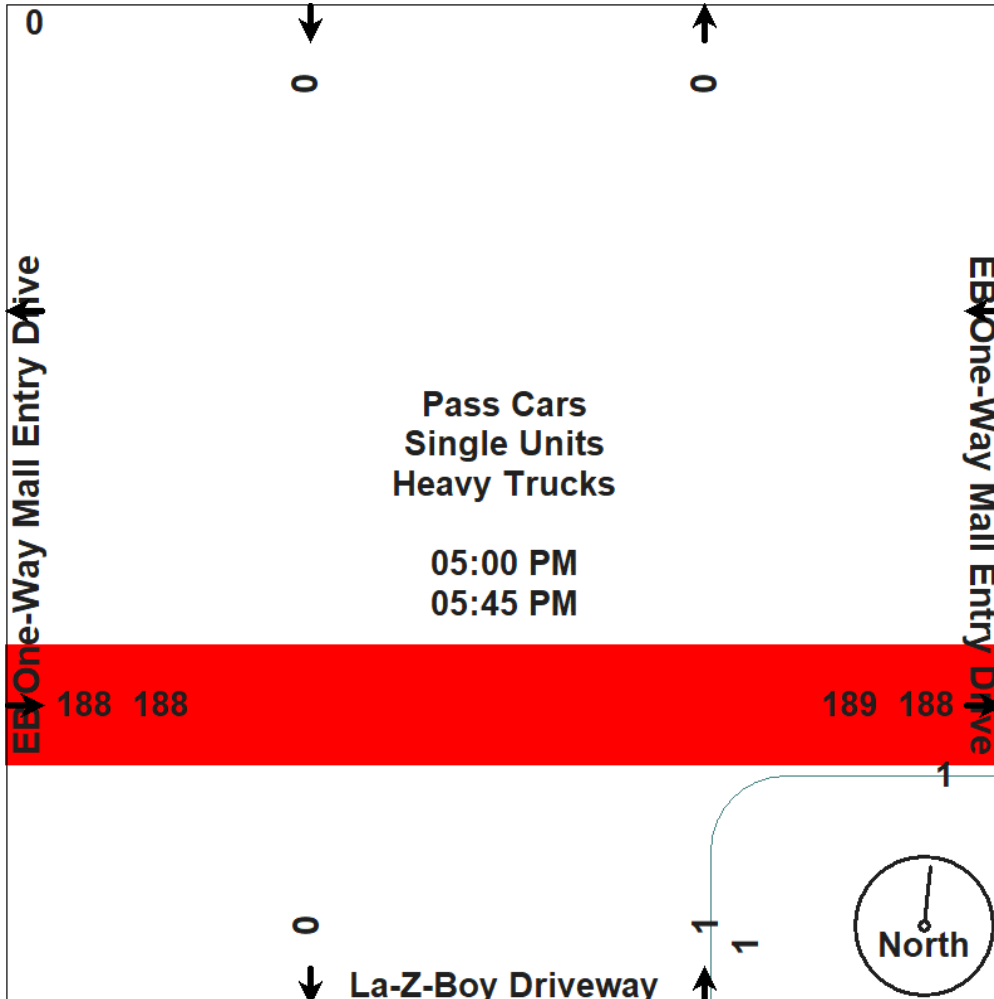
Traffic Study Performed For:  
**GPD Group**



**Project: Novi Traffic Impact Study**  
**Study: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg's 30's**  
**Count By MM Jamar Ultra Board #23**

**File Name : TMC\_3 Mall Entry Dw & La-Z-Boy\_1-10-19**  
**Site Code : TMC\_3**  
**Start Date : 1/10/2019**  
**Page No : 4**

Start Time	EB One-Way Mall Entry Drive Westbound			La-Z-Boy Driveway Northbound			EB One-Way Mall Entry Drive Eastbound			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	0	0	1	0	1	0	46	46	47
05:15 PM	0	0	0	0	0	0	0	43	43	43
05:30 PM	0	0	0	0	0	0	0	52	52	52
05:45 PM	0	0	0	0	0	0	0	47	47	47
Total Volume	0	0	0	1	0	1	0	188	188	189
% App. Total	0	0	0	100	0	100	0	100	100	100
PHF	.000	.000	.000	.250	.000	.250	.000	.904	.904	.909
Pass Cars	0	0	0	1	0	1	0	188	188	189
% Pass Cars	0	0	0	100	0	100	0	100	100	100
Single Units	0	0	0	0	0	0	0	0	0	0
% Single Units	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0





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Traffic Study Performed For:

**GPD Group**



Project: Novi Traffic Impact Study  
Study: 4 Hr. Video Turning Movement Count  
Weather: Sunny/Cldy, Dry Deg's 30's  
Count by MM Jamar Ultra Board #23

File Name : TMC\_3 Mall Entry Dw & La-Z-Boy\_1-10-19  
Site Code : TMC\_3  
Start Date : 1/10/2019  
Page No : 5

## Aerial Photo



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Traffic Study Performed For:

**GPD Group**



**Project: Novi Traffic Impact Study**  
**Study: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg's 30's**  
**Count by DM Jamar Ultra Board #24**

**File Name : TMC\_4 Twelve Oaks Mall & La-Z-Boy\_1-10-19**  
**Site Code : TMC\_4**  
**Start Date : 1/10/2019**  
**Page No : 1**

4 Hour video traffic study was conducted during typical weekday (Tuesday-Thursday) from 7:00 AM - 9:00 AM morning & 4:00 PM - 6:00 PM afternoon peak hours, while school was in session.

Groups Printed- Pass Cars - Single Units - Heavy Trucks

Start Time	Twelve Oaks Mall Drive Southbound			Twelve Oaks Mall Drive Northbound			La-Z-Boy Drive Eastbound			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	
07:00 AM	0	9	9	3	0	3	3	0	3	15
07:15 AM	1	13	14	1	0	1	0	0	0	15
07:30 AM	0	9	9	2	0	2	0	0	0	11
07:45 AM	0	30	30	4	0	4	0	0	0	34
<b>Total</b>	<b>1</b>	<b>61</b>	<b>62</b>	<b>10</b>	<b>0</b>	<b>10</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>75</b>
08:00 AM	0	29	29	2	0	2	0	0	0	31
08:15 AM	0	20	20	3	0	3	0	0	0	23
08:30 AM	0	20	20	4	0	4	0	0	0	24
08:45 AM	1	34	35	8	0	8	0	0	0	43
<b>Total</b>	<b>1</b>	<b>103</b>	<b>104</b>	<b>17</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>121</b>
*** BREAK ***										
04:00 PM	1	84	85	56	0	56	0	1	1	142
04:15 PM	2	72	74	73	0	73	0	0	0	147
04:30 PM	2	57	59	57	0	57	0	0	0	116
04:45 PM	0	74	74	66	0	66	1	2	3	143
<b>Total</b>	<b>5</b>	<b>287</b>	<b>292</b>	<b>252</b>	<b>0</b>	<b>252</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>548</b>
05:00 PM	0	78	78	59	0	59	1	3	4	141
05:15 PM	0	79	79	54	0	54	0	0	0	133
05:30 PM	0	69	69	45	0	45	0	0	0	114
05:45 PM	2	75	77	54	0	54	1	1	2	133
<b>Total</b>	<b>2</b>	<b>301</b>	<b>303</b>	<b>212</b>	<b>0</b>	<b>212</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>521</b>
<b>Grand Total</b>	<b>9</b>	<b>752</b>	<b>761</b>	<b>491</b>	<b>0</b>	<b>491</b>	<b>6</b>	<b>7</b>	<b>13</b>	<b>1265</b>
Apprch %	1.2	98.8		100	0		46.2	53.8		
Total %	0.7	59.4	60.2	38.8	0	38.8	0.5	0.6	1	
Pass Cars	8	745	753	485	0	485	6	7	13	1251
% Pass Cars	88.9	99.1	98.9	98.8	0	98.8	100	100	100	98.9
Single Units	1	5	6	6	0	6	0	0	0	12
% Single Units	11.1	0.7	0.8	1.2	0	1.2	0	0	0	0.9
Heavy Trucks	0	2	2	0	0	0	0	0	0	2
% Heavy Trucks	0	0.3	0.3	0	0	0	0	0	0	0.2

TDC Traffic Comments: Non-signalized intersection. Traffic study was performed for Novi Traffic Impact Study (Formerly Denny's @ 27750 Novi Road for GPD Group, Youngstown Ohio.

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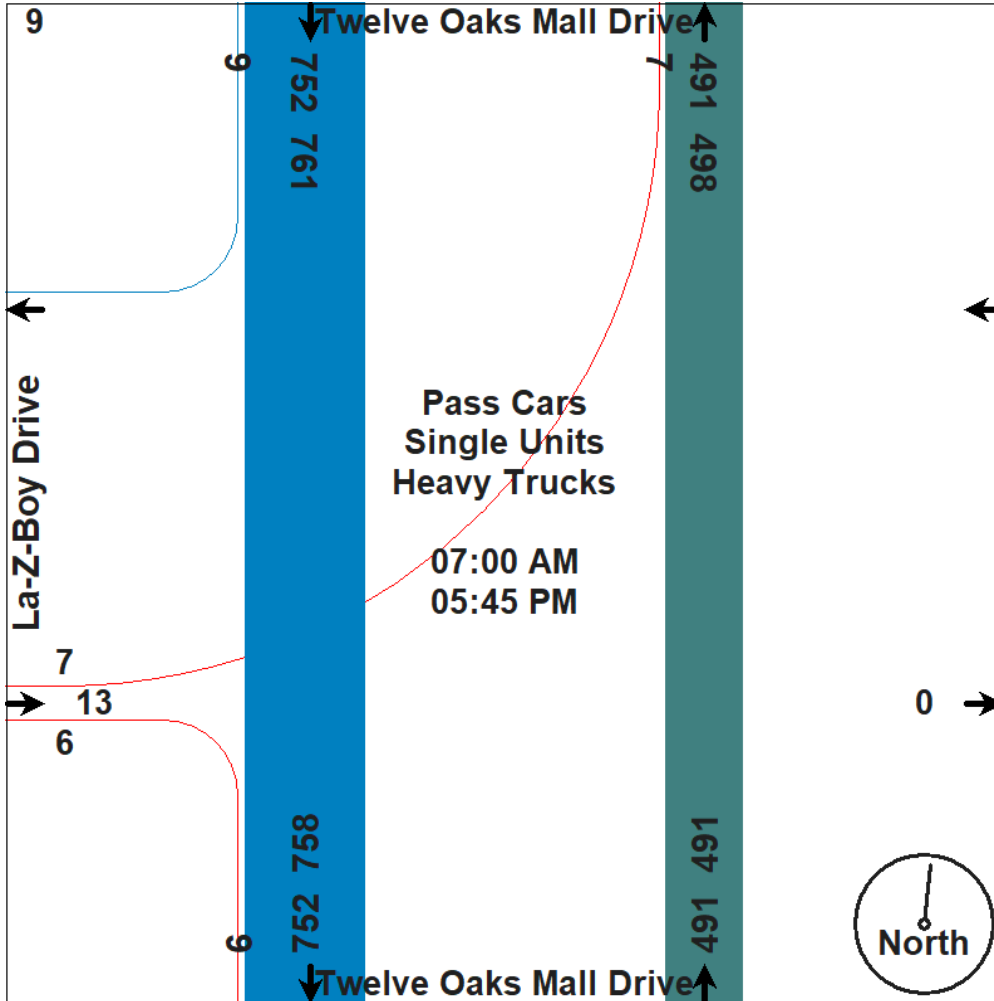
Phone: 586.786-5407

Traffic Study Performed For:  
**GPD Group**



Project: Novi Traffic Impact Study  
Study: 4 Hr. Video Turning Movement Count  
Weather: Sunny/Cldy, Dry Deg's 30's  
Count By DM Jamar Ultra Board #24

File Name : TMC\_4 Twelve Oaks Mall & La-Z-Boy\_1-10-19  
Site Code : TMC\_4  
Start Date : 1/10/2019  
Page No : 2



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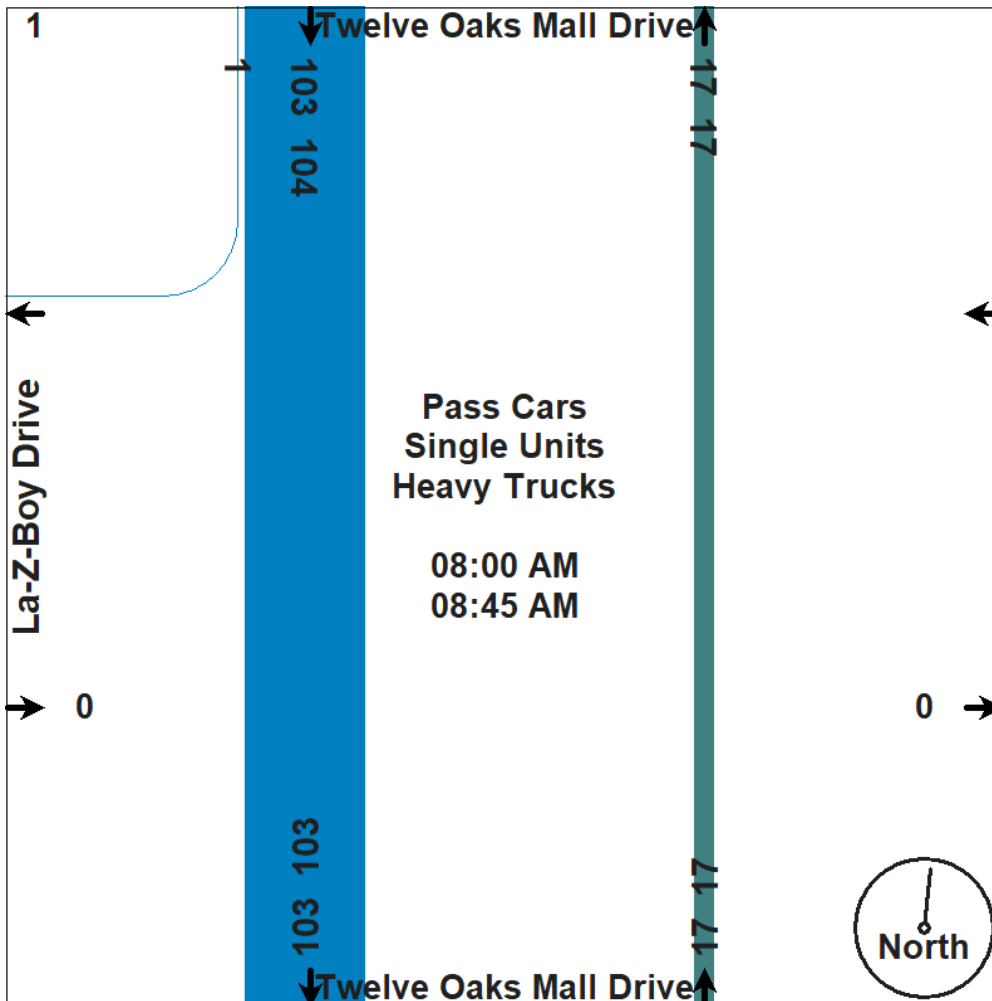
Traffic Study Performed For:  
**GPD Group**



**Project:** Novi Traffic Impact Study  
**Study:** 4 Hr. Video Turning Movement Count  
**Weather:** Sunny/Cldy, Dry Deg's 30's  
**Count By:** DM Jamar Ultra Board #24

**File Name :** TMC\_4 Twelve Oaks Mall & La-Z-Boy\_1-10-19  
**Site Code :** TMC\_4  
**Start Date :** 1/10/2019  
**Page No :** 3

Start Time	Twelve Oaks Mall Drive Southbound			Twelve Oaks Mall Drive Northbound			La-Z-Boy Drive Eastbound			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	29	29	2	0	2	0	0	0	31
08:15 AM	0	20	20	3	0	3	0	0	0	23
08:30 AM	0	20	20	4	0	4	0	0	0	24
08:45 AM	1	34	35	8	0	8	0	0	0	43
Total Volume	1	103	104	17	0	17	0	0	0	121
% App. Total	1	99		100	0		0	0		
PHF	.250	.757	.743	.531	.000	.531	.000	.000	.000	.703
Pass Cars	0	102	102	17	0	17	0	0	0	119
% Pass Cars	0	99.0	98.1	100	0	100	0	0	0	98.3
Single Units	1	1	2	0	0	0	0	0	0	2
% Single Units	100	1.0	1.9	0	0	0	0	0	0	1.7
Heavy Trucks	0	0	0	0	0	0	0	0	0	0
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0





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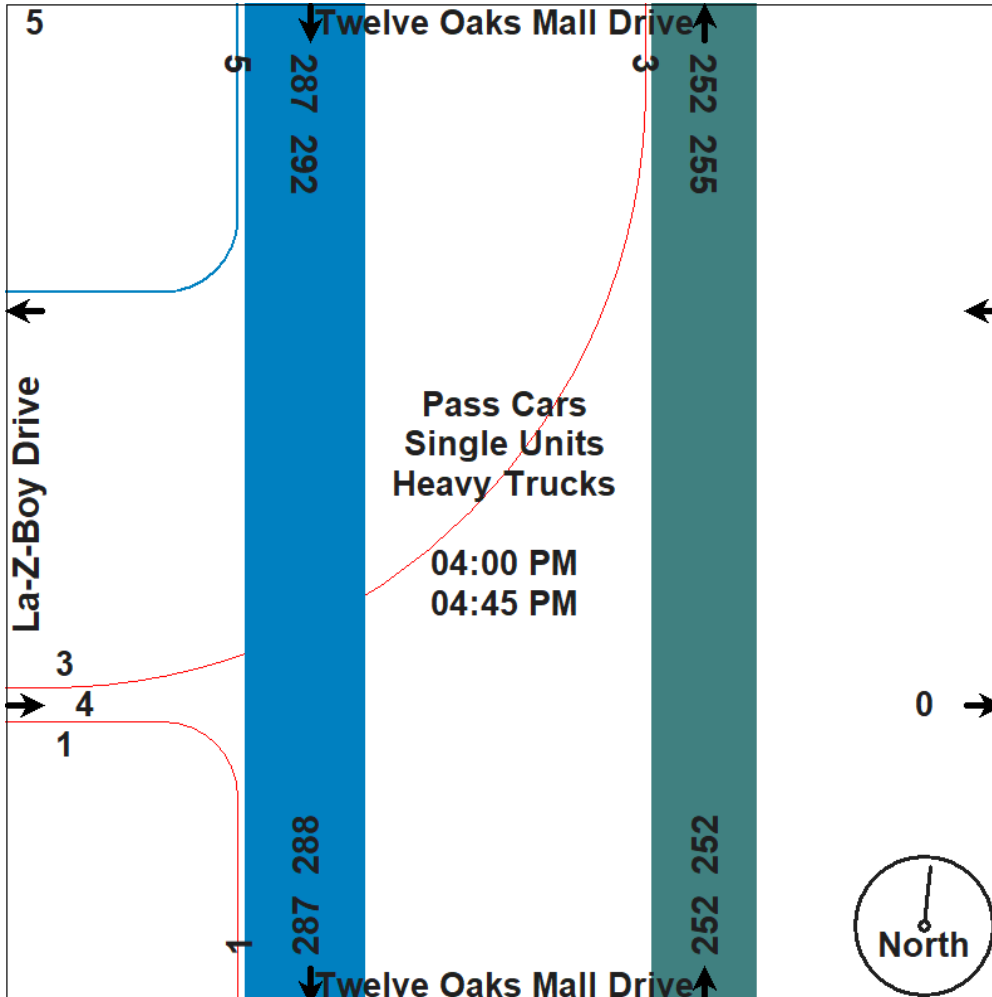
Traffic Study Performed For:  
**GPD Group**



**Project: Novi Traffic Impact Study**  
**Study: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg's 30's**  
**Count By DM Jamar Ultra Board #24**

**File Name : TMC\_4 Twelve Oaks Mall & La-Z-Boy\_1-10-19**  
**Site Code : TMC\_4**  
**Start Date : 1/10/2019**  
**Page No : 4**

Start Time	Twelve Oaks Mall Drive Southbound			Twelve Oaks Mall Drive Northbound			La-Z-Boy Drive Eastbound			Int. Total
	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1 Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	1	84	85	56	0	56	0	1	1	142
04:15 PM	2	72	74	73	0	73	0	0	0	147
04:30 PM	2	57	59	57	0	57	0	0	0	116
04:45 PM	0	74	74	66	0	66	1	2	3	143
Total Volume	5	287	292	252	0	252	1	3	4	548
% App. Total	1.7	98.3		100	0		25	75		
PHF	.625	.854	.859	.863	.000	.863	.250	.375	.333	.932
Pass Cars	5	285	290	251	0	251	1	3	4	545
% Pass Cars	100	99.3	99.3	99.6	0	99.6	100	100	100	99.5
Single Units	0	0	0	1	0	1	0	0	0	1
% Single Units	0	0	0	0.4	0	0.4	0	0	0	0.2
Heavy Trucks	0	2	2	0	0	0	0	0	0	2
% Heavy Trucks	0	0.7	0.7	0	0	0	0	0	0	0.4



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Traffic Study Performed For:  
**GPD Group**



Project: Novi Traffic Impact Study  
Study: 4 Hr. Video Turning Movement Count  
Weather: Sunny/Cldy, Dry Deg's 30's  
Count By DM Jamar Ultra Board #24

File Name : TMC\_4 Twelve Oaks Mall & La-Z-Boy\_1-10-19  
Site Code : TMC\_4  
Start Date : 1/10/2019  
Page No : 5

## Aerial Photo



**APPENDIX B:  
ITE TRIP GENERATION CALCULATIONS**

## ITE Trip Generation Procedure

---

### Land Use 934 (Fast-Food Restaurant with Drive-Through Window)

Trip Generations per 1000 Sq. Feet Gross Floor Area  
Setting / Location: General Urban / Suburban

#### **Weekday Trip Generation and Trip Distribution**

Trip Generation Formula:  $T = 470.95 * (X)$   
where: T = Number of Trips Generated  
X = 1000 Sq. Feet Gross Floor Area

Gross Floor Area: 4,990

Total Trip Ends in the Average Weekday: 2,351

Distribution Percentages of Entering and Exiting Trips, From ITE Trip Generation Manual, 10th Edition

Entering Trip Percentage: 50%  
Exiting Trip Percentage: 50%  
Number of Entering Trips: 1,176  
Number of Exiting Trips: 1,175

#### **AM Peak Trip Generation and Trip Distribution (Peak Hour of Adjacent Street)**

Trip Generation Formula:  $T = 40.19 * (X)$   
Total Trip Ends in the AM Peak Hour: 201

Pass-By Rate from ITE Trip Generation Handbook, An ITE Recommended Practice

Pass-By Rate: 49.00%

Primary Trips: 103  
Pass-By Trips: 98

Distribution Percentages of Entering and Exiting Trips, From ITE Trip Generation Manual, 10th Edition

Entering Trip Percentage: 51%  
Exiting Trip Percentage: 49%

Entering Primary Trips: 52  
Exiting Primary Trips: 51

Entering Pass-byTrips: 50  
Exiting Pass-by Trips: 48

#### **PM Peak Trip Generation and Trip Distribution (Peak Hour of Adjacent Street)**

Trip Generation Formula:  $T = 32.67 * (X)$   
Total Trip Ends in the PM Peak Hour: 164

Pass-By Rate from ITE Trip Generation Handbook, An ITE Recommended Practice

Pass-By Rate: 50.00%

Primary Trips: 82  
Pass-By Trips: 82

Distribution Percentages of Entering and Exiting Trips, From ITE Trip Generation Manual, 10th Edition

Entering Trip Percentage: 52%  
Exiting Trip Percentage: 48%

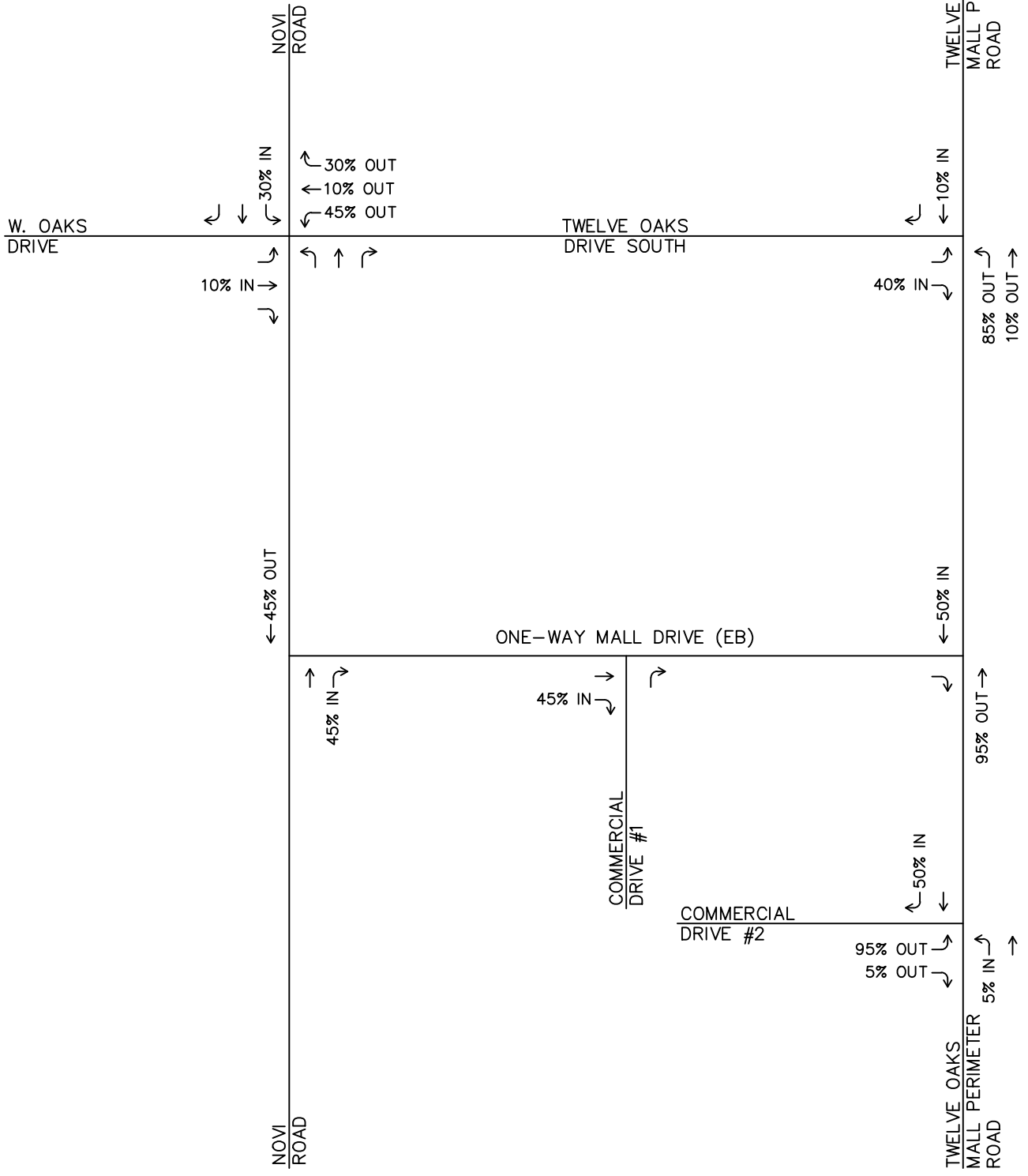
Entering Primary Trips: 43  
Exiting Primary Trips: 39

Entering Pass-byTrips: 43  
Exiting Pass-by Trips: 39



**APPENDIX C:  
SITE TRIP DISTRIBUTION AND ASSIGNMENT**

CAD FILE: G:\2018\2018223\15\_TWELVE\_OAKS\_MALL\TRAFFIC FIGURES\APPENDIX C.DWG  
 DATE: 1/19/2019 TIME: 10:25:03 AM



N.T.S.

APPENDIX C

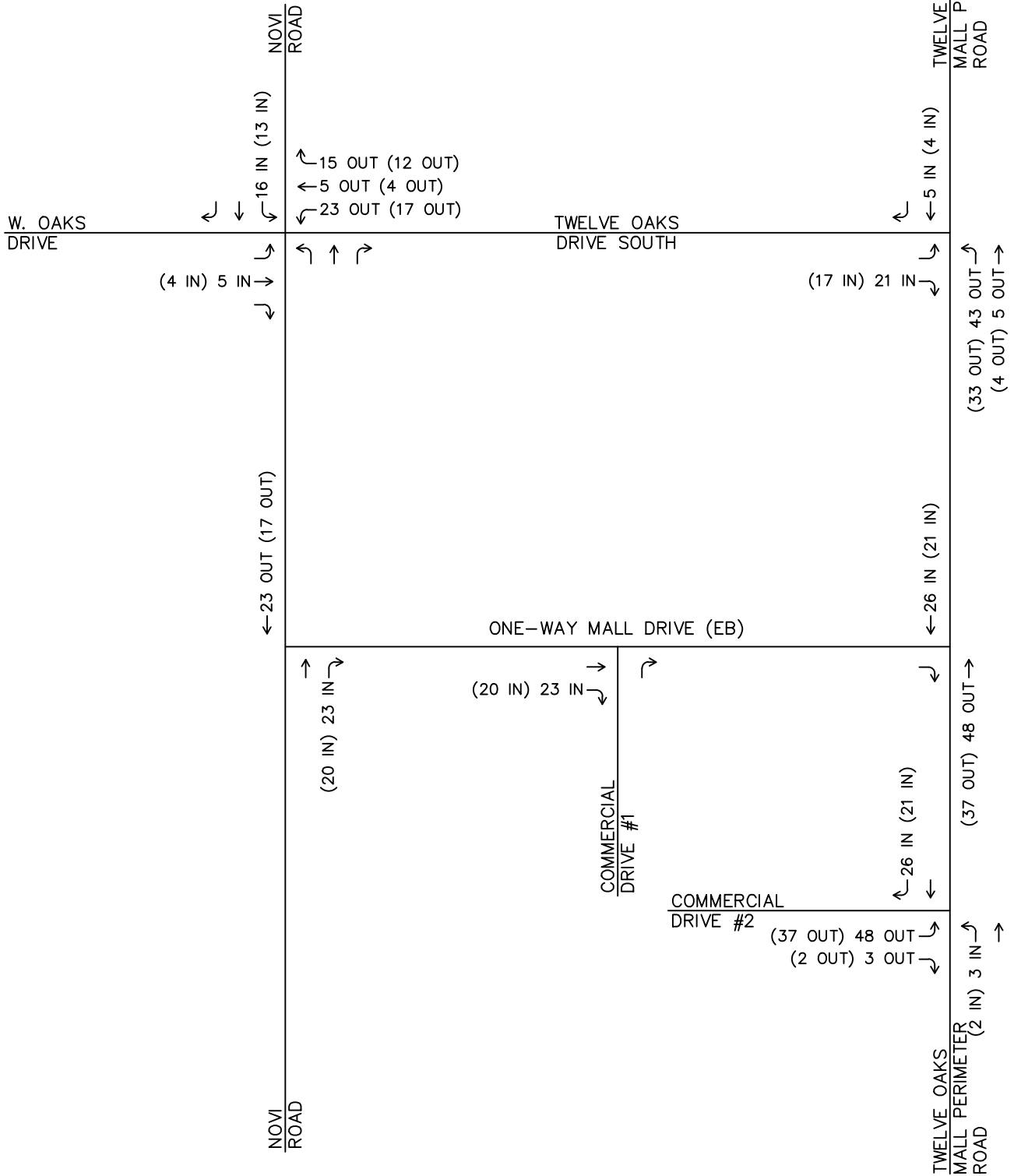
PRIMARY SITE TRIP DISTRIBUTION

JANUARY 2019



TECHNICIAN: DDOMBROSKY

CAD FILE: G:\2018\2018223\15\_TWELVE\_OAKS\_MALL\TRAFFIC\FIGURES\APPENDIX\_C.DWG  
 DATE: 1/19/2019 TIME: 10:25:13 AM



**LEGEND**  
 ## - AM PEAK  
 (##) - PM PEAK



N.T.S.

APPENDIX C

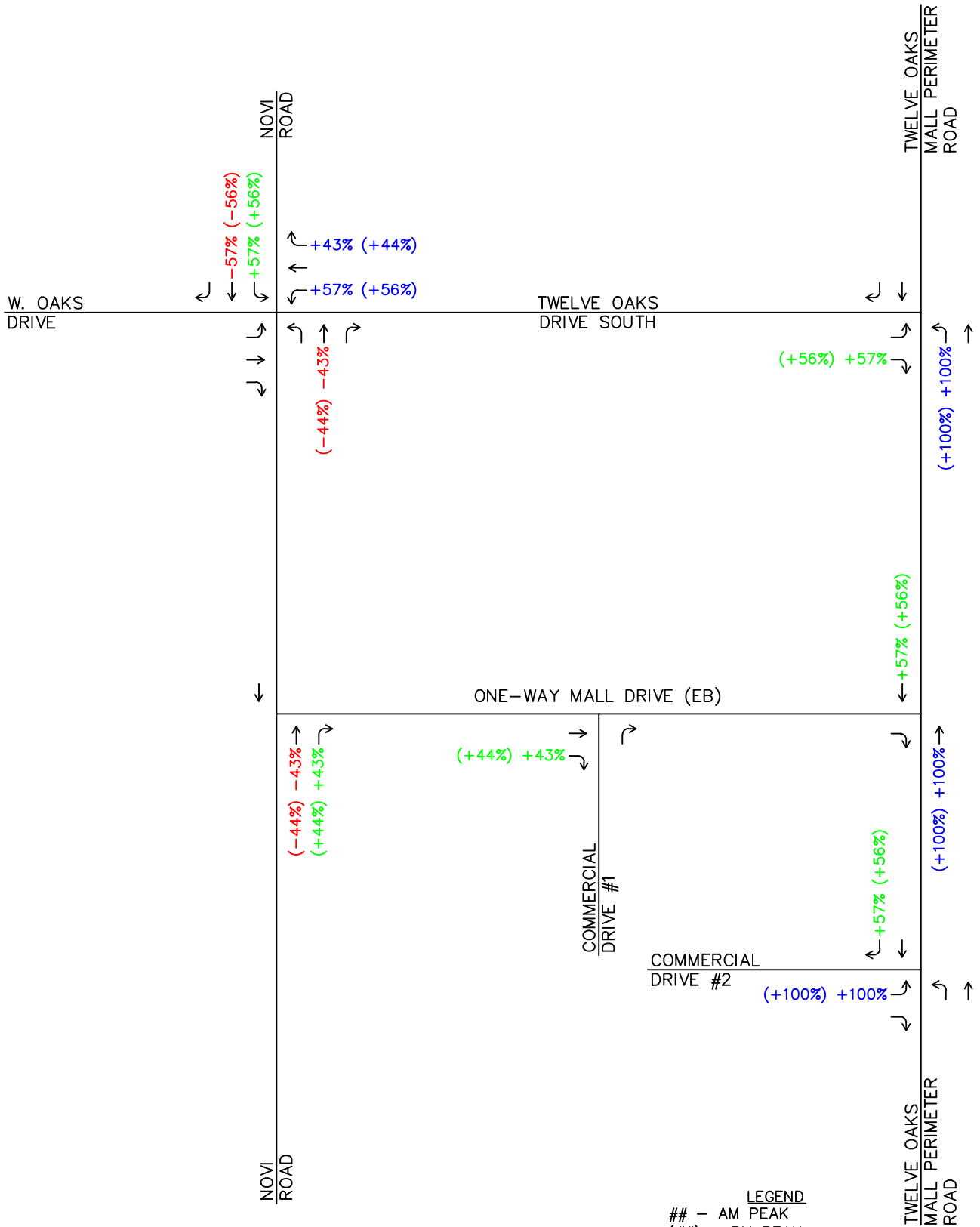
PRIMARY SITE TRIP ASSIGNMENT

JANUARY 2019



TECHNICIAN: DDOMBROSKY

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**LEGEND**  
 ## - AM PEAK  
 (##) - PM PEAK  
 ## - PASS-BY REDUCTION  
 ## - INBOUND PASS-BY  
 ## - OUTBOUND PASS-BY



N.T.S.

APPENDIX C

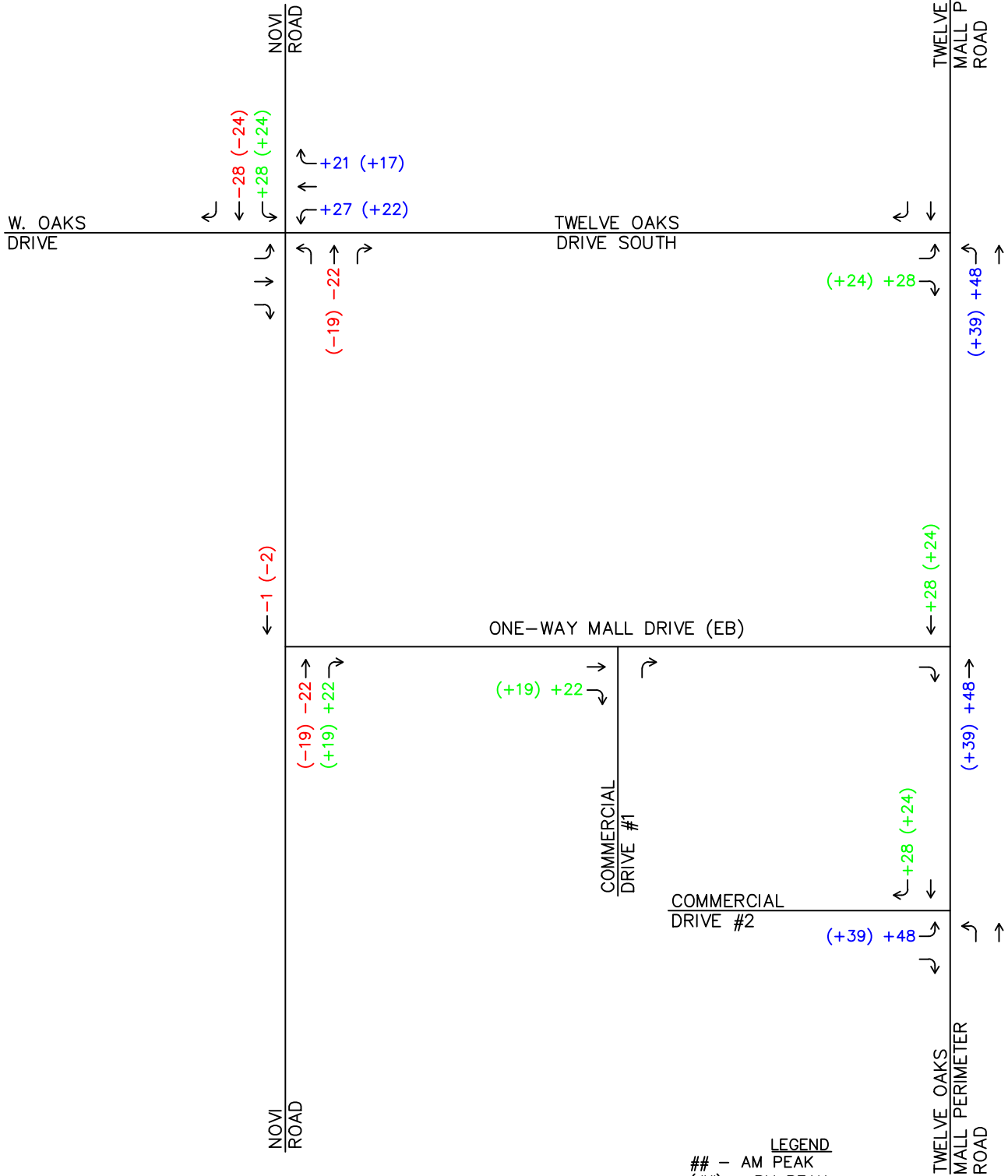
PASS-BY TRIP DISTRIBUTION

JANUARY 2019





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N.T.S.

APPENDIX C

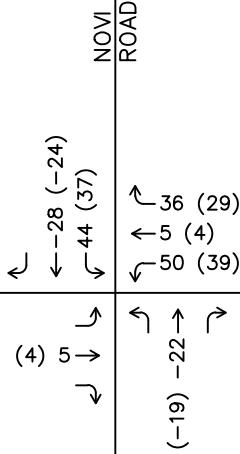
PASS-BY TRIP ASSIGNMENT

JANUARY 2019

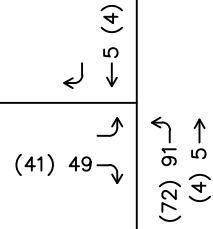


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 TECHNICIAN: DDOMBROSKY

W. OAKS DRIVE



TWELVE OAKS DRIVE SOUTH



← 22 (15)

ONE-WAY MALL DRIVE (EB)

(-19) -22 →  
(39) 45 →

(39) 45 →

COMMERCIAL DRIVE #1

COMMERCIAL DRIVE #2

← 54 (45)

(76) 96 →  
(2) 3 →

(76) 96 →

TWELVE OAKS MALL PERIMETER ROAD

LEGEND  
 ## - AM PEAK  
 (##) - PM PEAK



N.T.S.

APPENDIX C

COMBINED TOTAL TRIP GENERATION
























JANUARY 2019



**APPENDIX D:  
HCM INTERSECTION CAPACITY ANALYSIS**

OPENING YEAR 2019 'NO-BUILD' CONDITIONS



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	3	65	33	2	2	82	430	87	2	700	13
Future Volume (veh/h)	13	3	65	33	2	2	82	430	87	2	700	13
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1429	1759	1845	1900	1900	1792	1845	1863	1900	1863	1900
Adj Flow Rate, veh/h	14	3	68	57	3	3	85	448	91	2	778	14
Adj No. of Lanes	1	1	2	2	1	0	2	3	1	1	3	1
Peak Hour Factor	0.96	0.96	0.96	0.58	0.58	0.58	0.96	0.96	0.96	0.90	0.90	0.90
Percent Heavy Veh, %	0	33	8	3	0	0	6	3	2	0	2	0
Cap, veh/h	106	84	283	180	46	46	162	1880	591	717	2868	911
Arrive On Green	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.37	0.37	0.24	0.56	0.56
Sat Flow, veh/h	1810	1429	2632	3408	873	873	3312	5036	1583	1810	5085	1615
Grp Volume(v), veh/h	14	3	68	57	0	6	85	448	91	2	778	14
Grp Sat Flow(s),veh/h/ln	1810	1429	1316	1704	0	1746	1656	1679	1583	1810	1695	1615
Q Serve(g_s), s	0.7	0.2	2.1	1.4	0.0	0.3	2.3	5.5	3.4	0.0	7.1	0.3
Cycle Q Clear(g_c), s	0.7	0.2	2.1	1.4	0.0	0.3	2.3	5.5	3.4	0.0	7.1	0.3
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	106	84	283	180	0	92	162	1880	591	717	2868	911
V/C Ratio(X)	0.13	0.04	0.24	0.32	0.00	0.07	0.52	0.24	0.15	0.00	0.27	0.02
Avail Cap(c_a), veh/h	121	95	304	341	0	175	206	1880	591	717	2868	911
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	40.0	36.8	41.1	0.0	40.5	41.8	19.4	18.7	12.6	10.1	8.6
Incr Delay (d2), s/veh	0.2	0.1	0.2	0.4	0.0	0.1	1.0	0.3	0.6	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.8	0.7	0.0	0.1	1.0	2.6	1.6	0.0	3.4	0.2
LnGrp Delay(d),s/veh	40.4	40.0	36.9	41.4	0.0	40.6	42.8	19.7	19.3	12.6	10.3	8.7
LnGrp LOS	D	D	D	D		D	D	B	B	B	B	A
Approach Vol, veh/h		85			63			624			794	
Approach Delay, s/veh		37.6			41.3			22.8			10.3	
Approach LOS		D			D			C			B	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.0	40.0		10.8	10.8	57.2		11.3				
Change Period (Y+Rc), s	6.4	6.4		6.0	6.4	6.4		6.0				
Max Green Setting (Gmax), s	16.6	33.6		9.0	5.6	44.6		6.0				
Max Q Clear Time (g_c+I1), s	2.0	7.5		3.4	4.3	9.1		4.1				
Green Ext Time (p_c), s	0.7	0.4		0.0	0.0	0.7		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			18.0									
HCM 2010 LOS			B									

**Intersection**

Int Delay, s/veh 0

**Movement** EBT EBR WBL WBT NBL NBR

Lane Configurations	↑	↗				↗
Traffic Vol, veh/h	86	0	0	0	0	0
Future Vol, veh/h	86	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	125	-	-	-	0
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	92	92	92	92
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	132	0	0	0	0	0

**Major/Minor** Major1 Minor1

Conflicting Flow All	0	0	-	132
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	923
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	923
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach** EB NB

HCM Control Delay, s	0	0
HCM LOS		A

**Minor Lane/Major Mvmt** NBLn1 EBT EBR

Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↵	↶	↵	↕↕	↕↕	
Traffic Vol, veh/h	78	12	15	7	14	20
Future Vol, veh/h	78	12	15	7	14	20
Peak Hour Factor	0.61	0.61	0.61	0.61	0.65	0.65
Heavy Vehicles, %	0	25	0	0	7	5
Mvmt Flow	128	20	25	11	22	31
Number of Lanes	1	1	1	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	8.9	7.9	7.6
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	76%	0%	100%	0%	0%	0%
Vol Thru, %	0%	24%	100%	0%	0%	100%	19%
Vol Right, %	0%	0%	0%	0%	100%	0%	81%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	10	5	78	12	9	25
LT Vol	8	8	0	78	0	0	0
Through Vol	0	2	5	0	0	9	5
RT Vol	0	0	0	0	12	0	20
Lane Flow Rate	12	16	8	128	20	14	38
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.019	0.024	0.007	0.183	0.024	0.021	0.048
Departure Headway (Hd)	5.546	5.427	3.337	5.16	4.385	5.142	4.538
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	649	663	1078	689	807	700	794
Service Time	3.25	3.131	1.041	2.939	2.164	2.845	2.241
HCM Lane V/C Ratio	0.018	0.024	0.007	0.186	0.025	0.02	0.048
HCM Control Delay	8.4	8.3	6.1	9.1	7.3	8	7.5
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0	0.7	0.1	0.1	0.2



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕	
Traffic Volume (veh/h)	0	86	0	17	18	0
Future Volume (Veh/h)	0	86	0	17	18	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	93	0	18	20	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	29	10	20			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	29	10	20			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	982	1069	1595			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	93	9	9	10	10	
Volume Left	0	0	0	0	0	
Volume Right	93	0	0	0	0	
cSH	1069	1700	1700	1700	1700	
Volume to Capacity	0.09	0.01	0.01	0.01	0.01	
Queue Length 95th (ft)	7	0	0	0	0	
Control Delay (s)	8.7	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	8.7	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			6.2			
Intersection Capacity Utilization			15.3%	ICU Level of Service	A	
Analysis Period (min)			15			
























Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	0	0	0	17	103	1
Future Vol, veh/h	0	0	0	17	103	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	53	53	74	74
Heavy Vehicles, %	0	0	0	0	1	2
Mvmt Flow	0	0	0	32	139	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	156	70	140	0	0
Stage 1	140	-	-	-	-
Stage 2	16	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	826	985	1456	-	-
Stage 1	878	-	-	-	-
Stage 2	1010	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	826	985	1456	-	-
Mov Cap-2 Maneuver	826	-	-	-	-
Stage 1	878	-	-	-	-
Stage 2	1010	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1456	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	35	327	428	40	37	336	736	227	26	894	47
Future Volume (veh/h)	55	35	327	428	40	37	336	736	227	26	894	47
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1881	1900	1900	1900	1900	1900	1900	1881	1863
Adj Flow Rate, veh/h	65	41	327	481	45	42	373	818	252	29	993	52
Adj No. of Lanes	1	1	2	2	1	0	2	3	1	1	3	1
Peak Hour Factor	0.85	0.85	1.00	0.89	0.89	0.89	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	1	0	0	0	0	0	0	1	2
Cap, veh/h	114	120	407	558	145	136	281	1343	418	588	2235	689
Arrive On Green	0.06	0.06	0.06	0.16	0.16	0.16	0.08	0.26	0.26	0.26	0.44	0.44
Sat Flow, veh/h	1810	1900	2842	3476	906	845	3510	5187	1615	1810	5136	1583
Grp Volume(v), veh/h	65	41	327	481	0	87	373	818	252	29	993	52
Grp Sat Flow(s),veh/h/ln	1810	1900	1421	1738	0	1751	1755	1729	1615	1810	1712	1583
Q Serve(g_s), s	3.3	2.0	6.0	12.8	0.0	4.2	7.6	13.2	13.0	0.0	12.9	1.8
Cycle Q Clear(g_c), s	3.3	2.0	6.0	12.8	0.0	4.2	7.6	13.2	13.0	0.0	12.9	1.8
Prop In Lane	1.00		1.00	1.00		0.48	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	120	407	558	0	281	281	1343	418	588	2235	689
V/C Ratio(X)	0.57	0.34	0.80	0.86	0.00	0.31	1.33	0.61	0.60	0.05	0.44	0.08
Avail Cap(c_a), veh/h	114	120	407	878	0	442	281	1343	418	588	2235	689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	42.6	39.4	38.8	0.0	35.2	43.7	31.0	30.9	21.4	18.8	15.7
Incr Delay (d2), s/veh	4.2	0.6	10.3	3.2	0.0	0.2	170.2	2.1	6.3	0.0	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.0	4.7	6.4	0.0	2.0	10.3	6.5	6.5	0.5	6.2	0.8
LnGrp Delay(d),s/veh	47.4	43.2	49.8	42.1	0.0	35.4	213.9	33.0	37.2	21.4	19.4	15.9
LnGrp LOS	D	D	D	D		D	F	C	D	C	B	B
Approach Vol, veh/h		433			568			1443			1074	
Approach Delay, s/veh		48.8			41.0			80.5			19.3	
Approach LOS		D			D			F			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	30.7	31.0		21.3	14.0	47.7		12.0				
Change Period (Y+Rc), s	6.4	6.4		6.0	6.4	6.4		6.0				
Max Green Setting (Gmax), s	15.6	24.6		24.0	7.6	32.6		6.0				
Max Q Clear Time (g_c+I1), s	2.0	15.2		14.8	9.6	14.9		8.0				
Green Ext Time (p_c), s	0.9	0.8		0.4	0.0	0.9		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			51.5									
HCM 2010 LOS			D									

**Intersection**

Int Delay, s/veh 0.1

**Movement** EBT EBR WBL WBT NBL NBR

Lane Configurations	↑	↗				↗
Traffic Vol, veh/h	158	0	0	0	0	1
Future Vol, veh/h	158	0	0	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	125	-	-	-	0
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	92	92	50	50
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	184	0	0	0	0	2

**Major/Minor** Major1 Minor1

Conflicting Flow All	0	0	-	184
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	864
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	864
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach** EB NB

HCM Control Delay, s	0	9.2
HCM LOS		A

**Minor Lane/Major Mvmt** NBLn1 EBT EBR

Capacity (veh/h)	864	-	-
HCM Lane V/C Ratio	0.002	-	-
HCM Control Delay (s)	9.2	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0	-	-

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↵	↶	↵	↕↕	↕↕	
Traffic Vol, veh/h	120	156	317	56	51	204
Future Vol, veh/h	120	156	317	56	51	204
Peak Hour Factor	0.91	0.91	0.90	0.90	0.95	0.95
Heavy Vehicles, %	1	0	1	2	0	1
Mvmt Flow	132	171	352	62	54	215
Number of Lanes	1	1	1	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	11.5	12.4	12
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	89%	0%	100%	0%	0%	0%
Vol Thru, %	0%	11%	100%	0%	0%	100%	8%
Vol Right, %	0%	0%	0%	0%	100%	0%	92%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	159	177	37	120	156	34	221
LT Vol	159	158	0	120	0	0	0
Through Vol	0	19	37	0	0	34	17
RT Vol	0	0	0	0	156	0	204
Lane Flow Rate	176	197	41	132	171	36	233
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.328	0.365	0.051	0.259	0.278	0.065	0.381
Departure Headway (Hd)	6.706	6.67	4.46	7.061	5.836	6.539	5.9
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	535	539	799	508	614	546	607
Service Time	4.455	4.419	2.208	4.816	3.591	4.296	3.656
HCM Lane V/C Ratio	0.329	0.365	0.051	0.26	0.279	0.066	0.384
HCM Control Delay	12.7	13.2	7.5	12.3	10.8	9.8	12.3
HCM Lane LOS	B	B	A	B	B	A	B
HCM 95th-tile Q	1.4	1.7	0.2	1	1.1	0.2	1.8



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕	
Traffic Volume (veh/h)	0	159	0	241	131	0
Future Volume (Veh/h)	0	159	0	241	131	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	173	0	262	142	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	273	71	142			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	273	71	142			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	82	100			
cM capacity (veh/h)	694	977	1438			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	173	131	131	71	71	
Volume Left	0	0	0	0	0	
Volume Right	173	0	0	0	0	
cSH	977	1700	1700	1700	1700	
Volume to Capacity	0.18	0.08	0.08	0.04	0.04	
Queue Length 95th (ft)	16	0	0	0	0	
Control Delay (s)	9.5	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.5	0.0		0.0		
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			2.8			
Intersection Capacity Utilization			20.1%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	5	2	0	236	288	2
Future Vol, veh/h	5	2	0	236	288	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	89	89	92	92
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	11	5	0	265	313	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	447	158	315	0	-	0
Stage 1	314	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	545	866	1257	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	545	866	1257	-	-	-
Mov Cap-2 Maneuver	545	-	-	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	885	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1257	-	610	-	-
HCM Lane V/C Ratio	-	-	0.026	-	-
HCM Control Delay (s)	0	-	11.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



OPENING YEAR 2019 'BUILD' CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	8	65	83	7	38	82	408	87	46	672	13
Future Volume (veh/h)	13	8	65	83	7	38	82	408	87	46	672	13
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1429	1759	1845	1900	1900	1792	1845	1863	1900	1863	1900
Adj Flow Rate, veh/h	14	8	68	143	12	66	85	425	91	51	747	14
Adj No. of Lanes	1	1	2	2	1	0	2	3	1	1	3	1
Peak Hour Factor	0.96	0.96	0.96	0.58	0.58	0.58	0.96	0.96	0.96	0.90	0.90	0.90
Percent Heavy Veh, %	0	33	8	3	0	0	6	3	2	0	2	0
Cap, veh/h	108	85	286	234	17	96	162	1880	591	691	2782	884
Arrive On Green	0.06	0.06	0.06	0.07	0.07	0.07	0.05	0.37	0.37	0.22	0.55	0.55
Sat Flow, veh/h	1810	1429	2632	3408	254	1399	3312	5036	1583	1810	5085	1615
Grp Volume(v), veh/h	14	8	68	143	0	78	85	425	91	51	747	14
Grp Sat Flow(s),veh/h/ln	1810	1429	1316	1704	0	1653	1656	1679	1583	1810	1695	1615
Q Serve(g_s), s	0.7	0.5	2.1	3.7	0.0	4.2	2.3	5.2	3.4	0.0	7.0	0.4
Cycle Q Clear(g_c), s	0.7	0.5	2.1	3.7	0.0	4.2	2.3	5.2	3.4	0.0	7.0	0.4
Prop In Lane	1.00		1.00	1.00		0.85	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	108	85	286	234	0	114	162	1880	591	691	2782	884
V/C Ratio(X)	0.13	0.09	0.24	0.61	0.00	0.69	0.52	0.23	0.15	0.07	0.27	0.02
Avail Cap(c_a), veh/h	121	95	304	341	0	165	206	1880	591	691	2782	884
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	40.0	36.7	40.7	0.0	41.0	41.8	19.3	18.7	14.2	10.8	9.3
Incr Delay (d2), s/veh	0.2	0.2	0.2	1.0	0.0	2.7	1.0	0.3	0.6	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.2	0.8	1.8	0.0	2.0	1.0	2.4	1.6	0.7	3.3	0.2
LnGrp Delay(d),s/veh	40.3	40.2	36.9	41.7	0.0	43.7	42.8	19.6	19.3	14.2	11.1	9.3
LnGrp LOS	D	D	D	D		D	D	B	B	B	B	A
Approach Vol, veh/h		90			221			601			812	
Approach Delay, s/veh		37.7			42.4			22.8			11.2	
Approach LOS		D			D			C			B	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.4	40.0		12.2	10.8	55.6		11.4				
Change Period (Y+Rc), s	6.4	6.4		6.0	6.4	6.4		6.0				
Max Green Setting (Gmax), s	16.6	33.6		9.0	5.6	44.6		6.0				
Max Q Clear Time (g_c+I1), s	2.0	7.2		6.2	4.3	9.0		4.1				
Green Ext Time (p_c), s	0.7	0.4		0.1	0.0	0.7		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			20.6									
HCM 2010 LOS			C									

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗				↗
Traffic Vol, veh/h	86	45	0	0	0	0
Future Vol, veh/h	86	45	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	125	-	-	-	0
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	92	92	92	92
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	132	69	0	0	0	0

Major/Minor	Major1		Minor1	
Conflicting Flow All	0	0	-	132
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	923
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	923
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	0
HCM LOS		A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↵	↶	↵	↕↕	↕↕	
Traffic Vol, veh/h	78	61	106	12	19	20
Future Vol, veh/h	78	61	106	12	19	20
Peak Hour Factor	0.61	0.61	0.61	0.61	0.65	0.65
Heavy Vehicles, %	0	25	0	0	7	5
Mvmt Flow	128	100	174	20	29	31
Number of Lanes	1	1	1	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	9.3	9.3	8.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	93%	0%	100%	0%	0%	0%
Vol Thru, %	0%	7%	100%	0%	0%	100%	24%
Vol Right, %	0%	0%	0%	0%	100%	0%	76%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	53	57	8	78	61	13	26
LT Vol	53	53	0	78	0	0	0
Through Vol	0	4	8	0	0	13	6
RT Vol	0	0	0	0	61	0	20
Lane Flow Rate	87	93	13	128	100	19	41
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.14	0.149	0.013	0.203	0.137	0.031	0.058
Departure Headway (Hd)	5.793	5.758	3.58	5.713	4.938	5.713	5.143
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	618	622	994	628	725	624	693
Service Time	3.537	3.501	1.323	3.453	2.678	3.468	2.897
HCM Lane V/C Ratio	0.141	0.15	0.013	0.204	0.138	0.03	0.059
HCM Control Delay	9.5	9.5	6.4	9.9	8.5	8.7	8.2
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0.5	0.5	0	0.8	0.5	0.1	0.2

Chik-fil-A Novi TIS  
4: Mall Perimeter Road & One-Way Mall Drive

Opening Year 2019 'Build' - AM Peak Hour

01/15/2019



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Volume (veh/h)	0	86	0	113	72	0
Future Volume (Veh/h)	0	86	0	113	72	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	93	0	123	78	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	140	39	78			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	140	39	78			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	839	1024	1518			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	93	62	62	39	39	
Volume Left	0	0	0	0	0	
Volume Right	93	0	0	0	0	
cSH	1024	1700	1700	1700	1700	
Volume to Capacity	0.09	0.04	0.04	0.02	0.02	
Queue Length 95th (ft)	7	0	0	0	0	
Control Delay (s)	8.9	0.0	0.0	0.0	0.0	
Lane LOS						
Approach Delay (s)	8.9	0.0		0.0		
Approach LOS						
A						
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			15.3%	ICU Level of Service		A
Analysis Period (min)			15			



Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	96	3	3	17	103	55
Future Vol, veh/h	96	3	3	17	103	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	53	53	74	74
Heavy Vehicles, %	0	0	0	0	1	2
Mvmt Flow	104	3	6	32	139	74

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	204	107	213	0	0
Stage 1	176	-	-	-	-
Stage 2	28	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	771	933	1369	-	-
Stage 1	843	-	-	-	-
Stage 2	997	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	768	933	1369	-	-
Mov Cap-2 Maneuver	768	-	-	-	-
Stage 1	840	-	-	-	-
Stage 2	997	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1369	-	772	-	-
HCM Lane V/C Ratio	0.004	-	0.139	-	-
HCM Control Delay (s)	7.6	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	39	327	467	44	66	336	717	227	63	870	47
Future Volume (veh/h)	55	39	327	467	44	66	336	717	227	63	870	47
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1881	1900	1900	1900	1900	1900	1900	1881	1863
Adj Flow Rate, veh/h	65	46	327	525	49	74	373	797	252	70	967	52
Adj No. of Lanes	1	1	2	2	1	0	2	3	1	1	3	1
Peak Hour Factor	0.85	0.85	1.00	0.89	0.89	0.89	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	1	0	0	0	0	0	0	1	2
Cap, veh/h	114	120	407	603	119	179	281	1343	418	566	2169	669
Arrive On Green	0.06	0.06	0.06	0.17	0.17	0.17	0.08	0.26	0.26	0.24	0.42	0.42
Sat Flow, veh/h	1810	1900	2842	3476	684	1033	3510	5187	1615	1810	5136	1583
Grp Volume(v), veh/h	65	46	327	525	0	123	373	797	252	70	967	52
Grp Sat Flow(s),veh/h/ln	1810	1900	1421	1738	0	1718	1755	1729	1615	1810	1712	1583
Q Serve(g_s), s	3.3	2.2	6.0	14.0	0.0	6.1	7.6	12.8	13.0	0.0	12.7	1.9
Cycle Q Clear(g_c), s	3.3	2.2	6.0	14.0	0.0	6.1	7.6	12.8	13.0	0.0	12.7	1.9
Prop In Lane	1.00		1.00	1.00		0.60	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	120	407	603	0	298	281	1343	418	566	2169	669
V/C Ratio(X)	0.57	0.38	0.80	0.87	0.00	0.41	1.33	0.59	0.60	0.12	0.45	0.08
Avail Cap(c_a), veh/h	114	120	407	878	0	434	281	1343	418	566	2169	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	42.7	39.4	38.2	0.0	35.0	43.7	30.8	30.9	24.1	19.5	16.4
Incr Delay (d2), s/veh	4.2	0.7	10.3	4.8	0.0	0.3	170.2	1.9	6.3	0.0	0.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.2	4.7	7.1	0.0	2.9	10.3	6.3	6.5	1.4	6.1	0.9
LnGrp Delay(d),s/veh	47.4	43.5	49.8	43.1	0.0	35.3	213.9	32.8	37.2	24.2	20.2	16.6
LnGrp LOS	D	D	D	D		D	F	C	D	C	C	B
Approach Vol, veh/h		438			648			1422			1089	
Approach Delay, s/veh		48.8			41.6			81.1			20.3	
Approach LOS		D			D			F			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.5	31.0		22.5	14.0	46.5		12.0				
Change Period (Y+Rc), s	6.4	6.4		6.0	6.4	6.4		6.0				
Max Green Setting (Gmax), s	15.6	24.6		24.0	7.6	32.6		6.0				
Max Q Clear Time (g_c+I1), s	2.0	15.0		16.0	9.6	14.7		8.0				
Green Ext Time (p_c), s	0.9	0.8		0.5	0.0	0.9		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			51.6									
HCM 2010 LOS			D									

**Intersection**

Int Delay, s/veh 0.1

**Movement** EBT EBR WBL WBT NBL NBR

Lane Configurations	↑	↗				↗
Traffic Vol, veh/h	158	39	0	0	0	1
Future Vol, veh/h	158	39	0	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	125	-	-	-	0
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	92	92	50	50
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	184	45	0	0	0	2

**Major/Minor** Major1 Minor1

Conflicting Flow All	0	0	-	184
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	864
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	864
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach** EB NB

HCM Control Delay, s	0	9.2
HCM LOS		A

**Minor Lane/Major Mvmt** NBLn1 EBT EBR

Capacity (veh/h)	864	-	-
HCM Lane V/C Ratio	0.002	-	-
HCM Control Delay (s)	9.2	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0	-	-

Intersection	
Intersection Delay, s/veh	13.5
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↵	↶	↵	↕↕	↕↕	
Traffic Vol, veh/h	120	197	389	60	55	204
Future Vol, veh/h	120	197	389	60	55	204
Peak Hour Factor	0.91	0.91	0.90	0.90	0.95	0.95
Heavy Vehicles, %	1	0	1	2	0	1
Mvmt Flow	132	216	432	67	58	215
Number of Lanes	1	1	1	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	12.6	14.4	13
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	91%	0%	100%	0%	0%	0%
Vol Thru, %	0%	9%	100%	0%	0%	100%	8%
Vol Right, %	0%	0%	0%	0%	100%	0%	92%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	195	215	40	120	197	37	222
LT Vol	195	195	0	120	0	0	0
Through Vol	0	20	40	0	0	37	18
RT Vol	0	0	0	0	197	0	204
Lane Flow Rate	216	238	44	132	216	39	234
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.416	0.456	0.058	0.269	0.368	0.074	0.409
Departure Headway (Hd)	6.923	6.893	4.673	7.353	6.126	6.923	6.285
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	519	522	761	487	585	515	569
Service Time	4.688	4.658	2.436	5.129	3.901	4.699	4.062
HCM Lane V/C Ratio	0.416	0.456	0.058	0.271	0.369	0.076	0.411
HCM Control Delay	14.6	15.4	7.7	12.8	12.5	10.3	13.4
HCM Lane LOS	B	C	A	B	B	B	B
HCM 95th-tile Q	2	2.4	0.2	1.1	1.7	0.2	2

Chik-fil-A Novi TIS  
 4: Mall Perimeter Road & One-Way Mall Drive

Opening Year 2019 'Build' - PM Peak Hour  
 01/15/2019



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Volume (veh/h)	0	159	0	317	176	0
Future Volume (Veh/h)	0	159	0	317	176	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	173	0	345	191	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	364	96	191			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	364	96	191			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	82	100			
cM capacity (veh/h)	609	942	1380			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	173	172	172	96	96	
Volume Left	0	0	0	0	0	
Volume Right	173	0	0	0	0	
cSH	942	1700	1700	1700	1700	
Volume to Capacity	0.18	0.10	0.10	0.06	0.06	
Queue Length 95th (ft)	17	0	0	0	0	
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.7	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			21.4%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	81	4	2	236	288	47
Future Vol, veh/h	81	4	2	236	288	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	89	89	92	92
Heavy Vehicles, %	0	0	0	1	1	2
Mvmt Flow	184	9	2	265	313	51

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	476	182	364	0	-	0
Stage 1	339	-	-	-	-	-
Stage 2	137	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	523	836	1206	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	881	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	522	836	1206	-	-	-
Mov Cap-2 Maneuver	522	-	-	-	-	-
Stage 1	698	-	-	-	-	-
Stage 2	881	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.6	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1206	-	531	-	-
HCM Lane V/C Ratio	0.002	-	0.364	-	-
HCM Control Delay (s)	8	0	15.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1.7	-	-



## PARKING AND QUEUING STUDY



February 11, 2019

Josh Lyons  
GPD Group  
520 South Main Street  
Suite 2531  
Akron, OH 44311

Re: Parking and Drive-Thru Queuing Analysis – Chick-fil-A, Novi, MI

Dear Josh:

Progressive AE has completed data collection at three existing Chick-fil-A sites located within the Grand Rapids, Michigan area. The data collection effort consisted of parking occupancy counts and drive-thru queuing observations. The following pages summarize our analysis regarding the existing parking demand and drive-thru queuing at the existing sites.

**INTRODUCTION**

Chick-fil-A is proposing a new quick serve restaurant within the City of Novi, Michigan. As part of the site approval process, the City of Novi has requested parking and drive-thru queuing data from similar sites within Michigan. Chick-fil-A identified three sites located within the metro Grand Rapids, Michigan area that are similar to the proposed site in Novi. Table 1 shows a summary of the general site information. Figures 1–3 show aerial maps of each site and are included in the appendix.

**Table 1. Existing Chick-fil-A Site Data**

Location	Building Size (sft)	Total Available Parking Spaces	Available Drive-Through Stacking <sup>2</sup>
28th Street and East Beltline Grand Rapids, MI	4,850	59 <sup>1</sup>	10
M-6 and Kalamazoo Avenue Gaines Township, MI	4,877	80	8
US-131 and 54th Street Wyoming, MI	4,971	64 <sup>1</sup>	12

<sup>1</sup> Additional shared parking spaces available with adjacent retail sites

<sup>2</sup> Total number of vehicles able to queue in the drive-thru lanes prior to order kiosk without spilling back into the adjacent drive aisle  
Source: Progressive AE, February 2019

**DATA COLLECTION**

Progressive AE collected parking occupancy counts and drive-through vehicle queueing data on Saturday, January 26, 2019, from 12:00 p.m. to 2:00 p.m. Data was also collected on Tuesday, February 5, 2019, from 11:00 a.m. to 1:00 p.m. and 4:00 p.m. to 6:00 p.m. These times were selected based on the peak periods of site activity. The weekday midday and evening time periods were not collected at the 54th Street site as poor weather conditions (winter snow storms) would have affected the results of the analysis.

**Parking Demand**

The peak period parking occupancy counts were conducted at the sites during the Saturday midday, weekday midday, and weekday evening time periods. The number of vehicles parked within Chick-fil-A's

parking lot, including shared parking spaces, were counted at 15-minute intervals throughout the analysis period. Table 2 shows the 95th percentile and average number of parked vehicles within the parking lot for each time period at the sites. Detailed parking occupancy counts are included in the appendix.

The 28th Street site had the highest parking demand of the three sites, with a 95th percentile demand of 77 vehicles during the Saturday midday time period. The average 95th percentile parking demand of the three sites was 66 vehicles during the Saturday midday time period. The parking demand was slightly lower during the weekday midday and evening time periods.

### Drive-Thru Queue Analysis

The peak period drive thru queue analysis was conducted at the sites during Saturday midday, weekday midday, and weekday evening time periods. The number of vehicles in the drive-thru lane queue, beginning after the order kiosk, were counted at 5-minute intervals throughout the analysis period. The counts did not include the vehicle at the order kiosk, but the number of vehicles queued behind the vehicle ordering at the kiosk. Table 2 shows the 95th percentile and average queues for each time period at the sites. Detailed drive-thru counts are included in the appendix.

The 28th Street site had the highest drive-thru queue of the three sites, with a 95th percentile queue of 20 vehicles during the weekday midday time period and 16 vehicles during the Saturday midday time period. These queues were significantly greater than the queues observed at the Gaines Township and 54th Street sites, where the 95th percentile queues were observed to be less than 10 vehicles during all time periods.

**Table 2. Chick-fil-A Parking Occupancy and Drive-thru Queuing Summary**

Location	Weekday Midday (11 AM–1 PM)		Weekday PM (4–6 PM)		Saturday Midday (12 Noon–2 PM)	
	Parking Occupancy <sup>1</sup>	Drive-thru Queuing <sup>2</sup>	Parking Occupancy <sup>1</sup>	Drive-thru Queuing <sup>2</sup>	Parking Occupancy <sup>1</sup>	Drive-thru Queuing <sup>2</sup>
28 <sup>th</sup> Street & East Beltline Avenue, Grand Rapids, MI						
95 <sup>th</sup> Percentile	64	20	50	8	77	16
Average	50	9	38	4	71	12
M-6 & Kalamazoo Avenue, Gaines Township, MI						
95 <sup>th</sup> Percentile	54	5	55	10	62	5
Average	41	2	38	3	52	1
US-131 & 54 <sup>th</sup> Street, Wyoming, MI <sup>3</sup>						
95 <sup>th</sup> Percentile	-	-	-	-	58	9
Average	-	-	-	-	46	4
Average (All Sites)						
95 <sup>th</sup> Percentile	59	13	53	9	66	10
Average	46	6	38	4	56	6

<sup>1</sup> Total number of vehicles parked within Chick-fil-A and shared parking spaces.

<sup>2</sup> Total number of vehicles queued after the order kiosk, not including the vehicle at the kiosk.

<sup>3</sup> Weekday data for the 54<sup>th</sup> Street site pending.

Source: Progressive AE, February 2019

Sincerely,



Nick LaCroix, PE, PTOE  
Senior Transportation Engineer

NDL:smg

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## **Technical Appendix**

### **Chick-fil-A Parking and Queuing Analysis**

- **Site Figures**
- **Parking and Queuing Data**

## Site Figures

**Figure 1. 28<sup>th</sup> STREET & EAST BELTLINE, GRAND RAPIDS, MI**





**FIGURE 2. M-6 & KALAMAZOO AVE, GAINES TOWNSHIP, MI**





**FIGURE 3. US-131 & 54<sup>th</sup> STREET, WYOMING, MI**



## Parking and Queuing Data

**Location:** 28th Street & East Beltline, Grand Rapids, MI

**Date:** February 5, 2019 (Tuesday)

**Time Period:** Weekday Midday (11 AM - 1 PM)

Drive-Thru Queue <sup>1</sup>	
Time	Total Queued Vehicles
11:00	0
11:05	1
11:10	0
11:15	2
11:20	1
11:25	1
11:30	3
11:35	5
11:40	10
11:45	6
11:50	9
11:55	12
12:00	16
12:05	18
12:10	17
12:15	20
12:20	20
12:25	20
12:30	13
12:35	13
12:40	11
12:45	8
12:50	7
12:55	7
1:00	7
<b>95<sup>th</sup> Percentile</b>	<b>20</b>
<b>Average</b>	<b>9</b>

Parking Occupancy	
Time	Total Parked Vehicles
11:00	22
11:15	36
11:30	41
11:45	49
12:00	52
12:15	60
12:30	60
12:45	66
1:00	60
<b>95<sup>th</sup> Percentile</b>	<b>64</b>
<b>Average</b>	<b>50</b>

<sup>1</sup>Number of vehicles after the order kiosk, not including the vehicle at the kiosk

**Location:** 28th Street & East Beltline, Grand Rapids, MI

**Date:** February 5, 2019 (Tuesday)

**Time Period:** Weekday PM (4 - 6 PM)

Drive-Thru Queue <sup>1</sup>	
Time	Total Queued Vehicles
4:00	1
4:05	0
4:10	0
4:15	2
4:20	2
4:25	7
4:30	5
4:35	6
4:40	5
4:45	5
4:50	10
4:55	5
5:00	4
5:05	1
5:10	0
5:15	0
5:20	5
5:25	1
5:30	1
5:35	1
5:40	3
5:45	7
5:50	4
5:55	6
6:00	8
<b>95<sup>th</sup> Percentile</b>	<b>8</b>
<b>Average</b>	<b>4</b>

Parking Occupancy	
Time	Total Parked Vehicles
4:00	32
4:15	23
4:30	30
4:45	32
5:00	38
5:15	50
5:30	48
5:45	39
6:00	50
<b>95<sup>th</sup> Percentile</b>	<b>50</b>
<b>Average</b>	<b>38</b>

<sup>1</sup>Number of vehicles after the order kiosk, not including the vehicle at the kiosk

**Location:** 28th Street & East Beltline, Grand Rapids, MI

**Date:** January 26, 2019 (Saturday)

**Time Period:** Saturday 12 Noon - 2 PM

Drive-Thru Queue <sup>1</sup>	
Time	Total Queued Vehicles
Noon	18
12:05	12
12:10	13
12:15	10
12:20	6
12:25	5
12:30	11
12:35	12
12:40	11
12:45	12
12:50	13
12:55	10
1:00	11
1:05	15
1:10	12
1:15	11
1:20	10
1:25	12
1:30	10
1:35	10
1:40	16
1:45	16
1:50	15
1:55	13
2:00	13
<b>95<sup>th</sup> Percentile</b>	<b>16</b>
<b>Average</b>	<b>12</b>

Parking Occupancy	
Time	Total Parked Vehicles
Noon	63
12:15	67
12:30	69
12:45	73
1:00	79
1:15	74
1:30	73
1:45	73
2:00	70
<b>95<sup>th</sup> Percentile</b>	<b>77</b>
<b>Average</b>	<b>71</b>

<sup>1</sup>Number of vehicles after the order kiosk, not including the vehicle at the kiosk



**Location:** M-6 & Kalamazoo Avenue, Gaines Township, MI

**Date:** February 5, 2019 (Tuesday)

**Time Period:** Weekday Midday (11 AM - 1 PM)

Drive-Thru Queue <sup>1</sup>	
Time	Total Queued Vehicles
11:00	0
11:05	0
11:10	0
11:15	1
11:20	0
11:25	3
11:30	2
11:35	7
11:40	5
11:45	5
11:50	3
11:55	0
12:00	4
12:05	3
12:10	1
12:15	5
12:20	0
12:25	4
12:30	1
12:35	2
12:40	2
12:45	3
12:50	3
12:55	3
1:00	0
<b>95<sup>th</sup> Percentile</b>	<b>5</b>
<b>Average</b>	<b>2</b>

Parking Occupancy	
Time	Total Parked Vehicles
11:00	26
11:15	28
11:30	34
11:45	47
12:00	54
12:15	53
12:30	51
12:45	42
1:00	37
<b>95<sup>th</sup> Percentile</b>	<b>54</b>
<b>Average</b>	<b>41</b>

<sup>1</sup>Number of vehicles after the order kiosk, not including the vehicle at the kiosk

**Location:** M-6 & Kalamazoo Avenue, Gaines Township, MI

**Date:** February 5, 2019 (Tuesday)

**Time Period:** Weekday PM (4 - 6 PM)

Drive-Thru Queue <sup>1</sup>	
Time	Total Queued Vehicles
4:00	1
4:05	0
4:10	0
4:15	0
4:20	0
4:25	0
4:30	0
4:35	0
4:40	0
4:45	0
4:50	4
4:55	8
5:00	4
5:05	2
5:10	11
5:15	1
5:20	11
5:25	4
5:30	3
5:35	4
5:40	7
5:45	4
5:50	5
5:55	5
6:00	0
<b>95<sup>th</sup> Percentile</b>	<b>10</b>
<b>Average</b>	<b>3</b>

Parking Occupancy	
Time	Total Parked Vehicles
4:00	30
4:15	22
4:30	22
4:45	30
5:00	35
5:15	43
5:30	55
5:45	54
6:00	55
<b>95<sup>th</sup> Percentile</b>	<b>55</b>
<b>Average</b>	<b>38</b>

<sup>1</sup>Number of vehicles after the order kiosk, not including the vehicle at the kiosk

**Location:** M-6 & Kalamazoo Avenue, Gaines Township, MI

**Date:** January 26, 2019 (Saturday)

**Time Period:** Saturday 12 Noon - 2 PM

Drive-Thru Queue <sup>1</sup>	
Time	Total Queued Vehicles
Noon	0
12:05	0
12:10	1
12:15	0
12:20	1
12:25	2
12:30	4
12:35	0
12:40	0
12:45	1
12:50	2
12:55	5
1:00	7
1:05	3
1:10	0
1:15	0
1:20	1
1:25	0
1:30	0
1:35	1
1:40	2
1:45	2
1:50	0
1:55	0
2:00	0
<b>95<sup>th</sup> Percentile</b>	<b>5</b>
<b>Average</b>	<b>1</b>

Parking Occupancy	
Time	Total Parked Vehicles
Noon	40
12:15	42
12:30	45
12:45	58
1:00	61
1:15	52
1:30	51
1:45	54
2:00	62
<b>95<sup>th</sup> Percentile</b>	<b>62</b>
<b>Average</b>	<b>52</b>

<sup>1</sup>Number of vehicles after the order kiosk, not including the vehicle at the kiosk

**Location:** US-131 & 54th Street, Wyoming, MI

**Date:** January 26, 2019 (Saturday)

**Time Period:** Saturday 12 Noon - 2 PM

Drive-Thru Queue <sup>1</sup>	
Time	Total Queued Vehicles
Noon	0
12:05	1
12:10	5
12:15	2
12:20	0
12:25	1
12:30	3
12:35	0
12:40	0
12:45	1
12:50	3
12:55	0
1:00	4
1:05	4
1:10	8
1:15	5
1:20	5
1:25	9
1:30	11
1:35	9
1:40	5
1:45	4
1:50	6
1:55	8
2:00	3
<b>95<sup>th</sup> Percentile</b>	<b>9</b>
<b>Average</b>	<b>4</b>

Parking Occupancy	
Time	Total Parked Vehicles
Noon	30
12:15	43
12:30	39
12:45	47
1:00	43
1:15	48
1:30	58
1:45	57
2:00	53
<b>95<sup>th</sup> Percentile</b>	<b>58</b>
<b>Average</b>	<b>46</b>

<sup>1</sup>Number of vehicles after the order kiosk, not including the vehicle at the kiosk

**EXCERPT FROM PLANNING COMMISSION MEETING MINUTES  
04-17-2019 PC Meeting**



# PLANNING COMMISSION MINUTES

CITY OF NOVI

Regular Meeting

**April 17, 2019 7:00 PM**

Council Chambers | Novi Civic Center  
45175 W. Ten Mile (248) 347-0475

## CALL TO ORDER

The meeting was called to order at 7:00 PM.

## ROLL CALL

### Present:

Member Anthony, Member Avdoulos, Member Hornung, Member Lynch, Chair Pehrson

### Absent:

Member Greco, Member Maday

### Also Present:

Sri Komaragiri, Planner; Lindsay Bell, Planner; Rick Meader, Landscape Architect; Kate Richardson, Staff Engineer; Beth Saarela, City Attorney; Josh Bocks, Traffic Consultant; Pete Hill, Environmental Consultant; Doug Necci, Façade Consultant

## PLEDGE OF ALLEGIANCE

Member Lynch led the meeting attendees in the recitation of the Pledge of Allegiance.

## APPROVAL OF AGENDA

Member Avdoulos said I'd like to make an amendment to the agenda to move Item 3 – Lakeview JSP18-16 to be Item 2 on the agenda, and the following items to be numbered accordingly.

Moved by Member Avdoulos and seconded by Member Lynch.

## VOICE VOTE TO APPROVE THE APRIL 17, 2019 AGENDA AS AMENDED MOTION MADE BY MEMBER AVDOULOS AND SECONDED BY MEMBER LYNCH.

**Motion to approve the April 17, 2019 Planning Commission Agenda. Motion carried 5-0.**

## AUDIENCE PARTICIPATION

Nobody in the audience wished to speak.

## CORRESPONDENCE

There was no correspondence.

## COMMITTEE REPORTS

There were no Committee Reports.



## **CITY PLANNER REPORT**

Planner Komaragiri said there is nothing to report.

## **CONSENT AGENDA**

There were no items on the consent agenda.

## **PUBLIC HEARINGS**

### **1. CHICK-FIL-A JSP18-75**

Public hearing at the request of GPD group for JSP 18-75 Chick-Fil-A for Planning Commission's recommendation to the City Council for approval of rezoning from Regional Center (RC) to Regional Center with a Planned Development 2 option (PD-2), Preliminary Site Plan with a PD-2, Special Land Use and Stormwater Management Plan approval. The subject property is located at the southeast corner of Novi Road and Twelve Oaks Mall Road in Section 14. The applicant is proposing to develop a 4,990 square foot Chick-Fil-A restaurant with a drive-through. The applicant will be utilizing the Planned Development 2 (PD-2) option to propose a drive-thru.

Planner Komaragiri said I've gathered that Chick-Fil-A doesn't need any more introduction, so I will go straight to the site plan. The applicant proposes to redevelop the 1.4-acre site located at the northeast corner of Novi Road and I-96 exit ramp intersection. The new restaurant, as you mentioned, will be approximately 4,990 square feet. It includes a drive-thru and a play area inside the building. The restaurant proposes 114 indoor seating and 16 outdoor seating.

The property is currently zoned RC, Regional Commercial. The existing building is considered a legal non-conforming structure, as it doesn't meet the current parking or building setbacks. The proposed redevelopment is required to conform to the Ordinance standards and is not allowed to follow the non-conforming setbacks. As noted in the rezoning review, this would limit the development potential for the site. The applicant is proposing to redevelop the site using the PD-2 Option, which provides a greater flexibility for redevelopment and also allows a drive-thru. The subject property would be rezoned from RC to RC with a PD-2 Option.

The PD-2 Planned Development Option is intended to permit the limited application of more extensive commercial uses in a district otherwise restricted to community and regional oriented shopping centers. Our Future Land Use map indicates Regional Commercial for this and surrounding properties. This is located in close proximity to the properties to the west across Novi Road and properties along Twelve Mile Road which are designated as PD-2. This is also located on the periphery of Twelve Oaks Mall, similar to McDonalds drive-thru to the north.

The Engineering review letter notes that rezoning will result in utility demands that are approximately equal or less than the utility demand if the property were to be developed under the current zoning.

The applicant has submitted a Community Impact Study, Noise Impact Study, Traffic Impact Study, Parking and Queuing Study. The studies noted that the impacts of the development are not anticipated to degrade levels of services beyond those under existing conditions during either the AM or PM peak periods.

Planner Komaragiri said our Zoning Ordinance allows the Planning Commission to proceed simultaneously with review and recommendation on applications for rezoning, PD Option and Preliminary Site Plan with a Special Land Use approval at the same time. Conditions of Special Land Use, as noted in the review letter, should be considered. Deviations from the Ordinance are considered and are subject to City Council approval based on Planning Commission approval and will be part of a PD agreement. The applicant requests about 19 deviations for the current layout. Most of the deviations are because the plan is trying to accommodate a drive-thru and associated uses in a relatively small site.

Some of the deviations are straightforward, such as lack of Rezoning Traffic Study and distance from another restaurant. They are supported by Staff. Some required additional conditions, such as loading zone and dumpster location, which are located in an interior side yard and it was hard to avoid, as the site has frontage on three sides. All parking setback deviations are consistent with existing non-conformities. The proposed building location would require a deviation, with 50 feet required and 32 feet proposed. The applicant may expand on this during their presentation. The building is proposed at the current location to accommodate required queuing and site visibility from Novi Road. The applicant noted that multiple alternatives were considered before settling with this one.

If you may notice, the original plan that was part of the packet included angled parking in this location, but they provided revised layout that shows perpendicular parking. A deviation is required for a lack of bypass lane for a limited stretch, as indicated in the red circle on the screen. The applicant is providing an 11-foot bypass lane when two drive-thru lanes merge into one around the northwest corner. Fire has confirmed that it has access to all sides of the building and has no additional comments or concerns to the proposed layout. Traffic is in support of the layout based on the Queuing Study findings.

Another major deviation that is required is for the lack of minimum parking. Based on the restaurant size, a minimum of 100 spaces are required and the applicant is only providing 65. The applicant has provided a Parking Study to support the proposed number. The Study compared three different existing locations. Two of the location required about 62 spaces at peak time. The Grand Rapids location, which is one of those three, required 79 parking spaces. The proposed parking is closer to the peak demand, however it is less than the 79. However, we recommend that the applicant pursue a shared parking agreement with the La-Z-Boy facility to the east to alleviate issues if potential peak parking reaches parking needs similar to Grand Rapids.

Planner Komaragiri said a Queuing Study was submitted, which compared queuing demand at three similar locations. The existing demand is between 11 and 20,

depending on the location. The current plan proposes 17 spaces from the pick-up window to here. The Traffic review recommended designating the spaces for employee parking, indicated in red, to avoid potential conflict with excessive queuing so people are not stuck in those spaces trying to get out.

Most of the Landscape deviations were not supported earlier based on the packet you received. However, the applicant has been working with our Landscape Architect on possible revisions in the last couple of days. Staff now supports all the deviations at this time, as they made an attempt to reduce the intensity of what they were asking before.

Stormwater would be collected by a single storm sewer collection system and discharged to a regional detention basin, which is why you don't see a pond on the site at this time. The building elevations conform to the code and do not require any waivers. Engineering and Fire recommend approval, with additional changes to be made with Final Site Plan.

As the proposed rezoning is not supported by the Future Land Use map, the rezoning request was presented to the Master Planning and Zoning Committee for input. The Committee provided favorable input and asked the applicant to address issues regarding circulation in and out of the site. Our Traffic consultant, after reviewing this exhibit, recommended that the exiting traffic from the drive-thru should be directed towards the eastern exit, not the northern, because people exiting the site will not be able to turn left at either of those exits and they'd have to turn back to Twelve Oaks Drive to get back to Novi Road. The applicant is going to present and expand on this as part of their presentation.

Planner Komaragiri said the Planning Commission is asked tonight to hold the public hearing and make a recommendation to City Council for the items stated earlier – the rezoning, PD-2 Option, Site Plan, Special Land Use, and Stormwater Management Plan, along with the mentioned deviations. The applicant, Jason Hill, is here tonight the design Engineer, Ellen Selle, and will make a presentation shortly. We have our Traffic Consultant, Josh Bocks, and Façade Consultant, Doug Necci, here tonight if you have any questions for them. Thank you.

Jason Hill, with Chick-Fil-A, said it's good to see you all again, we're excited to be here. The first thing I'd like to do is thank you, Mr. Chair and members of the Planning Commission, for hearing our case tonight. We know it takes time and energy and effort to review it, so we thank you for that. Most of all, I want to thank Sri and the rest of the Staff – you've been really great to work with, you're very smart folks and you represent the City of Novi really well, so we thank you for that and most of all for your thoroughness.

Given that you've got a full agenda tonight, I'll be brief. We're just really excited about being here. I won't go into the Chick-Fil-A spiel per se, I just want you to know that we worked really, really hard to take a unique piece of property that had a lot of physical challenges with it and maximize it to the best of our ability to support our operations. And we worked hard to minimize the number of deviations and working back and forth

with Staff. What you have before you presents the latest and greatest in the innovations that we've got, both inside the building as well as outside of the building on the site specific to the drive-thru use. I think you'll notice that if you go to any of our locations during peak times, we have team members outside taking orders face to face to help efficiency through the drive-thru. And in order to help do that in a way that's most comfortable for our team members, we have instituted some canopies to do that. So we would envision our drive-thru to function at high efficiency at this location because of all the innovations we've got incorporated into this.

As Sri mentioned, we designed the site to maximize the parking as much as we can. We provided the Parking Study, which shows the numbers are pretty close to the 68 spaces that we've been able to provide. We have since reached out to the La-Z-Boy ownership. They're not currently in support of providing us with a Shared Parking Agreement, so I just want to be transparent about that – we're not able to maintain that, so we're hopeful we can garner your support in spite of that. With that, I'll turn it over to Ellen Selle from GPD to give you a low-down on the site layout.

Ellen Selle, with GPD Group, said I'm going to skip through these first few slides since Jason did a great job talking to us about Chick-Fil-A. So here is the overall Twelve Oaks Mall layout, and you can see where Chick-Fil-A is proposing to go. And it's not just a straight up rectangular site, there are some unique characteristics to it. We border Novi Road primarily, we also border I-96 and also Twelve Oaks Road, a one-way just north of us.

So here is just a closer view that shows that same layout that Sri was showing us. You can see that we are looking to best drive the customers out of the site. We've been in discussions with the mall and with the property owner to see what is best for that and also with Sri going through it. So talking with the Traffic engineer, we're looking at putting a Stop sign here at the end of the drive-thru, again forcing all of that traffic out of the site through La-Z-Boy coming out of the southern drive. From there, they have the option to either go north or south. North will take them to the closest signalized intersection, and south will take them around the ring road. And you can see that a little better here. Not everyone will go out those first drives, that can be seen better in the distribution in the Traffic Study so you can look at that a little more to see exactly how many are going to go where.

From there, I also want to point out the Shared Parking that we weren't able to get, as Jason mentioned, but we have done a lot on the site to help get our numbers there. Sri had mentioned that we had I think 63 parking stalls, and we actually have moved that up to 68. With taking those angled spots at the top and making them perpendicular, we've been able to pick up a few spots there. So we're really working to get towards that number. The other thing was the Queuing Study said that 77 was the maximum at the 95 percentile, that was the number of vehicles that were parked at the one particular location out of the three. But the average number was 71, and 71 is a lot closer to the 68 that we're looking at and that was again, only at one of the three. The other three were well under the 68. We also have internally looked at other sites around the Michigan area that have similar size footprint, and they're all within that just under 70 number – between about 55 and 70, and they're all right there and all performing

very well and they're not overly parked. So we are well within that range and we feel comfortable with the number of 68 that we've presented.

And then here is the proposed site plan that is overlaid, you can see where that existing building is, how Sri was talking about the setbacks, and how we have this uniqueness to the site. So we have laid out the building to be along that angled to allow us to have the most amount of stacked cars. We have a 22 stack here and that is a pinchpoint, as Sri pointed out, but that's where the two lanes come together so you don't want those two lanes picking up from the drive-thru area so you need that area to constrict down. So with that, we've talked to the Fire Department and we've actually worked with them to be able to bring the fire truck in along the drive-thru side. If there was a fire, they would have the space. The reason for that bypass lane was so the truck could fully circulate. So we worked our way around that and talked to them about making those modifications and you can see the square in red is our canopy for where our order point is, that's where those two lanes are and then they're going to pinch down into one. And the other area that's kind of in red there, that's where our drive-thru canopy is, and that's been shortened closer to the building so that fire truck can have access. And here you can see it a little better on our site plan. And then these are the auto-turns that just kind of shows you how those vehicles are going to get in and it's still going to work. Here is the garbage pick-up, here is that fire truck that is going to pull in along the building side and still have room to make those maneuverability's, and also we have the box truck that is going to deliver in that loading zone that Sri also pointed out.

Ms. Selle said the Landscape plan we worked through extensively with Rick and I'm so happy to say that today we got confirmation that all the trees we got put in and all the landscaping, we're looking at I think close to 52 trees and we really tried to maximize everywhere we could. Some of the things we discussed are that when we put in the parking stalls, we were able to rearrange some of the square footages up there so we would have space to put in additional endcap trees that were required, also get that square footage up to where we need to be. And then I can show you a little better, here's the landscape plan again and the grading plan. So we've really worked with the existing conditions of the site and one of the conditions was that they wanted the drive-thru screened. So with the site being lower than Novi Road and being lower than the highway right there, we were able to work with those elevations so our site is a little lower, we've also bermed up a little bit and then added the row of trees and shrubs that fully blocked your view of the drive-thru. And then with this, I just wanted to point out the two existing utilities that have limited us from putting in trees in those endcap islands. It's at the two ends closest to the La-Z-Boy, there's some utilities that we're working with that we can't put one in but again, we've worked with Rick to maximize what we can to put additional square footage and all the trees that we could put on site.

And then I just kind of wanted to show some of the elevations. We do have a materials board, it's down there and shows the two different kinds of brick that we're proposing. And this top elevation is the drive-thru side, so that's what you'll see from Novi Road. But again, you won't see all of it because it will be screened by a lot of trees, shrubs, the berm, and then also there will be some cars possibly on the drive-thru so you won't be able to see all of that building. The lower one is what you'll see from the parking lot. The

top elevation here is the front entry that kind of faces caddy corner to Novi Road, and that will have a patio in front. And then the bottom one is obviously the rear, and that faces the dumpster side and the highway side. And these are just generic perspective views, it's not exactly how the site lays out but you can kind of get a better idea of how the building is. And this is the overall floor plan, it shows that Play Place that we discussed.

And this is just so you can see the site plan overall again. But we're happy to say that we've worked through a lot of those waivers and we feel that we have the City's approval on all of the waivers we've asked for. So if you guys have questions, we'd be happy to answer.

Chair Pehrson asked if there was anyone in the audience that wished to address the Planning Commission regarding this project.

Leonard Riber, 42901 W Thirteen Mile Road, said I'm opposed to the rezoning. I don't mind the restaurant, I just don't want to change the way things are. There's always plenty of congestion on Novi Road. Thank you.

Jennifer Riber, 42901 W Thirteen Mile Road, said I'm opposed to the drive-thru aspect of the restaurant. I think that even though they've talked about how they're going to reroute traffic, it's still going to cause too much of a problem. Thank you.

Gladye Moulder, 25147 Sullivan Lane, said I don't know how many of you go out shopping in Christmas season starting October to January. If you try to get out of the mall around that drive, you can't make any turns. The traffic is already backed up all the way inside the mall. I have no issues with having the restaurant. The drive-thru portion of it, it's going to make life a lot more difficult for the shoppers at the mall, people who are trying to get to the mall, get out of the mall. As it is right now without the drive-thru there, if you are trying to get out of the mall on Sunday afternoon for instance. The mall closes at 6 o'clock, and by 5 o'clock, 5:30, the traffic already is backed up. On the exit of the mall to get onto Novi Road, there is one traffic light and a stop sign that is exactly where the site is. How do you think people are going to get in and out of the mall, or for that matter get in and out of the restaurant? Because it's already backed up. Just food for thought. Thank you.

Ron Jones, 42323 Park Ridge Road, said I've been here for over forty years, I don't see anything wrong with replacing one restaurant with another restaurant. And I'm tired of driving all the way to Troy or Toledo for a Chick-Fil-A. I'm in support of this Chick-Fil-A. We've put restaurants in, we've taken restaurants out, we've taken businesses in and out. Sears is closing down, so we have enough removal of some traffic that will help alleviate any Chick-Fil-A parking problem we might have. And Christmas is Christmas, I don't care which mall you go to - you're going to stand in line to get in, stand in line to get out. So I'm in support of Chick-Fil-A.

Dorothy Duchesneau, 125 Henning, said I like chicken. I am concerned, however, with this proposal because of the rezoning to allow the drive-thru. The resulting in and the increasing number of the in and out trips because of the nature of the drive-thru. The



traffic count impact study that was done in mid-January and February will likely be much different than one done in the back-to-school or Christmas holiday season, at least as far as the regional shopping mall is concerned. Although other outlots surrounding this mall can, and some do, include a drive-thru option, this site with the location literally behind the La-Z-Boy does not. This lot's location and its access might have been the reason for this exclusion in the zoning when the mall was created back in the late 70's. Chick-Fil-A is a primary drive-thru location, they say that their expectation is that 60% of their business to be drive-thru. It will have much different traffic patterns and volume compared to the previous 24-hour Denny's. The stacking request of 22 cars seems to indicate this; it is double the 12 slated for the Starbucks expansion across the street, which I supported.

The west-east traffic flow coming off the northbound Novi Road exit from the westbound expressway runs only one way east to the mall road. It's an easy access into the mall without having to use any of the Novi traffic lights when heading north, but that inbound east road also causes issues when you try to get back out. Going south, you have to know that there's a no left turn sign at that spot. On top of that, on the ring road, you do have to keep an eye out for the small sign that says turn right here to get to the Denny's or the La-Z-Boy. For me, grabbing a meal while on the run means getting in and out of a drive-thru location with the least amount of hassle. That means easy access in and quick and easy access back to the road I was on so I can continue my journey to wherever. I would like to know what the mall's views are on the increasing usage of the La-Z-Boy ingress-egress point being used for left turns to get back on the ring road, especially during shopping seasons. The page 220 of your packet shows all those exits more clearly because it shows the entire mall. If you do the expanded Google Maps view of the three similar sites listed by the applicant on pages 170, 370, 475, they show much easier and cleaner and in some cases more ingress and egress points than what is remotely possible for this site. We've lost a Big Boy's and a Bob Evans in the past due to access issues, hate to see that happen to Chick-Fil-A. Thank you.

Michel Duchesneau, 1191 South Lake Drive, said many of the residents of Novi have approached me and said they'd love to see a Chick-Fil-A in Novi. However, this is not the plan or location that should be supported. The applicant's Chick-Fil-A request for rezoning should be denied. The applicant's proposal does not meet the City's current ordinances for a drive-thru restaurant. For this location, the applicant should consider building a restaurant without the drive-thru feature and have more parking. A sit-down restaurant is a viable use for this site under its current zoning. The Denny's restaurant is evidence of that. The restaurant flourished for decades and was still successful when it closed. The applicant's proposal has a lack of on-site parking. This is a major deviation and is the main reason for denying this proposal. The plan that is proposed, and I've updated it, provides for only 68 of the 100 parking spaces required. Currently, Denny's has 90 parking spaces. The applicant's proposal removes 22 parking spaces from what is currently on site. In addition, the applicant's submittal also indicates 20 to 22 vehicles maybe in line stacked up in the drive-thru. This is extensive vehicle stacking, access to parking spaces will be further hindered, customers coming for indoor-outdoor seating will most likely use the La-Z-Boy parking spaces for overflow or convenience.

A bypass lane is required by City Ordinance for a drive-thru. This requirement is not met.

Access to the site is a concern for this establishment. The egress, which has been mentioned, basically routes you in a long way and it's awkward for the drive-thru. The site is too small for the applicant's proposal. This is evidenced by the large number of deviations required and these include not meeting required setbacks and not meeting City's landscaping requirements. It sounds like they have made substantial improvements with the landscaping based on what was said earlier, but it sounds like there are still deviations needed. Every time we grant such a large number of deviations to an applicant, we dilute the value of our Ordinances. Thank you.

Jim Brady, 50983 Glades Court West, said my daughter Megan has some words to say in support of Chick-Fil-A.

Megan Brady, 50983 Glades Court West, said I am nine years old. I am here to support our community and the business in Novi. I believe opening a Chick-Fil-A in the City of Novi is a fabulous idea. When I was younger and I lived in North Carolina, I went to Chick-Fil-A a lot because they had great chicken that was good for you, nice people who worked there, an amazing customer experience, and always very clean. By adding a Chick-Fil-A to Novi, it would bring good tax dollars to the City and give support to the community. Thank you.

Mike Garbacik, 24655 Dinser Drive, said I've lived in Novi since 1988 and I can tell you that the mall now is not what it used to be. We need more things that will drive people to come to the mall, come to Novi, and Chick-Fil-A will be one of those things. Everybody travels to go to Chick-Fil-A, people enjoy it. This mall has 1.5 million square feet of retail space and over 7,000 parking spots. They can get people in and out of there, there is no problem moving around that mall. And having another full operating restaurant instead of the dead, empty, decaying Denny's that it is now – I think that would be a great thing to see the first thing when you come off of the Novi Road exit.

Chair Pehrson asked if there was anyone else that wished to address the Planning Commission regarding this project. Seeing no one, he asked if there was any correspondence.

Member Lynch said yes. We have five letters of support.

Chair Pehrson said those will all be entered into the record. Chair Pehrson closed the public hearing and turned the matter over to the Planning Commission for their consideration.

Member Anthony said Rick, so now we've at least been able to get an update on the Landscaping. I just wanted to hear from you about that update, how you feel about it.

Landscape Architect Meader said so they've eliminated a lot of the waivers that they had, and of the waivers that are left, the primary one would probably be the width of the setback on the southwest corner but that basically has a huge area in front of it so I didn't really think that that was too much of an issue. They have a couple endcaps where they can't have the trees because there are utility conflicts. And then they can't have all of the foundation plantings at the building just because of the way the layout is

and the drive-thru, so they have them across the aisle but there's still a lot. So from the road, it will still look like the foundation is basically landscaped, it's just not right at the foundation. So that's where those primary ones were that we were working through, but they were able to shift things around to get more of the interior islands that I was looking for. So I think it will be a really heavily landscaped site and I think it will be attractive.

Member Anthony said and I think it was 59 trees now that would be there.

Landscape Architect Meader said I didn't count the total trees. If that's what she said, I trust her.

Ms. Selle said it was around 52.

Member Anthony said I do have to say, I didn't think you'd be able to pull off landscaping like that, so good job and good work there. The trees that are closest to the road on Novi Road, are they angled like that so that you don't disrupt the line of sight for cars moving in and out of the road?

Landscape Architect Meader said no they're pretty well centered along there, and they may not even be able to be planted anyway if the Road Commission for Oakland County says no. But they're ok, because that is the drive in only so it's not really blocking any visibility. But the Road Commission does what they want to do, and we will go along with that.

Member Anthony said so the Road Commission will still have final say in making sure that that visibility is open and safe?

Landscape Architect Meader said for those four trees, yes.

Member Anthony said alright, good. I like our rezoning from the Regional Commercial to the PD-2, simply because we maintain control of that property and if this were to move to another business, we also would have another shot at that. When I look at the Traffic Study that I read, we have good engineers that we hire from the outside. They went through and they saw minimal degradation to the traffic, and I think part of that is because the Chick-Fil-A is within the mall complex as opposed to out on Novi Road with the access. So wherever that goes within that mall, you would end up with the same effect anyway. So the traffic seems to fit well. The issue is on the parking, and this question I have for the Chick-Fil-A staff. I know you gave your pitch on that, but have you talked with the mall? Because there is considerable space for parking across in the mall parking lot.

Mr. Hill said yes, our concern with that is that we don't want to direct people to park there because one it's a long way to walk and two there is not adequate pedestrian activity from that mall parking all the way to our site. And we don't want to start introducing the opportunity for people to cross what folks have already described as a busy ring road. Just to keep it safe for everybody.

Member Anthony said yeah, I think you will have parking there anyways. You can see

that this is going to be a pretty popular site, I bet it matches your flow in Grand Rapids. At least with the parking, it's contained. It's not going to cause an overflow out onto Novi Road, it's going to be contained in our mall area. And this leads me to addressing the one comment on a site that has many deviations. Often we have a site that is difficult and you can see where businesses may struggle with that location. But there is an opportunity to put a store that right now has a tremendous draw into a region where we do see some decline. And those deviations are often necessary in order to do that. So I look at this and realize we have a tough spot, but I do think this is good for that particular area and I do feel good that at least the Novi Road traffic is cushioned from the location. And I would support this.

Member Lynch said very briefly, I am familiar with this area. I did own a residential property at the Enclave, which is over there by the mall. And you're right, at Christmas time, traffic is bad with or without the restaurant. There are better ways to avoid the traffic – once you live there, you know to go out the back way. But what's worse than that is having a decaying site, which is what we have now. We have a restaurant, two restaurants, that went out of business. I don't like seeing that either, I think that's worse. Right now, my understanding of the district is drive-thru's are in fact permitted. I like what you did, I know it's a tough site. I think you did a great engineering job with that tough site.

I agree with Member Anthony that Chick-Fil-A is going to be a draw, and not only good for Chick-Fil-A but I think it's going to be good for the mall – when you're there, you go to the mall, you go to Chick-Fil-A. I think it's a good thing for Novi. I don't see the traffic problems, and I'm not too concerned about a few parking space issues with the drive-thru. I am very familiar with that specific area, it's where I used to drive in to get to my property. I think it's a good addition, I think you did the best you could with the site. I think you're well within the zoning. The zoning change really is advantageous for the City, I think the PD-2 Option gives the City a little more say in final approval. So I think that's a good thing. So overall, with that particular site, I think you did an amazing job. I did read through the packet and thank you very much for working with Staff. I am totally in support of this, I think it's going to be good for Novi. I think that Christmas is going to be Christmas, but the other 360 days of the year we have a more even flow. I don't think there are going to be as bad of traffic and parking issues as some may think. If you take Christmas on its own, that whole week there – yeah there is traffic and parking issues everywhere. But if you look at the entire year, I think it's going to be an overall benefit to the City and I appreciate you coming to Novi and I appreciate the work that you did.

Member Hornung said can we put the circulation map on the board? So from what I've seen by studying this packet is that I do see some severe concerns about this particular circulation. Everybody is coming in either through this route at the top and turning in, which I think is typical for northbound traffic. And some folks might come in this way. Now based on what was said earlier, 100% of the vehicles leaving the site will leave through here, is that correct?

Ms. Selle said no, just 100% of the drive-thru traffic will leave that way.

Member Hornung said ok, drive-thru traffic will be forced to go only this way. The parked traffic can make a choice.

Ms. Selle said they still have the option, yes.

Member Hornung said ok. At the current La-Z-Boy location, this area right here is the loading dock for that store. And right here, there are two speed bumps in this space. My question for Staff is, is there anything that would prevent or allow La-Z-Boy to continue to have those for all of that exiting traffic?

Planner Komaragiri said can you please repeat the last part?

Member Hornung said so La-Z-Boy has two speed bumps in the way that all of the drive-thru egress traffic will be leaving the site. Would La-Z-Boy be able to maintain those or even add more if they thought that there was too much traffic going through their loading zone?

Planner Komaragiri said this seems like a good question for Josh Bocks, our Traffic consultant, to respond. I'm pretty sure those speed bumps were part of a traffic calming technique. If you don't mind, I'll defer to Josh.

Traffic Consultant Bocks said good evening. As far as speed bumps, I do not know that answer off the top of my head. That is something that I would have to look in to, I apologize. But it is possible that they could add more, I'm not 100% sure.

Member Hornung said and that drive, that space there that La-Z-Boy is using, is completely on their property and controlled by them? Is that true?

Traffic Consultant Bocks said I believe the roadway is part of the overall site. Their loading zone would have to allow a bypass lane by code anyways, just like the loading zone for Chick-Fil-A and other businesses are required to do.

Member Hornung so that bypass lane right now in this picture is showing two-way traffic. Is the design that traffic could come in through this route, if they so choose, and this is designed and planned for two-way traffic? And we're only required one bypass lane for this particular site?

Traffic Consultant Bocks said I believe so.

Member Hornung said I think one of the things that is going to be paramount in today's meeting is the idea of being good neighbors. And it will be incumbent upon this development ever succeeding that La-Z-Boy and Chick-Fil-A get along really well. Because if La-Z-Boy pulled up a big truck and blocked the way, there's really no other avenue for drive-thru customers to leave and Chick-Fil-A doesn't have any recourse on that. So there's another problem that I've seen in this particular layout. When traffic leaves here, there's currently a blockage right here so that nobody can turn left. So this map is not correct and there is no way to actually do this at this time. So all traffic leaving the Chick-Fil-A must go down to here, and I think they can pull a U-turn over

here but we're looking at approximately 1,100 cars per day on average based on the numbers that were supplied in our packet.

Chair Pehrson said can you show that again?

Member Hornung said so what's happened here, the mall has a curb here in this space.

Chair Pehrson said that stops short up to where that blue arrow is. I've seen it, I was there last night.

Member Hornung I respectfully must disagree because I stopped there on my way here today. My concern, whether it's there or not, is the amount of traffic that we're going to have flowing in an odd configuration. If Chick-Fil-A had an exit to Novi Road, it would plug up Novi Road but what it would not do is a strange U-turn situation going on back here, and a trip through somebody else's property. And based on that, I can't see that this is a good fit. One of the first things that the applicant said when they walked up to the microphone was this site is a bad fit – not those exact words, but that was the message I heard. And I fully agree, I think this site is a bad fit for the particular development. Thank you.

Member Avdoulos said Sri, I was looking at slide 10 in our packet and looking at zooming in on where that boulevard ended. As of now, I don't see an issue, so we could verify that. To the applicants, I've got a couple questions. There's a 22 car stack and then there's 68 spaces?

Mr. Hill said that's correct.

Member Avdoulos said would there ever be a situation where you have all spaces full and the whole thing stacked at the same time?

Mr. Hill said I don't want to say it's impossible, but the frequency with which that would happen would be fairly minimal.

Member Avdoulos said ok, and your hours of operation are still Monday through Saturday, closed on Sunday?

Mr. Hill said that's correct.

Member Avdoulos said so that's one of the things that we were discussing when we had the opportunity to meet with Chick-Fil-A when they were first presenting this project and they were walking through the site and we were looking at what was existing and what was being proposed, and the applicants have really worked towards making the site operate in its maximum efficiency. Chick-Fil-A is a national brand and they know how to look for business and know where to put their business. They've got their queuing and circulation I think down to a science. We're looking at canopies to help protect the cars going in and also their team members as they're going out to make the queuing a little easier. The emergency access, in working with the City and the Fire Department, talking with the mall, and making sure that everything is being addressed, I think that



with the landscaping there were a lot of issues there.

So I think based on what has been presented, all the efforts that have been made, I think we're taking a site that is going to be difficult because of its geometry and configuration but I think the placement of the building, the way that we're looking at providing the drive-thru, and understanding the queuing is all thought through. I have to say that nowadays, most restaurants that are being built or are already built are adding drive-thru's anyway. That's part of the method of doing business nowadays, everyone wants things quick. Mostly all of the Panera's that I know have started to add drive-thru's, Jimmy John's is doing the same thing. It's just part of our culture. So I think if we have corporations and companies that are trying to make it safer for us, that's all we can expect. I think it is a bonus for the City, I agree with the comments from Member Anthony and Member Lynch related to this as a PD-2 so that allows us to have some flexibility so that if it's rezoned, it's not a permanent rezoning and it's something that can be worked with in the future. So, saying that, I'd like to make a motion.

Motion made by Member Avdoulos and seconded by Member Lynch.

**ROLL CALL VOTE TO RECOMMEND APPROVAL OF REZONING MOTION MADE BY MEMBER AVDOULOS AND SECONDED BY MEMBER LYNCH.**

In the matter of the request of GPD Group for JSP 18-75 Chick-Fil-A, JSP 18-75 with Zoning Map Amendment 18.729, motion to recommend approval to City Council to rezone the subject property from Regional Commercial (RC) to Regional Commercial with a Planned Development 2 Option (PD-2) for the following reasons:

1. The recommendation includes the following ordinance deviations for consideration by the City Council:
  - i. Deviation to waive the required Rezoning Traffic study as a Traffic Impact Study is submitted that addresses the traffic impacts.
2. The rezoning request fulfills one of the Master Plan for Land Use objectives by fostering a favorable business climate.
3. The rezoning is a recommended land use that will be consistent with the surrounding zoning and existing developments.
4. The rezoning would increase development potential of the subject property.
5. The rezoning provides a redevelopment opportunity for a challenging site in a visible location along I-96/Novi Road corridor.
6. The rezoning will not have impact on public utilities.

*Motion carried 4-1 (Hornung).*

**ROLL CALL VOTE TO RECOMMEND APPROVAL OF SPECIAL LAND USE MOTION MADE BY MEMBER AVDOULOS AND SECONDED BY MEMBER LYNCH.**

In the matter of the request of GPD Group for JSP 18-75 Chick-Fil-A, motion to recommend approval to the City Council for Special Land Use based on and subject to the following:

1. The proposed use will not cause any detrimental impact on existing thoroughfares (*based on Traffic review*);

2. The proposed use will not cause any detrimental impact on the capabilities of public services and facilities *(based on Engineering rezoning memo and the review)*;
3. The proposed use is compatible with the natural features and characteristics of the land *(because there are no regulated natural features on site)*;
4. The proposed use is compatible with adjacent uses of land *(because the proposed use is similar to an existing restaurant use with an addition of drive-thru)*;
5. The proposed use is consistent with the goals, objectives, and recommendations of the City's Master Plan for Land Use *(as it fulfills one of the Master Plan objectives to attract new businesses within City of Novi)*;
6. The proposed use will promote the use of land in a socially and economically desirable manner *(as it fulfills one of the Master Plan objectives to attract new businesses within City of Novi)*;
7. The proposed use is (1) listed among the provision of uses requiring special land use review as set forth in the various zoning districts of this Ordinance, and (2) is in harmony with the purposes and conforms to the applicable site design regulations of the zoning district in which it is located.

This motion is made because the plan is otherwise in compliance with Article 3, Article 4, Article 5, and Article 6 of the Zoning Ordinance and all other applicable provisions of the Ordinance. *Motion carried 4-1 (Hornung).*

**ROLL CALL VOTE TO RECOMMEND APPROVAL OF PRELIMINARY SITE PLAN MOTION MADE BY MEMBER AVDOULOS AND SECONDED BY MEMBER LYNCH.**

In the matter of the request of GPD Group for JSP 18-75 Chick-Fil-A, motion to recommend approval to the City Council for Preliminary Site Plan with a PD-2 Option based on and subject to the following:

1. Planning Commission findings that the standards of Section 3.31.4 of the Zoning Ordinance are adequately addressed, as identified in the Planning Review Letter;
2. The applicant shall direct exiting traffic from the site to the eastern exit to Twelve Oaks Mall road with appropriate site signage, subject to review and approval by City's Traffic Consultant at the time of final site plan submittal;
3. The dumpster pick up times shall not conflict with peak hour traffic;
4. The recommendation includes the following ordinance deviations for consideration by the City Council:
  - i. Deviation from Sec. 5.2.12.C to allow reduction of minimum required parking spaces for fast food restaurants. A minimum of 100 are required, 65 are proposed;
  - ii. Deviation from Section 3.31.7.B.v.a, the use conditions for fast food drive-thru under PD-2 Option as listed under that requires a minimum distance of 1,000 feet between a proposed independently freestanding restaurant from any other such use on the same side of the street;
  - iii. Deviation from Section 5.3.11.D that requires a bypass lane, minimum of 18 feet width. The applicant is providing an 11 foot by pass lane when two drive-thru lanes merge into one around the Northwest corner of the building;

- iv. Deviation from Section 3.31.7.D for not meeting the minimum building setback requirements for exterior side yard along I-96 (south west frontage). A minimum of 50 feet is required, 32 feet is proposed;
  - v. Deviation from Section 3.31.7.D for not meeting the minimum parking setback requirements for Exterior side yard along Twelve Oaks Mall Road (North). A minimum of 20 feet is required, 14.5 feet is proposed;
  - vi. Deviation from Section 3.31.7.D for not meeting the minimum parking setback requirements for Exterior side yard along I-96 (Southwest). A minimum of 20 feet is required, 9.3 feet is proposed;
  - vii. Deviation from Section 3.31.7.D for not meeting the minimum parking setback requirements for rear yard (east). A minimum of 20 feet is required, 6 feet is proposed;
  - viii. Deviation from Section 5.4.1 for reduction of minimum required loading area. A minimum of 2,110 square feet is required and 360 square feet is proposed;
  - ix. Deviation from Section 4.19.2.F for allowing a dumpster in the exterior side yard instead of required rear yard.
  - x. Deviation from Section 4.19.2.F for allowing a dumpster in the parking setback. A minimum of 20 feet is required and 12.1 feet is provided.
  - xi. Landscape deviation from Section 5.5.3.B.ii and iii for insufficient greenbelt width along I-96 frontage.
  - xii. Landscape deviation from Section 5.5.3.B.ii and iii for lack of berm or wall along entire frontage.
  - xiii. Landscape deviation from Section 5.5.3.B.ii and iii for deficiency in greenbelt plantings (sub canopy trees).
  - xiv. Landscape deviation from Section 5.5.3.C.(3) Chart footnote for deficiency in perimeter parking lot canopy trees. 24 deciduous canopy trees are required. 13 canopy trees and 6 sub canopy trees are proposed.
  - xv. Landscape deviation from Section 5.5.3.C. for deficiency in interior parking lot trees. 12 trees required, 9 trees proposed.
  - xvi. Landscape deviation Section 5.5.3.C. for missing endcap island trees.
  - xvii. Landscape deviation from Section 5.5.3.D. for providing less than 60% landscape along the façade facing road.
  - xviii. Landscape deviation from Section 5.5.3.D. for proposing some of the required building foundation landscaping away from the building. Supported by staff.
5. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan.

This motion is made because the plan is otherwise in compliance with Article 3, Article 4, and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance. *Motion carried 4-1 (Hornung).*

**ROLL CALL VOTE TO RECOMMEND APPROVAL OF STORMWATER MANAGEMENT PLAN  
MOTION MADE BY MEMBER AVDOULOS AND MEMBER LYNCH.**

In the matter of the request of GPD Group for JSP 18-75 Chick-Fil-A, motion to recommend approval to the City Council for Storm water Management Plan based on and subject to the findings of compliance with Ordinance standards in the staff and

consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan. This motion is made because it otherwise in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance. *Motion carried 4-1 (Hornung).*